

Compilation of amendments between 2021.01 and 2022.01 IPC

A01B		
L	A01B 19/04	• • with two or more tool-frames [1,2006.01]
M	A01C	PLANTING; SOWING; FERTILISING (combined with general working of soil A01B 49/04 ; parts, details or accessories of agricultural machines or implements, in general A01B 51/00-A01B 75/00)
M	A01C 1/00	Apparatus, or methods of use thereof, for testing or treating seed, roots, or the like, prior to sowing or planting (chemicals therefor A01N 25/00-A01N 65/00) [1,2006.01]
M	A01C 1/02	• Germinating apparatus; Determining germination capacity of seeds or the like (germinating in preparation of malt C12C 1/027) [1,2006.01]
M	A01C 3/00	Treating manure; Manuring (dung forks A01D 9/00 ; organic fertilisers from waste or refuse C05F) [1,2006.01]
M	A01C 3/02	• Storage places for manure, e.g. cisterns for liquid manure; Installations for fermenting manure (sewerage structures E03F 5/00 ; silos, bunkers E04H 7/22) [1,2006.01]
M	A01C 3/04	• Manure loaders (loaders in general B65G) [1,2006.01]
M	A01C 5/02	• Hand tools for making holes for sowing, planting or manuring (transplanting devices for trees A01G 23/02) [1,2006.01]
M	A01C 7/00	Sowing (arrangements for driving working parts A01C 19/00) [1,2006.01]
M	A01C 7/06	• Seeders combined with fertilising apparatus (combinations with soil working tools A01B 49/04) [1,2006.01]
M	A01C 7/16	• • Seeders with other distributing devices, e.g. brushes, discs, screws , slides (with endles chains A01C 15/18) <i>or slides</i> [1,2006.01]
M	A01C 9/00	Potato planters (combinations with soil working A01B 49/04) [1,2006.01]
M	A01C 11/00	Transplanting machines (carriers for supporting persons A01B 75/00 ; transplanting devices for trees A01G 23/02) [1,2006.01]
M	A01C 15/00	Fertiliser distributors (A01C 7/06 takes precedence; with centrifugal wheels A01C 17/00 ; arrangements for driving working parts A01C 19/00 ; sand, gravel or salt spreaders for roads E01C 19/20) [1,2,2006.01]
M	A01C 17/00	Fertilisers or seeders with centrifugal wheels (mechanical throwing machines for articles or solid bulk materials, in general B65G 31/00 ; sand, gravel, or salt spreaders E01C 19/20) [1,3,2006.01]
M	A01C 21/00	Methods of fertilising (fertilisers C05 ; soil-conditioning or soil-stabilising materials C09K 17/00) [1,2006.01]
M	A01C 23/00	Distributing devices specially adapted for liquid manure or other fertilising liquid, including ammonia, e.g. transport tanks , <i>or</i> sprinkling wagons (watering fields in general A01G 25/00 ; spraying or applying liquids or other fluent materials in general B05) [1,2006.01]
A01K		
L	A01K 85/18	• • in two or more pieces [5,2006.01]
A01L		
L	A01L 3/04	• Horseshoes consisting of two or more parts connected by hinged joints [1,2006.01]
A01N		

Compilation of amendments between 2021.01 and 2022.01 IPC

L	A01N 25/00	<p>Note(s) [3,2006.01]</p> <ol style="list-style-type: none"> 1. Attention is drawn to the definitions of groups of chemical elements following the title of section C. 2. In groups A01N 27/00-A01N 65/00, the last place priority rule is applied, i.e. at each hierarchical level, in the absence of an indication to the contrary, an active ingredient is classified in the last appropriate place. 3. A composition, i.e. a mixture of two or more active ingredients is classified in the last of groups A01N 27/00-A01N 65/00 that provides for at least one of these active ingredients. 4. Any part of a composition which is not identified by the classification according to Note (3), and which itself is determined to be novel and non-obvious, must also be classified in the last appropriate place in groups A01N 27/00-A01N 65/00. The part can be either a single ingredient or a composition in itself. 5. Any part of a composition which is not identified by the classification according to Note (3) or (4), and which is considered to represent information of interest for search, may also be classified in the last appropriate place in groups A01N 27/00-A01N 65/00. This can, for example, be the case when it is considered of interest to enable searching of compositions using a combination of classification symbols. Such non-obligatory classification should be given as "additional information". 6. Where a compound is described as existing in tautomeric forms, it is classified as if existing in the form which is classified last in the system. 7. Compounds covered by different main groups according to alternatively specified parts of their formulae are classified in every one of the relevant main groups. 8. Salts formed between two or more organic compounds are classified as the compound providing the essential ion and it is also classified as the compound providing the other ion. 9. Salts or metal chelates of an organic compound are classified as that compound. 10. In this subclass, a foodstuff is not considered as an active ingredient. 11. Different materials applied in sequence, at different times, are considered as a mixture of all materials employed. 12. Synergistic or potentiated compositions are classified as if the synergist or potentiator were an active ingredient. 13. In groups A01N 25/00-A01N 65/00, the symbol X means nitrogen, oxygen, sulfur or a halogen; Y means nitrogen, oxygen or sulfur. A dotted line between atoms indicates an optional bond, e.g. ... indicates one or two single bonds or a double bond.
L	A01N 43/00	Biocides, pest repellants or attractants, or plant growth regulators containing heterocyclic compounds (containing cyclic anhydrides, cyclic imides A01N 37/00; containing compounds of the formula C_mN_n, containing only one heterocyclic ring, wherein $m \geq 1$ and $n \geq 0$ and C_mN_n is unsubstituted or alkylsubstituted pyrrolidine, piperidine, morpholine, thiomorpholine, piperazine or a polymethyleneimine with four or more CH_2 groups A01N 33/00-A01N 41/12; containing cyclopropane carboxylic acids or derivatives thereof, e.g. esters having heterocyclic rings, A01N 53/00) [3,2006.01]
M	A23C	DAIRY PRODUCTS, e.g. MILK, BUTTER, OR CHEESE; MILK OR CHEESE SUBSTITUTES; MAKING THEREOF (obtaining protein compositions for foodstuffs A23J 1/00 ; preparation of peptides, e.g. of proteins, in general C07K 1/00)
M	A23C 1/00	Concentration, evaporation or drying (A23C 3/00 takes precedence; products obtained thereby A23C 9/00 ; making butter powder A23C 15/14 ; cheese powder A23C 19/086 ; evaporating in general B01D 1/00) [1,3,2006.01]
M	A23C 7/02	• Chemical cleaning of dairy apparatus (cleaning in general B08B ; e.g. B08B 3/08 ; Use of sterilisation methods therefor (sterilisation methods per se A61L ; [3,2006.01])
M	A23C 7/04	• Removing unwanted substances from milk (by filtering A01J 9/02 ; A01J 11/06 ; [3,2006.01])
M	A23C 9/00	Milk preparations; Milk powder or milk powder preparations (A23C 21/06 takes precedence; preservation A23C 3/00 ; chocolate milk A23G 1/00 ; ice cream or mixtures for preparation of ice cream A23G 9/00 ; puddings or dry powder puddings A23L 9/10 of whey with milk products or milk components A23C 21/06) [1,3,2006.01]
M	A23C 9/12	• Fermented milk preparations; Treatment using microorganisms or enzymes (whey preparations A23C 21/00 ; [1,3,2006.01])

Compilation of amendments between 2021.01 and 2022.01 IPC

D	A23C 9/14	Note(s) [2006.01]
		(deleted)
M	A23C 9/15	• Reconstituted or recombined milk products containing neither non-milk fat nor non-milk proteins (containing thickening substances A23C 9/154 ; mixtures of whey, with milk products or milk components A23C 21/06) [3,2006.01]
M	A23C 9/156	• • Flavoured milk preparations (A23C 9/154 takes precedence) [3,2006.01]
M	A23C 9/16	• Agglomerating or granulating milk powder; Making instant milk powder; Products obtained thereby (A23C 1/05 ; A23C 9/18 take takes precedence) [1,3,2006.01]
M	A23C 11/00	Milk substitutes, e.g. coffee whitener compositions (cheese substitutes A23C 20/00; butter substitutes A23D ; cream substitutes A23L 9/20) [1,2006.01]
M	A23C 11/02	• containing at least one non-milk component as source of fats or proteins (A23C 19/055 ; A23C 21/04 take precedence) <i>addition of non-milk fats or non-milk proteins in making cheese curd A23C 19/055 ; whey or whey preparations containing non-milk components as source of fats or proteins A23C 21/04)</i> [3,2006.01]
M	A23C 13/00	Cream; Cream preparations (ice-cream A23G 9/00); Making thereof (coffee whitener compositions A23C 11/00 ; cream substitutes A23L 9/20) [1,2006.01]
M	A23C 17/00	Buttermilk; Buttermilk preparations (A23C 9/14 takes precedence; preservation A23C 3/00 milk preparations, milk powder or milk powder preparations in which the chemical composition of the milk is modified by non-chemical treatment A23C 9/14) [1,3,2006.01]
M	A23C 19/00	Cheese; Cheese preparations; Making thereof (cheese substitutes A23C 20/00 ; casein A23J 1/20) [1,2006.01]
M	A23C 21/00	Whey; Whey preparations (A23C 1/00 ; A23C 3/00 ; A23C 9/14 take precedence <i>concentration, evaporation or drying A23C 1/00 ; preservation of milk or milk preparations A23C 3/00 ; milk preparations, milk powder or milk powder preparations in which the chemical composition of the milk is modified by non-chemical treatment A23C 9/14</i>) [1,3,2006.01]
A23L		
M	A23L 2/00	Non-alcoholic beverages; Dry compositions or concentrates therefor ; Their preparation (soup concentrates A23L 23/10) ; <i>Their preparation (preparation of non-alcoholic beverages by removal of alcohol C12H 3/00)</i> [2,2006.01]
M	A23L 3/02	• by heating materials in packages which are progressively transported, continuously or stepwise, through the apparatus (A23L 3/005 takes precedence) [1,5,2006.01]
M	A23L 3/10	• by heating materials in packages which are not progressively transported through the apparatus (A23L 3/005 takes precedence) [1,5,2006.01]
M	A23L 3/16	• by heating loose unpacked materials (A23L 3/005 takes precedence) [1,5,2006.01]
M	A23L 5/00	Preparation or treatment of foods or foodstuffs, in general; Food or foodstuffs obtained thereby; Materials therefor (preservation thereof in general A23L 3/00) [2016.01]
M	A23L 5/20	• Removal of unwanted matter, e.g. deodorisation or detoxification (removing undesirable, e.g. bitter, substances from pulses or legumes A23L 11/30) [2016.01]
M	A23L 5/30	• Physical treatment, e.g. electrical or magnetic means, wave energy or irradiation (preservation A23L 3/00 ; A23B ; cooking A23L 5/10) [2016.01]
M	A23L 7/00	Cereal-derived products; Malt products (malt products of pulses A23L 11/70) ; Preparation or treatment thereof (preparation of malt for brewing C12C) [2016.01]
M	A23L 7/104	• • Fermentation of farinaceous cereal or cereal material; Addition of enzymes or microorganisms (A23L 7/109 ; A23L 7/20 take precedence; soya sauce A23L 27/50) [2016.01]
M	A23L 7/117	• • Flakes or other shapes of ready-to-eat type; Semi-finished or partly-finished products therefor (A23L 7/143 ; A23L 7/152 take precedence) <i>cereal granules or flakes to be cooked and eaten hot A23L 7/143 ; cereal germ products A23L 7/152</i> [2016.01]
M	A23L 7/20	• Malt products (malt products of pulses A23L 11/70 ; preparation of malt for brewing C12C) [2016.01]
M	A23L 19/00	Products from fruits or vegetables; Preparation or treatment thereof (of pulses A23L 11/00 ; marmalades, jams, jellies or the like A23L 21/10; treating harvested fruit or vegetables in bulk A23N) [2016.01]
M	A23L 23/00	Soups; Sauces (<i>soya sauce A23L 27/50 ; salad dressings, mayonnaise or ketchup A23L 27/60 take precedence</i>); Preparation or treatment thereof [2016.01]

Compilation of amendments between 2021.01 and 2022.01 IPC

M	A23L 29/238	• • • from seeds, e.g. locust bean gum or guar gum (<i>starch</i> A23L 29/212 – ; <i>pectin</i> A23L 29/231 take precedence) [2016.01]
M	A23L 29/244	• • • from corms, tubers or roots, e.g. glucomannan (<i>starch</i> A23L 29/212 takes precedence) [2016.01]
M	A23L 29/30	• containing carbohydrate syrups; containing sugars; containing sugar alcohols, e.g. xylitol; containing starch hydrolysates, e.g. dextrin (<i>products from apiculture</i> A23L 21/20 takes precedence ; artificial sweetening agents A23L 27/30) [2016.01]
M	A23L 33/10	• using additives (<i>addition of substantially indigestible substances</i> A23L 33/21 takes precedence) [2016.01]
M	A23L 33/21	• Addition of substantially indigestible substances, e.g. dietary fibres (– addition of gelling or thickening agents A23L 29/20 –) [2016.01]
A41D		
M	A41D 31/10	• Impermeable to liquids, e.g. waterproof; Liquid repellent [2019.01]
A41F		
L	A41F 18/00	Garment suspenders covered by two or more of groups A41F 3/00-A41F 17/00 [1,2006.01]
A43B		
M	A43B 1/00	Footwear characterised by the material (– layered products B32B –) [1,2006.01]
C	A43B 1/02	• Footwear made of animal or plant fibres or fabrics made therefrom [1,2006.01,2022.01]
N	A43B 1/023	• • Animal fibres [2022.01]
N	A43B 1/025	• • Plant fibres [2022.01]
N	A43B 1/028	• • Synthetic or artificial fibres [2022.01]
C	A43B 1/04	• • Braided <i>braided</i> , knotted, knitted – or crocheted footwear [1,2006.01,2022.01]
N	A43B 1/05	• • woven [2022.01]
M	A43B 1/06	• Footwear made of wood, cork, card-board, paper or like fibrous material (soles A43B 13/00; making of wooden shoes B27M 3/20) [1,2006.01]
M	A43B 1/08	• Footwear made of metal (soles A43B 13/10) [1,2006.01]
M	A43B 1/10	• Footwear made of rubber [1,2006.01]
L	A43B 1/12	• • of rubber waste [1,2006.01]
M	A43B 1/14	• Footwear made of gutta-percha, celluloid, or plastics <i>plastics</i> (<i>A43B 1/028 takes precedence</i>) [1,2006.01]
C	A43B 3/00	Footwear characterised by the shape or the use [1,2006.01,2022.01]
M	A43B 3/02	• Top boots; Leg boots; Shoes with batwing tabs <i>Boots covering the lower leg</i> [1,2006.01]
M	A43B 3/10	• Low shoes; Slippers (– sandals A43B 3/12 –) [1,2006.01]
M	A43B 3/14	• Moccasins, opanken – or like shoes [1,2006.01]
C	A43B 3/16	• Overshoes [1,2006.01,2022.01]
T	A43B 3/18	• • Devices for holding overshoes in position [1,2006.01,2022.01]
T	A43B 3/20	• • Heel-less overshoes [1,2006.01,2022.01]
D	A43B 3/22	(transferred to A43B 3/16)
M	A43B 3/24	• Collapsible or convertible footwear [1,2006.01]
M	A43B 3/26	• Footwear adjustable as to length or size [1,2006.01]
D	A43B 3/28	(transferred to A63H 3/52)
M	A43B 3/30	• Footwear specially adapted for babies or small children [1,2006.01]
N	A43B 3/34	• with electrical or electronic arrangements [2022.01]
N	A43B 3/35	• • with electric heating arrangements [2022.01]
N	A43B 3/36	• • with light sources [2022.01]
N	A43B 3/38	• • with power sources [2022.01]
N	A43B 3/40	• • • Batteries [2022.01]
N	A43B 3/42	• • • where power is generated by conversion of mechanical movement to electricity, e.g. by piezoelectric means [2022.01]
N	A43B 3/44	• • with sensors, e.g. for detecting contact or position [2022.01]
N	A43B 3/46	• • • Global positioning system [GPS] sensors [2022.01]
N	A43B 3/48	• • with transmitting devices, e.g. GSM or WiFi [2022.01]
N	A43B 3/50	• • with sound or music sources [2022.01]
C	A43B 5/00	Footwear for sporting purposes (non-skid devices, e.g. ice-spurs – or studs for football shoes, A43C 15/00) [1,2006.01,2022.01]
M	A43B 5/04	• Ski or like boots; Similar boots [1,2006.01]
T	A43B 5/06	• Running boots shoes; <i>Track shoes</i> [1,2006.01,2022.01]
L	A43B 7/00	Footwear with health or hygienic arrangements [1,2006.01]

Compilation of amendments between 2021.01 and 2022.01 IPC

C	A43B 7/02	• Footwear with heating arrangements (footwarmers A61F 7/08 ; with electric heating elements H05B arrangements A43B 3/35) [1,2006.01,2022.01]
D	A43B 7/04	(transferred to A43B 3/35)
M	A43B 7/06	• Ventilated footwear ventilated [1,2006.01]
C	A43B 7/08	• • Footwear with air-holes, with or without closures [1,2006.01,2022.01]
N	A43B 7/083	• • • with pumping means or valves [2022.01]
C	A43B 7/10	• • • with closable air-slots near the waist [1,2006.01,2022.01]
L	A43B 7/12	• Special watertight footwear (overshoes A43B 3/16) [1,2006.01]
C	A43B 7/14	• Footwear with foot-supporting parts [1,2006.01,2022.01]
N	A43B 7/1405	• • with pads or holes on one or more locations, or having an anatomical or curved form [2022.01]
N	A43B 7/1415	• • • characterised by the location under the foot [2022.01]
N	A43B 7/142	• • • • situated under the medial arch, i.e. under the navicular or cuneiform bones [2022.01]
N	A43B 7/1425	• • • • situated under the ball of the foot, i.e. the joint between the first metatarsal and first phalange [2022.01]
N	A43B 7/143	• • • • situated under the lateral arch, i.e. the cuboid bone [2022.01]
N	A43B 7/1435	• • • • situated under the joint between the fifth phalange and the fifth metatarsal bone [2022.01]
N	A43B 7/144	• • • • situated under the heel, i.e. the calcaneus bone [2022.01]
N	A43B 7/1445	• • • • situated under the midfoot, i.e. the second, third or fourth metatarsal [2022.01]
N	A43B 7/145	• • • • situated under the toes, i.e. the phalanges [2022.01]
N	A43B 7/1455	• • • with special properties [2022.01]
N	A43B 7/1463	• • • • with removable pads to allow custom fit [2022.01]
N	A43B 7/1464	• • • • with adjustable pads to allow custom fit [2022.01]
N	A43B 7/1466	• • • • • adjustable by screws or threads [2022.01]
N	A43B 7/1467	• • • • • adjustable by resilient members, e.g. springs [2022.01]
N	A43B 7/1468	• • • • • adjustable by shims [2022.01]
N	A43B 7/1469	• • • • • adjustable by selectively fastening or securing into multiple available positions [2022.01]
N	A43B 7/1475	• • • characterised by the type of support [2022.01]
N	A43B 7/148	• • • • Recesses or holes filled with supports or pads [2022.01]
N	A43B 7/1485	• • • • Recesses or holes, traversing partially or completely the thickness of the pad [2022.01]
N	A43B 7/149	• • • • Pads, e.g. protruding on the foot-facing surface [2022.01]
M	A43B 7/16	• • Footwear with elevated heel parts inside [1,2006.01]
L	A43B 7/20	• • Ankle-joint supports or holders [1,2006.01]
M	A43B 7/22	• • Footwear with fixed flat-foot insertions, metatarsal supports, ankle flaps or the like (orthopaedic insertions A61F 5/14) [1,2006.01]
M	A43B 7/24	• • Insertions or cap other supports preventing the foot canting to one side [1,2006.01]
M	A43B 7/26	• • Footwear with toe-spacers or toe-spreaders [1,2006.01]
M	A43B 7/32	• Footwear with shock-absorbing means (resilient soles A43B 13/18) [1,2006.01]
M	A43B 7/34	• Footwear with protection against heat or cold [1,2006.01]
M	A43B 7/38	• Elevating, i.e. height increasing, footwear (with elevated heel parts inside A43B 7/16; lengthening pieces for natural legs A61F 3/00 orthopaedic insertions for conventional shoes A61F 5/14) [2,2006.01]
L	A43B 11/00	Footwear with arrangements to facilitate putting-on or removing, e.g. with straps [1,2006.01]
M	A43B 13/00	Soles (socks A43B 17/00) ; Sole-and-heel integral units [1,2006.01]
C	A43B 13/02	• characterised by the material [1,2006.01,2022.01]
M	A43B 13/04	• • plasties Plastics , rubber or vulcanised fibre [1,2006.01]
N	A43B 13/06	• • Leather [2022.01]
M	A43B 13/08	• • wood Wood [1,2006.01]
M	A43B 13/10	• • metal Metal [1,2006.01]
M	A43B 13/28	• characterised by their attachment, also attachment of combined soles and heels (attachment of heels A43B 21/36 ; attachment of heel parts A43B 21/52) [1,2006.01]
M	A43B 13/36	• • Easily-exchangeable soles (of metal A43B 13/10 ; protecting-soles A43C 13/12) [1,2006.01]
M	A43B 17/00	Insoles for insertion, e.g. footbeds or inlays, for attachment to the shoe after the upper has been joined (special medical insertions for shoes A61F 5/14) [1,2006.01]
M	A43B 21/00	Heels; Top-pieces or top-lifts [1,2006.01]

Compilation of amendments between 2021.01 and 2022.01 IPC

M	A43B 23/08	• Heel stiffeners; Toe stiffeners (footwear with sock absorbing means A43B 7/32) [1,2006.01]
M	A43B 23/22	• Supports for the shank or arch of the uppers (for health or hygienic purposes A43B 7/14) [1,2006.01]
A44B		
L	A44B 11/25	• with two or more separable parts [1,2006.01]
A45D		
L	A45D 2/44	• using two or more combs one upon the other or one in distance to the other, e.g. using slidable combs [1,2006.01]
A47B		
L	A47B 83/00	Combinations comprising two or more pieces of furniture of different kinds (foldable table and seat units A47B 3/14) [1,2006.01]
A47C		
L	A47C 17/30	• • • two or more parts being rotatable about a vertical axis [1,2006.01]
A47G		
L	A47G 25/18	• • for two or more similar garments, e.g. constructed to connect to, or support, a similar hanger [4,2006.01]
A47H		
L	A47H 23/06	• • • Systems consisting of two or more co-operating curtains with transparent or perforated parts behind each other [1,2006.01]
A47J		
L	A47J 27/084	• • with adjustable volume; Tier pressure-cookers [1,2006.01]
M	A47J 37/10	• Frying - pans, including e.g. frying pans with integrated lids or basting devices [1,2006.01]
M	A47J 37/12	• Deep fat fryers, including apparatus specially adapted e.g. for frying fish <i>or chips</i> [1,2006.01]
A61B		
M	A61B 5/117	• Identification of persons (methods or arrangements for recognising patterns, e.g. fingerprints, G06K 9/00 , <i>G06V 40/00</i> ; identification of persons by analysing their voice or speech G10L 17/00) [5,2006.01,2016.01]
M	A61B 17/00	Surgical instruments, devices or methods, e.g. tourniquets (A61B 18/00 takes precedence; contraceptive devices, pessaries - or applicators therefor A61F 6/00; eye surgery A61F 9/007; ear surgery A61F 11/00 <i>A61F 11/20</i>) [1,3,7,2006.01]
M	A61B 18/00	Surgical instruments, devices or methods for transferring non-mechanical forms of energy to or from the body (eye surgery A61F 9/007; ear surgery A61F 11/00 <i>A61F 11/20</i>) [7,2006.01]
A61F		
L	A61F 4/00	Methods or devices enabling patients or disabled persons to operate an apparatus or a device not forming part of the body (operating or control means for prostheses A61F 2/48, A61F 2/68) [4,2006.01]
T	A61F 5/14	• • Special medical insertions for shoes for flat-feet, club-feet - or the like (ordinary arch supports A43B 7/14) [1,2006.01,2022.01]
C	A61F 11/00	Methods or devices for treatment of the ears <i>or hearing sense (implantable prostheses that substitute or replace internal ear parts, e.g. surgical <i>-</i> ear-drums, A61F 2/18 ; methods or devices to cause a change in the state of auditory consciousness A61M 21/00 ; electrotherapy applying electrical stimulation of the auditory system, or circuits therefor A61N 1/36 ; radiotherapy using optical stimulation of the auditory system A61N 5/06 ; electro-acoustic hearing aids H04R 25/00) ; Non-electric hearing aids ; Methods or devices for enabling ear patients to achieve auditory perception through physiological senses other than hearing sense ; Protective devices for the ears, carried on the body or in the hand (headwear, e.g. caps or helmets, with means for protecting the ears A42B 1/0186 <i>A42B 1/0188, A42B 3/16</i>) [1,2006.01,2022.01]</i>
M	A61F 11/04	• Devices-Methods or methods <i>devices</i> for enabling ear patients to replace direct auditory perception by another kind of perception <i>achieve auditory perception through physiological senses other than hearing sense, e.g. through the touch sense</i> [1,2006.01]
N	A61F 11/20	• Ear surgery [2022.01]
N	A61F 11/30	• Non-electric hearing aids, e.g. ear trumpets, sound amplifiers or ear-shells [2022.01]
A61L		

Compilation of amendments between 2021.01 and 2022.01 IPC

M	A61L 15/52	• • • Water - repellants [5,2006.01]
A61M		
M	A61M 60/489	• • • the force acting on the blood contacting member <i>actuation means</i> being magnetic [2021.01]
A63F		
L	A63F 13/5252	• • • using two or more virtual cameras concurrently or sequentially, e.g. automatically switching between fixed virtual cameras when a character changes room or displaying a rear-mirror view in a car-driving game [2014.01]
L	A63F 13/843	• • involving concurrently two or more players on the same game device, e.g. requiring the use of a plurality of controllers or of a specific view of game data for each player [2014.01]
A63G		
L	A63G 1/32	• with seats two or more of which form a see-saw [1,2006.01]
A63H		
T	A63H 3/52	• • Dolls' houses, furniture or or other equipment; Dolls' clothing (dolls' or footwear-A43B 3/26) [1,2006.01,2022.01]
B01D		
C	B01D 46/00	Filters or filtering processes specially modified for separating dispersed particles from gases or vapours (filtering elements B01D 24/00-B01D 35/00; filtering material B01D 39/00; their regeneration outside the filters B01D 41/00) [1,2006.01,2022.01]
M	B01D 46/10	• Particle separators, e.g. dust precipitators, using filter plates, sheets or or pads having plane surfaces [1,2006.01]
C	B01D 46/12	• • in multiple arrangements [1,2006.01,2022.01]
N	B01D 46/121	• • • V-type arrangements [2022.01]
N	B01D 46/56	• with multiple filtering elements, characterised by their mutual disposition (B01D 46/12 takes precedence) [2022.01]
N	B01D 46/58	• • connected in parallel [2022.01]
N	B01D 46/60	• • • arranged concentrically or coaxially [2022.01]
N	B01D 46/62	• • connected in series [2022.01]
N	B01D 46/64	• • • arranged concentrically or coaxially [2022.01]
N	B01D 46/66	• Regeneration of the filtering material or filter elements inside the filter (B01D 46/04, B01D 46/48 take precedence) [2022.01]
N	B01D 46/68	• • by means acting on the cake side involving movement with regard to the filter elements [2022.01]
N	B01D 46/68	Note(s) [2022.01] Groups B01D 46/68-B01D 46/78 are only for dry processes.
N	B01D 46/681	• • • by scrapers, brushes or the like [2022.01]
N	B01D 46/682	• • • by nozzles [2022.01]
N	B01D 46/69	• • by means acting on the cake side without movement with respect to the filter elements, e.g. fixed nozzles [2022.01]
N	B01D 46/70	• • by acting counter-currently on the filtering surface, e.g. by flushing on the non-cake side of the filter [2022.01]
N	B01D 46/71	• • • with pressurised gas, e.g. pulsed air [2022.01]
N	B01D 46/72	• • • with backwash arms, shoes or nozzles [2022.01]
N	B01D 46/74	• • by forces created by movement of the filter element [2022.01]
N	B01D 46/76	• • • involving vibrations [2022.01]
N	B01D 46/762	• • • • involving sonic or ultrasonic waves [2022.01]
N	B01D 46/78	• • • involving centrifugal forces [2022.01]
N	B01D 46/79	• • by liquid process [2022.01]
N	B01D 46/80	• • Chemical processes for the removal of the retained particles, e.g. by burning [2022.01]
N	B01D 46/82	• • • with catalysts [2022.01]
N	B01D 46/84	• • • by heating only [2022.01]
N	B01D 46/86	• • Cleaning the filter surface by interrupting suction so that the filter cake falls by gravity [2022.01]
N	B01D 46/88	• Replacing filter elements [2022.01]
N	B01D 46/90	• Devices for taking out of action one or more units of multi-unit filters, e.g. for regeneration or maintenance [2022.01]
C	B01D 50/00	Combinations of <i>methods</i> or devices for separating particles from gases or vapours [1,2006.01,2022.01]
N	B01D 50/00	Note(s) [2022.01] Group B01D 50/10 takes precedence over groups B01D 50/20-B01D 50/60.

N	B01D 50/10	• Combinations of devices covered by groups B01D 45/00, B01D 46/00 and B01D 47/00 [2022.01]
N	B01D 50/20	• Combinations of devices covered by groups B01D 45/00 and B01D 46/00 [2022.01]
N	B01D 50/40	• Combinations of devices covered by groups B01D 45/00 and B01D 47/00 [2022.01]
N	B01D 50/60	• Combinations of devices covered by groups B01D 46/00 and B01D 47/00 [2022.01]
M	B01F	MIXING, e.g. DISSOLVING, EMULSIFYING, OR DISPERSING (mixing paints B44D 3/06)
M	B01F	Note(s) [2] 1. <i>This subclass covers:</i> <ul style="list-style-type: none"> agitation or homogenisation of products formed by a combination of two or more components with the purpose of obtaining a homogeneous composition or homogeneous conditions in the mass of material; stirring of a single material with the purpose of obtaining homogeneous conditions in the mass of material; mixing, agitation and homogenisation of materials, irrespective of the application in which it is produced, whenever the device or the method are directed to achieve the desired effect. 2. In this subclass, the following term or expression 1. is used with the meaning indicated: <ul style="list-style-type: none"> "mixing" <i>also</i> covers stirring of a single material.
M	B01F	Subclass indexes DISSOLVING B01F 1/00 B01F 21/00 MIXING, DISPERSING, EMULSIFYING Processes B01F 3/00 B01F 23/00 Apparatus flow mixers B01F 5/00 B01F 25/00 with rotary action B01F 7/00 B01F 27/00 , B01F 9/00 B01F 29/00 other mixers B01F 11/00 B01F 31/00 , B01F 13/00 B01F 33/00 accessories B01F 15/00 EMULSIFYING OR DISPERSING B01F 17/00 AGENTS B01F 35/00
D	B01F 1/00	(transferred to B01F 21/00-B01F 21/20)
D	B01F 3/00	(transferred to B01F 23/00)
D	B01F 3/02	(transferred to B01F 23/10)
D	B01F 3/04	(transferred to B01F 23/20-B01F 23/2375)
D	B01F 3/06	(transferred to B01F 23/30)
D	B01F 3/08	(transferred to B01F 23/40-B01F 23/454)
D	B01F 3/10	(transferred to B01F 23/47)
D	B01F 3/12	(transferred to B01F 23/50-B01F 23/53)
D	B01F 3/14	(transferred to B01F 23/57)
D	B01F 3/18	(transferred to B01F 23/60-B01F 23/64)
D	B01F 3/20	(transferred to B01F 23/70)
D	B01F 3/22	(transferred to B01F 23/80)
D	B01F 5/00	(transferred to B01F 25/00-B01F 25/10)
D	B01F 5/00	(transferred to B01F 25/00-B01F 25/10)
D	B01F 5/02	(transferred to B01F 25/20-B01F 25/27)
D	B01F 5/04	(transferred to B01F 25/30-B01F 25/32)
D	B01F 5/06	(transferred to B01F 25/40-B01F 25/452)
D	B01F 5/08	(transferred to B01F 25/46)
D	B01F 5/10	(transferred to B01F 25/50-B01F 25/54)
D	B01F 5/12	(transferred to B01F 25/60)
D	B01F 5/14	(transferred to B01F 25/62)
D	B01F 5/16	(transferred to B01F 25/64)
D	B01F 5/18	(transferred to B01F 25/70)

Compilation of amendments between 2021.01 and 2022.01 IPC

D	B01F 5/20	(transferred to B01F 25/72-B01F 25/721)
D	B01F 5/22	(transferred to B01F 25/74)
D	B01F 5/24	(transferred to B01F 25/80-B01F 25/85)
D	B01F 5/26	(transferred to B01F 25/90)
D	B01F 7/00	(transferred to B01F 27/00-B01F 27/55)
D	B01F 7/02	(transferred to B01F 27/60-B01F 27/65)
D	B01F 7/04	(transferred to B01F 27/70-B01F 27/708)
D	B01F 7/06	(transferred to B01F 27/71)
D	B01F 7/08	(transferred to B01F 27/72-B01F 27/726)
D	B01F 7/10	(transferred to B01F 27/73)
D	B01F 7/12	(transferred to B01F 27/74)
D	B01F 7/14	(transferred to B01F 27/75)
D	B01F 7/16	(transferred to B01F 27/80-B01F 27/88)
D	B01F 7/18	(transferred to B01F 27/90-B01F 27/902)
D	B01F 7/20	(transferred to B01F 27/906)
D	B01F 7/22	(transferred to B01F 27/91)
D	B01F 7/24	(transferred to B01F 27/92-B01F 27/922)
D	B01F 7/26	(transferred to B01F 27/93)
D	B01F 7/28	(transferred to B01F 27/94)
D	B01F 7/30	(transferred to B01F 27/95-B01F 27/952)
D	B01F 7/32	(transferred to B01F 27/96)
D	B01F 9/00	(transferred to B01F 29/00-B01F 29/34)
D	B01F 9/02	(transferred to B01F 29/60)
D	B01F 9/04	(transferred to B01F 29/62)
D	B01F 9/06	(transferred to B01F 29/63)
D	B01F 9/08	(transferred to B01F 29/64)
D	B01F 9/10	(transferred to B01F 29/80-B01F 29/81)
D	B01F 9/12	(transferred to B01F 29/83)
D	B01F 9/14	(transferred to B01F 29/84)
D	B01F 9/16	(transferred to B01F 29/85)
D	B01F 9/18	(transferred to B01F 29/86)
D	B01F 9/20	(transferred to B01F 29/87)
D	B01F 9/22	(transferred to B01F 29/90)
D	B01F 11/00	(transferred to B01F 31/00-B01F 31/40, B01F 31/44-B01F 31/65)
D	B01F 11/02	(transferred to B01F 31/80-B01F 31/87)
D	B01F 11/04	(transferred to B01F 31/42)
D	B01F 13/00	(transferred to B01F 33/00-B01F 33/35, B01F 33/50-B01F 33/503, B01F 33/87)
D	B01F 13/02	(transferred to B01F 33/40)
D	B01F 13/04	(transferred to B01F 35/60)
D	B01F 13/06	(transferred to B01F 33/70-B01F 33/71)
D	B01F 13/08	(transferred to B01F 33/45-B01F 33/453)
D	B01F 13/10	(transferred to B01F 33/80-B01F 33/85)
D	B01F 15/00	(transferred to B01F 35/00-B01F 35/53)
D	B01F 15/02	(transferred to B01F 35/71-B01F 35/75)
D	B01F 15/04	(transferred to B01F 35/80-B01F 35/88)
D	B01F 15/06	(transferred to B01F 35/90-B01F 35/95)
D	B01F 17/00	(transferred to C09K 23/00)
D	B01F 17/02	(transferred to C09K 23/02)
D	B01F 17/04	(transferred to C09K 23/04)
D	B01F 17/06	(transferred to C09K 23/06)
D	B01F 17/08	(transferred to C09K 23/08)
D	B01F 17/10	(transferred to C09K 23/10)
D	B01F 17/12	(transferred to C09K 23/12)
D	B01F 17/14	(transferred to C09K 23/14)
D	B01F 17/16	(transferred to C09K 23/16)
D	B01F 17/18	(transferred to C09K 23/18)
D	B01F 17/20	(transferred to C09K 23/20)
D	B01F 17/22	(transferred to C09K 23/22)
D	B01F 17/24	(transferred to C09K 23/24)
D	B01F 17/26	(transferred to C09K 23/26)
D	B01F 17/28	(transferred to C09K 23/28)

Compilation of amendments between 2021.01 and 2022.01 IPC

D	B01F 17/30	(transferred to C09K 23/30)
D	B01F 17/32	(transferred to C09K 23/32)
D	B01F 17/34	(transferred to C09K 23/34)
D	B01F 17/36	(transferred to C09K 23/36)
D	B01F 17/38	(transferred to C09K 23/38)
D	B01F 17/40	(transferred to C09K 23/40)
D	B01F 17/42	(transferred to C09K 23/42)
D	B01F 17/44	(transferred to C09K 23/44)
D	B01F 17/46	(transferred to C09K 23/46)
D	B01F 17/48	(transferred to C09K 23/48)
D	B01F 17/50	(transferred to C09K 23/50)
D	B01F 17/52	(transferred to C09K 23/52)
D	B01F 17/54	(transferred to C09K 23/54)
D	B01F 17/56	(transferred to C09K 23/56)

N	B01F 21/00	Dissolving (separating by dissolving B01D; dissolving to effect cooling F25D 5/00) [2022.01]
----------	-------------------	---

N	B01F 21/10	• using driven stirrers [2022.01]
N	B01F 21/20	• using flow mixing [2022.01]
N	B01F 23/00	Note(s) [2022.01]

In this group the following term is used with the meaning indicated:

- "gases" covers also vapours.

N	B01F 23/00	Mixing according to the phases to be mixed, e.g. dispersing or emulsifying [2022.01]
----------	-------------------	---

N	B01F 23/10	• Mixing gases with gases [2022.01]
N	B01F 23/20	• Mixing gases with liquids [2022.01]
N	B01F 23/21	•• by introducing liquids into gaseous media [2022.01]
N	B01F 23/213	••• by spraying or atomising of the liquids [2022.01]
N	B01F 23/23	•• by introducing gases into liquid media, e.g. for producing aerated liquids [2022.01]
N	B01F 23/231	••• by bubbling (mixers with gas or liquid agitation, e.g. with air supply tubes B01F 33/40) [2022.01]
N	B01F 23/232	••• using flow-mixing means for introducing the gases, e.g. baffles [2022.01]
N	B01F 23/2326	•••• adding the flowing main component by suction means, e.g. using an ejector [2022.01]
N	B01F 23/233	••• using driven stirrers with completely immersed stirring elements [2022.01]
N	B01F 23/234	••• Surface aerating [2022.01]
N	B01F 23/235	••• for making foam [2022.01]
N	B01F 23/236	••• specially adapted for aerating or carbonating beverages [2022.01]
N	B01F 23/2361	•••• within small containers, e.g. within bottles [2022.01]
N	B01F 23/237	•• characterised by the physical or chemical properties of gases or vapours introduced in the liquid media [2022.01]
N	B01F 23/2373	•••• for obtaining fine bubbles, i.e. bubbles with a size below 100 µm [2022.01]
N	B01F 23/2375	••••• for obtaining bubbles with a size below 1 µm [2022.01]
N	B01F 23/30	• Mixing gases with solids [2022.01]
N	B01F 23/40	• Mixing liquids with liquids; Emulsifying [2022.01]
N	B01F 23/41	•• Emulsifying [2022.01]
N	B01F 23/411	•• using electrical or magnetic fields, heat or vibrations [2022.01]
N	B01F 23/43	•• using driven stirrers [2022.01]
N	B01F 23/45	•• using flow mixing [2022.01]
N	B01F 23/451	••• by injecting one liquid into another [2022.01]
N	B01F 23/454	••• by injecting a mixture of liquid and gas [2022.01]
N	B01F 23/47	•• involving high-viscosity liquids, e.g. asphalt [2022.01]
N	B01F 23/50	• Mixing liquids with solids (displacing one liquid by another in dispersions of solids in liquids B01D 12/00) [2022.01]
N	B01F 23/53	•• using driven stirrers [2022.01]
N	B01F 23/57	•• Mixing high-viscosity liquids with solids [2022.01]
N	B01F 23/60	•• Mixing solids with solids [2022.01]
N	B01F 23/62	•• using a receptacle with a bottom discharge with oscillating or vibrating opening and closing elements; using a receptacle with a bottom discharge with elements fitted on moving chains [2022.01]
N	B01F 23/64	•• using rotatable mixing elements at the lower end of discharge hoppers [2022.01]
N	B01F 23/70	• Pre-treatment of the materials to be mixed [2022.01]
N	B01F 23/80	• After-treatment of the mixture [2022.01]

N	B01F 25/00	Mixers [2022.01]
----------	-------------------	-------------------------

N	B01F 25/00	Flow mixers; Mixers for falling materials, e.g. solid particles (centrifugal mixers B04) [2022.01]
N	B01F 25/10	• Mixing by creating a vortex flow, e.g. by tangential introduction of flow components [2022.01]
N	B01F 25/20	• Jet mixers, i.e. mixers using high-speed fluid streams (using jets to create vortex flow B01F 25/10) [2022.01]
N	B01F 25/21	• • with submerged injectors, e.g. nozzles, for injecting high-pressure jets into a large volume or into mixing chambers [2022.01]
N	B01F 25/23	• • Mixing by intersecting jets [2022.01]
N	B01F 25/25	• • Mixing by jets impinging against collision plates [2022.01]
N	B01F 25/27	• • Mixing by jetting components into a conduit for agitating its contents [2022.01]
N	B01F 25/30	• Injector mixers (mixing by creating vortex flow B01F 25/10) [2022.01]
N	B01F 25/31	• • in conduits or tubes through which the main component flows [2022.01]
N	B01F 25/312	• • • with Venturi elements; Details thereof [2022.01]
N	B01F 25/313	• • • wherein additional components are introduced in the centre of the conduit [2022.01]
N	B01F 25/314	• • • wherein additional components are introduced at the circumference of the conduit [2022.01]
N	B01F 25/315	• • • wherein a difference of pressure at different points of the conduit causes introduction of the additional component into the main component (B01F 25/316 takes precedence) [2022.01]
N	B01F 25/316	• • • with containers for additional components fixed to the conduit [2022.01]
N	B01F 25/32	• • wherein the additional components are added in a by-pass of the main flow [2022.01]
N	B01F 25/40	• Static mixers (colloid-mills B02C; mixing valves F16K 11/00) [2022.01]
N	B01F 25/41	• • Mixers of the fractal type [2022.01]
N	B01F 25/42	• • in which the mixing is affected by moving the components jointly in changing directions, e.g. in tubes provided with baffles or obstructions [2022.01]
N	B01F 25/421	• • • by moving the components in a convoluted or labyrinthine path (B01F 25/433 takes precedence) [2022.01]
N	B01F 25/422	• • • • between stacked plates, e.g. grooved or perforated plates [2022.01]
N	B01F 25/43	• • • Mixing tubes, e.g. wherein the material is moved in a radial or partly reversed direction [2022.01]
N	B01F 25/431	• • • • Straight mixing tubes with baffles or obstructions that do not cause substantial pressure drop; Baffles therefor [2022.01]
N	B01F 25/4314	• • • • • with helical baffles [2022.01]
N	B01F 25/432	• • • • with means for dividing the material flow into separate sub-flows and for repositioning and recombining these sub-flows; Cross-mixing, e.g. conducting the outer layer of the material nearer to the axis of the tube or vice-versa [2022.01]
N	B01F 25/433	• • • • Mixing tubes wherein the shape of the tube influences the mixing, e.g. mixing tubes with varying cross-section or provided with inwardly extending profiles [2022.01]
N	B01F 25/434	• • • • Mixing tubes comprising cylindrical or conical inserts provided with grooves or protrusions [2022.01]
N	B01F 25/435	• • • • Mixing tubes composed of concentric tubular members [2022.01]
N	B01F 25/44	• • Mixers in which the components are pressed through slits [2022.01]
N	B01F 25/441	• • • characterised by the configuration of the surfaces forming the slits [2022.01]
N	B01F 25/442	• • • characterised by the relative position of the surfaces during operation [2022.01]
N	B01F 25/45	• • Mixers in which the materials to be mixed are pressed together through orifices or interstitial spaces, e.g. between beads (B01F 25/44 takes precedence) [2022.01]
N	B01F 25/451	• • • characterised by means for moving the materials to be mixed or the mixture [2022.01]
N	B01F 25/452	• • • characterised by elements provided with orifices or interstitial spaces [2022.01]
N	B01F 25/46	• • Homogenising or emulsifying nozzles [2022.01]
N	B01F 25/50	• Circulation mixers, e.g. wherein at least part of the mixture is discharged from and reintroduced into a receptacle [2022.01]
N	B01F 25/51	• • in which the mixture is circulated through a set of tubes, e.g. with gradual introduction of a component into the circulating flow [2022.01]
N	B01F 25/52	• • with a rotary stirrer in the recirculation tube [2022.01]
N	B01F 25/53	• • in which the mixture is discharged from and reintroduced into a receptacle through a recirculation tube, into which an additional component is introduced [2022.01]
N	B01F 25/54	• • provided with a pump inside the receptacle to recirculate the material within the receptacle [2022.01]
N	B01F 25/60	• Pump mixers, i.e. mixing within a pump [2022.01]
N	B01F 25/62	• • of the gear type [2022.01]
N	B01F 25/64	• • of the centrifugal-pump type, i.e. turbo-mixers [2022.01]

Compilation of amendments between 2021.01 and 2022.01 IPC

N	B01F 25/70	• Spray-mixers, e.g. for mixing intersecting sheets of material [2022.01]
N	B01F 25/72	• • with nozzles [2022.01]
N	B01F 25/721	• • • for spraying a fluid on falling particles or on a liquid curtain [2022.01]
N	B01F 25/74	• • with rotating parts, e.g. discs [2022.01]
N	B01F 25/80	• Falling particle mixers, e.g. with repeated agitation along a vertical axis [2022.01]
N	B01F 25/82	• • uniting flows of material taken from different parts of a receptacle or from a set of different receptacles [2022.01]
N	B01F 25/83	• • with receptacles provided with fixed guiding elements therein, e.g. baffles; Cross-mixers comprising crossing channels for guiding the falling particles [2022.01]
N	B01F 25/85	• • wherein the particles fall onto a film that flows along the inner wall of a mixer [2022.01]
N	B01F 25/90	• • with moving or vibrating means, e.g. stirrers, for enhancing the mixing [2022.01]
N	B01F 27/00	Mixers with rotary stirring devices in fixed receptacles (magnetic mixers B01F 33/45); Kneaders [2022.01]
N	B01F 27/05	• Stirrers [2022.01]
N	B01F 27/051	• • characterised by their elements, materials or mechanical properties [2022.01]
N	B01F 27/052	• • • Stirrers with replaceable wearing elements; Wearing elements therefor [2022.01]
N	B01F 27/053	• • • characterised by their materials [2022.01]
N	B01F 27/054	• • • Deformable stirrers, e.g. deformed by a centrifugal force applied during operation [2022.01]
N	B01F 27/07	• • characterised by their mounting on the shaft [2022.01]
N	B01F 27/072	• • • characterised by the disposition of the stirrers with respect to the rotating axis [2022.01]
N	B01F 27/09	• • characterised by the mounting of the stirrers with respect to the receptacle [2022.01]
N	B01F 27/091	• • • with elements co-operating with receptacle wall or bottom, e.g. for scraping the receptacle wall [2022.01]
N	B01F 27/093	• • • eccentrically arranged [2022.01]
N	B01F 27/11	• • characterised by the configuration of the stirrers [2022.01]
N	B01F 27/111	• • • Centrifugal stirrers, i.e. stirrers with radial outlets; Stirrers of the turbine type, e.g. with means to guide the flow [2022.01]
N	B01F 27/1111	• • • • with a flat disc or with a disc-like element equipped with blades, e.g. Rushton turbine [2022.01]
N	B01F 27/112	• • • • with arms, paddles, vanes or blades [2022.01]
N	B01F 27/1121	• • • • pin-shaped [2022.01]
N	B01F 27/1122	• • • • anchor-shaped [2022.01]
N	B01F 27/1123	• • • • sickle-shaped, i.e. curved in at least one direction [2022.01]
N	B01F 27/1124	• • • • rake-shaped or grid-shaped [2022.01]
N	B01F 27/1125	• • • • with vanes or blades extending parallel or oblique to the stirrer axis [2022.01]
N	B01F 27/1126	• • • • the stirrer being a bent rod supported at one end only [2022.01]
N	B01F 27/1127	• • • • spoon-shaped [2022.01]
N	B01F 27/113	• • • Propeller-shaped stirrers for producing an axial flow, e.g. shaped like a ship or aircraft propeller [2022.01]
N	B01F 27/1131	• • • • with holes in the propeller blade surface [2022.01]
N	B01F 27/1132	• • • • with guiding tubes or tubular segments fixed to and surrounding the tips of the propeller blades, e.g. for supplementary mixing [2022.01]
N	B01F 27/114	• • • Helically shaped stirrers, i.e. stirrers comprising a helically shaped band or helically shaped band sections [2022.01]
N	B01F 27/1142	• • • • of the corkscrew type [2022.01]
N	B01F 27/1143	• • • • screw-shaped, e.g. worms [2022.01]
N	B01F 27/1144	• • • • with a plurality of blades following a helical path on a shaft or a blade support [2022.01]
N	B01F 27/1145	• • • • ribbon shaped with an open space between the helical ribbon flight and the rotating axis [2022.01]
N	B01F 27/115	• • • comprising discs or disc-like elements essentially perpendicular to the stirrer shaft axis [2022.01]
N	B01F 27/1151	• • • • with holes on the surface [2022.01]
N	B01F 27/1152	• • • • with separate elements other than discs fixed on the discs, e.g. vanes fixed on the discs [2022.01]
N	B01F 27/116	• • • Stirrers shaped as cylinders, balls or rollers [2022.01]
N	B01F 27/117	• • • Stirrers provided with conical-shaped elements, e.g. funnel-shaped [2022.01]
N	B01F 27/118	• • • Stirrers in the form of brushes, sieves, grids, chains or springs [2022.01]
N	B01F 27/119	• • • Stirrers with rigid wires or flexible rods [2022.01]
N	B01F 27/13	• • • Openwork frame or cage stirrers not provided for in other groups of this subclass [2022.01]

Compilation of amendments between 2021.01 and 2022.01 IPC

N	B01F 27/15	• • • Stirrers with tubes for guiding the material [2022.01]
N	B01F 27/17	• • • Stirrers with additional elements mounted on the stirrer, for purposes other than mixing [2022.01]
N	B01F 27/171	• • • • for disintegrating, e.g. for milling [2022.01]
N	B01F 27/172	• • • • for cutting, e.g. with knives [2022.01]
N	B01F 27/19	• • • Stirrers with two or more mixing elements mounted in sequence on the same axis [2022.01]
N	B01F 27/191	• • • • with similar elements [2022.01]
N	B01F 27/192	• • • • with dissimilar elements [2022.01]
N	B01F 27/21	• characterised by their rotating shafts [2022.01]
N	B01F 27/211	• • characterised by the material of the shaft [2022.01]
N	B01F 27/2111	• • • Flexible shafts [2022.01]
N	B01F 27/2121	• • composed of interconnected parts [2022.01]
N	B01F 27/2122	• • Hollow shafts [2022.01]
N	B01F 27/2123	• • Shafts with both stirring means and feeding or discharging means [2022.01]
N	B01F 27/2124	• • Shafts with adjustable length, e.g. telescopic shafts [2022.01]
N	B01F 27/213	• • characterised by the connection with the drive [2022.01]
N	B01F 27/23	• characterised by the orientation or disposition of the rotor axis [2022.01]
N	B01F 27/231	• • with a variable orientation during mixing operation, e.g. with tiltable rotor axis [2022.01]
N	B01F 27/232	• • with two or more rotation axes [2022.01]
N	B01F 27/2322	• • • with parallel axes [2022.01]
N	B01F 27/2323	• • • with perpendicular axes [2022.01]
N	B01F 27/25	• Mixers with both stirrer and drive unit submerged in the material being mixed [2022.01]
N	B01F 27/27	• Mixers with stator-rotor systems, e.g. with intermeshing teeth or cylinders or having orifices (the stirrers having a central axial inflow and a substantially radial outflow B01F 27/81) [2022.01]
N	B01F 27/271	• • with means for moving the materials to be mixed radially between the surfaces of the rotor and the stator [2022.01]
N	B01F 27/272	• • with means for moving the materials to be mixed axially between the surfaces of the rotor and the stator, e.g. the stator rotor system formed by conical or cylindrical surfaces [2022.01]
N	B01F 27/40	• Mixers with rotor-rotor system, e.g. with intermeshing teeth [2022.01]
N	B01F 27/41	• • with the mutually rotating surfaces facing each other [2022.01]
N	B01F 27/42	• • with rotating surfaces next to each other, i.e. on substantially parallel axes [2022.01]
N	B01F 27/50	• Pipe mixers, i.e. mixers wherein the materials to be mixed flow continuously through pipes, e.g. column mixers [2022.01]
N	B01F 27/55	• with stirrers driven by the moving material [2022.01]
N	B01F 27/60	• with stirrers rotating about a horizontal or inclined axis [2022.01]
N	B01F 27/61	• • about an inclined axis [2022.01]
N	B01F 27/63	• • co-operating with deflectors or baffles fixed to the receptacle [2022.01]
N	B01F 27/65	• • with buckets [2022.01]
N	B01F 27/70	• • with paddles, blades or arms [2022.01]
N	B01F 27/701	• • • comprising two or more shafts, e.g. in consecutive mixing chambers [2022.01]
N	B01F 27/702	• • • • with intermeshing paddles [2022.01]
N	B01F 27/703	• • • • with stirrers rotating at different speeds [2022.01]
N	B01F 27/704	• • • • with stirrers facing each other, i.e. supported by opposite walls of the receptacle [2022.01]
N	B01F 27/705	• • • • with stirrers rotating in opposite directions about the same axis, e.g. with a first stirrer surrounded by a tube inside a second stirrer [2022.01]
N	B01F 27/706	• • • • with all the shafts in the same receptacle (B01F 27/702-B01F 27/705 take precedence) [2022.01]
N	B01F 27/707	• • • the paddles co-operating, e.g. intermeshing, with elements on the receptacle wall [2022.01]
N	B01F 27/708	• • • characterised by the shape of the stirrer as a whole, i.e. of Z- or S-shape [2022.01]
N	B01F 27/71	• • with propellers [2022.01]
N	B01F 27/72	• • with helices or sections of helices [2022.01]
N	B01F 27/721	• • • with two or more helices in the same receptacle [2022.01]
N	B01F 27/722	• • • • the helices closely surrounded by a casing [2022.01]
N	B01F 27/723	• • • • the helices intermeshing to knead the mixture [2022.01]
N	B01F 27/724	• • • with a single helix closely surrounded by a casing [2022.01]
N	B01F 27/726	• • • with two helices with opposite pitch on the same shaft; with two helices on the same axis, driven in opposite directions or at different speeds [2022.01]

Compilation of amendments between 2021.01 and 2022.01 IPC

N	B01F 27/73	• • with rotary discs [2022.01]
N	B01F 27/74	• • with rotary cylinders [2022.01]
N	B01F 27/75	• • with stirrers having planetary motion, i.e. rotating about their own axis and about a sun axis [2022.01]
N	B01F 27/80	• • with stirrers rotating about a substantially vertical axis [2022.01]
N	B01F 27/805	• • wherein the stirrers or the receptacles are moved in order to bring them into operative position; Means for fixing the receptacle [2022.01]
N	B01F 27/806	• • • with vertical displacement of the stirrer, e.g. in combination with means for pivoting the stirrer about a vertical axis in order to co-operate with different receptacles [2022.01]
N	B01F 27/807	• • • with the stirrer-head pivoting about a horizontal axis to bring it in and out of operative position, e.g. with receptacles pivoting about a horizontal axis for emptying [2022.01]
N	B01F 27/808	• • with stirrers driven from the bottom of the receptacle [2022.01]
N	B01F 27/81	• • the stirrers having central axial inflow and substantially radial outflow [2022.01]
N	B01F 27/82	• • Pan-type mixers, i.e. mixers in which the stirring elements move along the bottom of a pan-shaped receptacle (with stirring elements moving along the wall or bottom of the receptacle B01F 27/091) [2022.01]
N	B01F 27/83	• • the stirrers being additionally moved radially, or oscillating about an axis perpendicular to the stirrer axis [2022.01]
N	B01F 27/84	• • with two or more stirrers rotating at different speeds or in opposite directions about the same axis [2022.01]
N	B01F 27/85	• • with two or more stirrers on separate shafts [2022.01]
N	B01F 27/86	• • co-operating with deflectors or baffles fixed to the receptacle [2022.01]
N	B01F 27/87	• • the receptacle being divided into superimposed compartments [2022.01]
N	B01F 27/88	• • with a separate receptacle-stirrer unit that is adapted to be coupled to a drive mechanism [2022.01]
N	B01F 27/90	• • with paddles or arms [2022.01]
N	B01F 27/902	• • • cooperating with intermeshing elements fixed on the receptacle walls [2022.01]
N	B01F 27/906	• • • with fixed axis [2022.01]
N	B01F 27/91	• • with propellers [2022.01]
N	B01F 27/92	• • with helices or screws [2022.01]
N	B01F 27/921	• • • with helices centrally mounted in the receptacle [2022.01]
N	B01F 27/9212	• • • • with conical helices [2022.01]
N	B01F 27/922	• • • with two or more helices, e.g. with intermeshing helices [2022.01]
N	B01F 27/93	• • with rotary discs [2022.01]
N	B01F 27/94	• • with rotary cylinders or cones [2022.01]
N	B01F 27/95	• • with stirrers having planetary motion, i.e. rotating about their own axis and about a sun axis [2022.01]
N	B01F 27/952	• • • the stirrers being cylinders with their circumference in contact with the bottom of the receptacle and rotating about an axis at an angle to the sun axis, e.g. mixers of the Muller type [2022.01]
N	B01F 27/96	• • with openwork frames or cages [2022.01]
N	B01F 29/00	Mixers with rotating receptacles [2022.01]
N	B01F 29/10	• with receptacles rotated about two different axes, e.g. receptacles having planetary motion [2022.01]
N	B01F 29/15	• Use of centrifuges for mixing [2022.01]
N	B01F 29/20	• with receptacles rotating about an axis at an angle to their longitudinal axis (B01F 29/62 takes precedence) [2022.01]
N	B01F 29/25	• with material flowing continuously through the receptacles from inlet to discharge [2022.01]
N	B01F 29/30	• Mixing the contents of individual packages or containers, e.g. by rotating tins or bottles [2022.01]
N	B01F 29/31	• • the containers being supported by driving means, e.g. by rotating rollers [2022.01]
N	B01F 29/32	• • Containers specially adapted for coupling to rotating frames or the like; Coupling means therefor [2022.01]
N	B01F 29/321	• • • of test-tubes or the like [2022.01]
N	B01F 29/322	• • • of two or more containers supported for simultaneous mixing, e.g. for bottles in crates [2022.01]
N	B01F 29/33	• • by imparting a combination of movements to two or more containers [2022.01]
N	B01F 29/34	• • Constructional details of holders for the individual packages or containers [2022.01]
N	B01F 29/60	• rotating about a horizontal or inclined axis, e.g. drum mixers [2022.01]

Compilation of amendments between 2021.01 and 2022.01 IPC

N	B01F 29/62	• without bars, i.e. without mixing elements; characterised by the shape or cross section of the receptacle, e.g. of Y-, Z-, S- or X- shape; with cylindrical receptacles rotating about an axis at an angle to their longitudinal axis [2022.01]
N	B01F 29/63	• with fixed bars, i.e. stationary, or fixed on the receptacle [2022.01]
N	B01F 29/64	• with stirring devices moving in relation to the receptacle, e.g. rotating [2022.01]
N	B01F 29/80	• rotating about a substantially vertical axis [2022.01]
N	B01F 29/81	• with stationary mixing elements [2022.01]
N	B01F 29/83	• with rotary paddles or arms, e.g. movable out of the receptacle [2022.01]
N	B01F 29/84	• with propellers [2022.01]
N	B01F 29/85	• with helices, e.g. rotating about an inclined axis [2022.01]
N	B01F 29/86	• with rotary discs [2022.01]
N	B01F 29/87	• with rotary cylinders [2022.01]
N	B01F 29/90	• with stirrers having planetary motion [2022.01]
N	B01F 31/00	Mixers with shaking, oscillating, or vibrating mechanisms [2022.01]
N	B01F 31/10	• with a mixing receptacle rotating alternately in opposite directions [2022.01]
N	B01F 31/20	• Mixing the contents of independent containers, e.g. test tubes [2022.01]
N	B01F 31/22	• with supporting means moving in a horizontal plane, e.g. describing an orbital path for moving the containers about an axis which intersects the receptacle axis at an angle [2022.01]
N	B01F 31/23	• by pivoting the containers about an axis [2022.01]
N	B01F 31/24	• the containers being submitted to a rectilinear movement [2022.01]
N	B01F 31/25	• the containers being submitted to a combination of movements other than within a horizontal plane, e.g. rectilinear and pivoting movement (with a receptacle submitted to a combination of movements, i.e. at least one movement being vibratory or oscillatory B01F 31/50) [2022.01]
N	B01F 31/29	• Mixing by periodically deforming flexible tubular members through which the material is flowing [2022.01]
N	B01F 31/30	• comprising a receptacle to only a part of which the shaking, oscillating, or vibrating movement is imparted [2022.01]
N	B01F 31/31	• using receptacles with deformable parts, e.g. membranes, to which a motion is imparted [2022.01]
N	B01F 31/40	• with an axially oscillating rotary stirrer [2022.01]
N	B01F 31/42	• with pendulum stirrers, i.e. with stirrers suspended so as to oscillate about fixed points or axes [2022.01]
N	B01F 31/44	• with stirrers performing an oscillatory, vibratory or shaking movement (B01F 31/40, B01F 31/42 take precedence) [2022.01]
N	B01F 31/441	• performing a rectilinear reciprocating movement [2022.01]
N	B01F 31/445	• performing an oscillatory movement about an axis [2022.01]
N	B01F 31/46	• with an annular vibrating trough [2022.01]
N	B01F 31/50	• with a receptacle submitted to a combination of movements, i.e. at least one vibratory or oscillatory movement [2022.01]
N	B01F 31/55	• the materials to be mixed being contained in a flexible bag submitted to periodical deformation [2022.01]
N	B01F 31/60	• with a vibrating receptacle (B01F 31/10, B01F 31/20, B01F 31/50 take precedence) [2022.01]
N	B01F 31/65	• the materials to be mixed being directly submitted to a pulsating movement, e.g. by means of an oscillating piston or air column [2022.01]
N	B01F 31/80	• Mixing by means of high-frequency vibrations above one kHz, e.g. ultrasonic vibrations [2022.01]
N	B01F 31/81	• by vibrations generated inside a mixing device not coming from an external drive, e.g. by the flow of material causing a knife to vibrate or by vibrating nozzles [2022.01]
N	B01F 31/85	• with a vibrating element inside the receptacle [2022.01]
N	B01F 31/86	• with vibration of the receptacle or part of it [2022.01]
N	B01F 31/87	• transmitting the vibratory energy by means of a fluid, e.g. by means of air shock waves [2022.01]
N	B01F 33/00	Other mixers; Mixing plants; Combinations of mixers [2022.01]
N	B01F 33/05	• Mixers using radiation, e.g. magnetic fields or microwaves to mix the material (B01F 33/3031, B01F 33/3032 take precedence) [2022.01]
N	B01F 33/12	• Mixers in which the mixing of the components is achieved by natural convection [2022.01]
N	B01F 33/25	• Mixers with loose mixing elements, e.g. loose balls in a receptacle [2022.01]
N	B01F 33/30	• Micromixers [2022.01]

Compilation of amendments between 2021.01 and 2022.01 IPC

N	B01F 33/301	• • using specific means for arranging the streams to be mixed, e.g. channel geometries or dispositions [2022.01]
N	B01F 33/3011	• • • using a sheathing stream of a fluid surrounding a central stream of a different fluid, e.g. for reducing the cross-section of the central stream or to produce droplets from the central stream [2022.01]
N	B01F 33/3012	• • • Interdigital streams, e.g. lamellae [2022.01]
N	B01F 33/302	• • the materials to be mixed flowing in the form of droplets [2022.01]
N	B01F 33/3031	• • using electro-hydrodynamic [EHD] or electro-kinetic [EKI] phenomena to mix or move the fluids [2022.01]
N	B01F 33/3032	• • using magneto-hydrodynamic [MHD] phenomena to mix or move the fluids [2022.01]
N	B01F 33/3033	• • using heat to mix or move the fluids [2022.01]
N	B01F 33/3039	• • with mixing achieved by diffusion between layers [2022.01]
N	B01F 33/35	• Mixing after turning the mixing vessel upside down [2022.01]
N	B01F 33/40	• Mixers using gas or liquid agitation, e.g. with air supply tubes [2022.01]
N	B01F 33/45	• Magnetic mixers; Mixers with magnetically driven stirrers [2022.01]
N	B01F 33/451	• • wherein the mixture is directly exposed to an electromagnetic field without use of a stirrer, e.g. for material comprising ferromagnetic particles or for molten metal [2022.01]
N	B01F 33/452	• • using independent floating stirring elements [2022.01]
N	B01F 33/453	• • using supported or suspended stirring elements [2022.01]
N	B01F 33/50	• Movable or transportable mixing devices or plants [2022.01]
N	B01F 33/501	• • Movable mixing devices, i.e. readily shifted or displaced from one place to another, e.g. portable during use [2022.01]
N	B01F 33/502	• • Vehicle-mounted mixing devices [2022.01]
N	B01F 33/503	• • Floating mixing devices [2022.01]
N	B01F 33/70	• Mixers specially adapted for working at sub- or super-atmospheric pressure, e.g. combined with de-foaming [2022.01]
N	B01F 33/71	• • working at super-atmospheric pressure, e.g. in pressurised vessels [2022.01]
N	B01F 33/80	• Mixing plants; Combinations of mixers [2022.01]
N	B01F 33/81	• • Combinations of similar mixers, e.g. with rotary stirring devices in two or more receptacles [2022.01]
N	B01F 33/82	• • Combinations of dissimilar mixers [2022.01]
N	B01F 33/83	• • Mixing plants specially adapted for mixing in combination with disintegrating operations [2022.01]
N	B01F 33/84	• • Mixing plants with mixing receptacles receiving material dispensed from several component receptacles, e.g. paint tins [2022.01]
N	B01F 33/841	• • • with component receptacles fixed in a circular configuration on a horizontal table, e.g. the table being able to be indexed about a vertical axis [2022.01]
N	B01F 33/85	• • Mixing plants with mixing receptacles or mixing tools that can be indexed into different working positions [2022.01]
N	B01F 33/87	• Roll-type mixers [2022.01]
N	B01F 35/00	Accessories for mixers; Auxiliary operations or auxiliary devices; Parts or details of general application [2022.01]
N	B01F 35/10	• Maintenance of mixers [2022.01]
N	B01F 35/11	• • using fluids [2022.01]
N	B01F 35/12	• • using mechanical means [2022.01]
N	B01F 35/13	• • using one or more of the components of the mixture to wash-out the mixer [2022.01]
N	B01F 35/20	• Measuring; Control or regulation [2022.01]
N	B01F 35/21	• • Measuring [2022.01]
N	B01F 35/212	• • • of the driving system data, e.g. torque, speed or power data [2022.01]
N	B01F 35/213	• • • of the properties of the mixtures, e.g. temperature, density or colour [2022.01]
N	B01F 35/214	• • • characterised by the means for measuring [2022.01]
N	B01F 35/22	• • Control or regulation [2022.01]
N	B01F 35/221	• • • of operational parameters, e.g. level of material in the mixer, temperature or pressure [2022.01]
N	B01F 35/222	• • • of the operation of the driving system, e.g. torque, speed or power of motors; of the position of mixing devices or elements [2022.01]
N	B01F 35/30	• Driving arrangements; Transmissions; Couplings; Brakes [2022.01]
N	B01F 35/31	• • Couplings [2022.01]
N	B01F 35/32	• • Driving arrangements [2022.01]
N	B01F 35/33	• • Transmissions; Means for modifying the speed or direction of rotation [2022.01]
N	B01F 35/40	• Mounting or supporting mixing devices or receptacles; Clamping or holding arrangements therefor [2022.01]

Compilation of amendments between 2021.01 and 2022.01 IPC

N	B01F 35/41	• Mounting or supporting stirrer shafts or stirrer units on receptacles [2022.01]
N	B01F 35/42	• Clamping or holding arrangements for mounting receptacles on mixing devices [2022.01]
N	B01F 35/43	• Supporting receptacles on frames or stands [2022.01]
N	B01F 35/45	• Closures or doors specially adapted for mixing receptacles; Operating mechanisms therefor [2022.01]
N	B01F 35/50	• Mixing receptacles [2022.01]
N	B01F 35/51	• characterised by their material [2022.01]
N	B01F 35/511	• provided with liners, e.g. wear resistant or flexible liners [2022.01]
N	B01F 35/512	• characterised by surface properties, e.g. coated or rough [2022.01]
N	B01F 35/513	• Flexible receptacles, e.g. bags supported by rigid containers [2022.01]
N	B01F 35/52	• Receptacles with two or more compartments [2022.01]
N	B01F 35/53	• characterised by the configuration of the interior, e.g. baffles for facilitating the mixing of components [2022.01]
N	B01F 35/60	• Safety arrangements [2022.01]
N	B01F 35/71	• Feed mechanisms (with proportioning B01F 35/80) [2022.01]
N	B01F 35/75	• Discharge mechanisms [2022.01]
N	B01F 35/80	• Forming a predetermined ratio of the substances to be mixed (controlling ratio of two or more flows of fluid or fluent material G05D 11/02) [2022.01]
N	B01F 35/81	• Forming mixtures with changing ratios or gradients [2022.01]
N	B01F 35/82	• by adding a material to be mixed to a mixture in response to a detected feature, e.g. density, radioactivity, consumed power or colour [2022.01]
N	B01F 35/83	• by controlling the ratio of two or more flows, e.g. using flow sensing or flow controlling devices [2022.01]
N	B01F 35/88	• by feeding the materials batchwise [2022.01]
N	B01F 35/90	• Heating or cooling systems [2022.01]
N	B01F 35/91	• using gas or liquid injected into the material, e.g. using liquefied carbon dioxide or steam [2022.01]
N	B01F 35/92	• for heating the outside of the receptacle, e.g. heated jackets or burners [2022.01]
N	B01F 35/93	• arranged inside the receptacle [2022.01]
N	B01F 35/94	• using radiation, e.g. microwaves or electromagnetic radiation [2022.01]
N	B01F 35/95	• using heated or cooled stirrers [2022.01]
N	<u>B01F 101/00</u>	<u>Indexing scheme associated with groups B01F 21/00-B01F 35/00 and relating to the nature of the mixed materials, the field of application and complementary technical information about mixing [2022.01]</u>
N	B01F 101/00	Mixing characterised by the nature of the mixed materials or by the application field [2022.01]
N	B01F 101/02	• Mixing or agitating during harvesting or mowing, e.g. mixing with solid harvested products or particles [2022.01]
N	B01F 101/04	• Mixing biocidal, pesticidal or herbicidal ingredients used in agriculture or horticulture, e.g. for spraying [2022.01]
N	B01F 101/06	• Mixing of food ingredients [2022.01]
N	B01F 101/07	• Mixing ingredients into milk or cream, e.g. aerating [2022.01]
N	B01F 101/08	• Mixing of dough [2022.01]
N	B01F 101/09	• Mixing of cereals, grains or seeds materials [2022.01]
N	B01F 101/10	• Mixing of butter or margarine ingredients [2022.01]
N	B01F 101/11	• Mixing of cheese ingredients [2022.01]
N	B01F 101/12	• Mixing of chocolate ingredients [2022.01]
N	B01F 101/13	• Mixing of ice-cream ingredients [2022.01]
N	B01F 101/14	• Mixing of ingredients for non-alcoholic beverages; Dissolving sugar in water [2022.01]
N	B01F 101/15	• Mixing of beer ingredients [2022.01]
N	B01F 101/16	• Mixing wine or other alcoholic beverages; Mixing ingredients thereof [2022.01]
N	B01F 101/17	• • • Aeration of wine [2022.01]
N	B01F 101/18	• Mixing animal food ingredients [2022.01]
N	B01F 101/19	• Mixing dentistry compositions [2022.01]
N	B01F 101/20	• Mixing of ingredients for bone cement [2022.01]
N	B01F 101/21	• Mixing of ingredients for cosmetic or perfume compositions [2022.01]
N	B01F 101/22	• Mixing of ingredients for pharmaceutical or medical compositions [2022.01]
N	B01F 101/23	• Mixing of laboratory samples e.g. in preparation of analysing or testing properties of materials [2022.01]
N	B01F 101/24	• Mixing of ingredients for cleaning compositions [2022.01]
N	B01F 101/25	• Mixing waste with other ingredients [2022.01]
N	B01F 101/26	• Mixing ingredients for casting metals [2022.01]

Compilation of amendments between 2021.01 and 2022.01 IPC

N	B01F 101/27	• Mixing ingredients for grinding, polishing or lapping materials [2022.01]
N	B01F 101/28	• Mixing cement, mortar, clay, plaster or concrete ingredients [2022.01]
N	B01F 101/30	• Mixing paints or paint ingredients, e.g. pigments, dyes, colours, lacquers or enamel [2022.01]
N	B01F 101/32	• Mixing fertiliser ingredients [2022.01]
N	B01F 101/33	• • Mixing compost ingredients or organic waste [2022.01]
N	B01F 101/34	• Mixing fuel and prill, i.e. water or other fluids mixed with solid explosives, to obtain liquid explosive fuel emulsions or slurries [2022.01]
N	B01F 101/35	• Mixing inks or toners [2022.01]
N	B01F 101/36	• Mixing of ingredients for adhesives or glues; Mixing adhesives and gas [2022.01]
N	B01F 101/38	• Mixing of asphalt, bitumen, tar or pitch or their ingredients [2022.01]
N	B01F 101/39	• Mixing of ingredients for grease or lubricating compositions [2022.01]
N	B01F 101/40	• Mixing of ingredients for oils, fats or waxes [2022.01]
N	B01F 101/44	• Mixing of ingredients for microbiology, enzymology, in vitro culture or genetic manipulation [2022.01]
N	B01F 101/45	• Mixing in metallurgical processes of ferrous or non-ferrous materials [2022.01]
N	B01F 101/47	• Mixing of ingredients for making paper pulp, e.g. wood fibres or wood pulp [2022.01]
N	B01F 101/48	• Mixing water in water-taps with other ingredients, e.g. air, detergents or disinfectants [2022.01]
N	B01F 101/49	• Mixing drilled material or ingredients for well-drilling, earth-drilling or deep-drilling compositions with liquids to obtain slurries [2022.01]
N	B01F 101/50	• Mixing mined ingredients and liquid to obtain slurries [2022.01]
N	B01F 101/54	• Mixing liquid fragrances with air [2022.01]
N	B01F 101/55	• Mixing liquid air humidifiers with air [2022.01]
N	B01F 101/56	• Mixing photosensitive chemicals or photographic base materials [2022.01]
N	B01F 101/57	• Mixing radioactive materials, e.g. nuclear materials [2022.01]
N	B01F 101/58	• Mixing semiconducting materials, e.g. during semiconductor or wafer manufacturing processes [2022.01]
N	B01F 101/59	• Mixing reaction ingredients for fuel cells [2022.01]
B01J		
L	B01J 8/04	• • the fluid passing successively through two or more beds [2,2006.01]
M	B05B	SPRAYING APPARATUS; ATOMISING APPARATUS; NOZZLES (spray-mixers with nozzles B01F 5/20 B01F 25/72; processes for applying liquids or other fluent materials to surfaces by spraying B05D) [2]
B07C		
M	B07C 3/10	• Apparatus characterised by the means used for detection of the destination (methods or arrangements for reading and recognising printed or written characters or geometric figures G06K 9/00 G06V 30/00) [1,2006.01]
B09B		
M	B09B	Note(s) [3,5,7,2006.01] <ol style="list-style-type: none"> 1. This subclass <u>covers</u> only single or combined, e.g. multistage, operations not fully classifiable in a single other subclass. 2. In this subclass, the following terms or expressions are used with the meanings indicated: <ul style="list-style-type: none"> • "disposal" means the discarding, e.g. dumping, or destroying of waste or its transformation into something useful or harmless; • "solid waste" includes waste which, although it has liquid content, is for practical purposes handled as solid. 3. Attention is drawn to the following places: <ul style="list-style-type: none"> A23J 1/16 Obtaining proteins from waste water of starch-manufacturing plants or like wastes A23K 10/26, Animal feeding-stuffs from waste material A23K 10/37 A23K 10/28 Animal feeding-stuffs from waste dairy products A23K 10/38 Animal feeding-stuffs from distillers' or brewers' waste A43B 1/12 Footwear made of rubber waste A61L 11/00 Disinfection or sterilisation methods specially adapted for refuse A62D 3/00 Processes for making harmful chemical substances harmless, or less harmful, by effecting a chemical change in the substances B01D 53/34 Chemical or biological purification of waste gases B02C 18/00 Disintegrating by knives or other cutting or tearing members which chop material into fragments

Compilation of amendments between 2021.01 and 2022.01 IPC

B03B 7/00	Combinations of wet processes or apparatus with other processes or apparatus, e.g. for dressing ores or garbage
B03B 9/06	General arrangement of separating plant, e.g. flow sheets, specially adapted for refuse
B05B 12/16,	Control of spray area of spraying plant, e.g. masking, side shields;
B05B 14/00	Means for collection or re-use of excess material
B08B 15/00	Preventing escape of dirt or fumes from the area where they are produced; Collecting or removing dirt or fumes from that area
B22F 8/00	Manufacture of articles from scrap or waste metal particles
B23D 25/14	Machines or arrangements for shearing stock while the latter is travelling otherwise than in the direction of the cut without regard to the exact dimensions of the resulting material, e.g. for cutting up scrap
B24B 55/12	Devices for recovering materials resulting from grinding or polishing
B27B 33/20	Edge trimming saw blades or tools combined with means to disintegrate waste
B29B 17/00	Recovery of plastics or other constituents of waste material containing plastics
B30B 9/32	Presses for consolidating scrap metal or for compacting used cars
B62D 67/00	Systematic disassembly of vehicles for recovery of salvageable components, e.g. for recycling
B63B 17/06	Refuse discharge from vessels, e.g. for ash
B63J 4/00	Arrangements of installations for treating waste water or sewage on vessels
B65F 1/00	Refuse receptacles
B65F 3/00	Vehicles particularly adapted for collecting refuse
B65F 5/00	Gathering or removal of refuse otherwise than by receptacles or vehicles
B65F 7/00	Cleaning or disinfecting devices combined with refuse receptacles or refuse vehicles
C03C 1/00	Ingredients generally applicable to manufacture of glasses, glazes or vitreous enamels
C04B 7/24	Hydraulic cements from oil shales, residues or waste other than slag
C04B 11/26	Calcium sulfate cements made from phosphogypsum or from waste, e.g. purification products of smoke
C04B 18/04	Waste material or refuse used as fillers for mortars, concrete, artificial stone or the like
C04B 33/132	Waste materials or refuse used as compounding ingredients for clay-wares
C05F	Fertilisers from waste or refuse
C08B 16/00	Regeneration of cellulose
C08J 9/33	Agglomerating foam fragments, e.g. waste foam
C08J 11/00	Recovery of waste materials of macromolecular substances
C08L 17/00	Compositions of reclaimed rubber
C09K 11/01	Recovery of luminescent materials
C10B 53/00	Destructive distillation, specially adapted for particular solid raw materials or solid raw materials in special form
C10B 57/00	Other processes not covered before; Features of destructive distillation processes in general
C10G 1/10	Production of liquid hydrocarbon mixtures from rubber or rubber waste
C10G 73/23	Recovery of used solvents
C10L 5/46	Solid fuels essentially based on sewage, house or town refuse
C10L 5/48	Solid fuels essentially based on industrial residues and waste materials
C10M 175/02	Working-up used lubricants based on mineral oils
C11B 13/00	Recovery of fats, fatty oils, or fatty acids from waste materials
C11D 19/00	Recovery of glycerol from a saponification liquor
C12F 3/00	Recovery of by-products
C12F 3/08	Recovery of alcohol from press residues or other waste material
C12P 7/08	Biochemical production of ethanol from waste

Compilation of amendments between 2021.01 and 2022.01 IPC

C22B 7/00	Working-up raw materials other than ores, e.g. scrap, to produce non-ferrous metals or compounds thereof
C22B 19/28	Obtaining zinc or zinc oxide from muffle furnace residues
C22B 19/30	Obtaining zinc or zinc oxide from metallic residues or scraps
C22B 25/06	Obtaining tin from scrap
C25D 13/24	Regeneration of process liquids used in electrophoretic coating
C25D 21/16	Regeneration of process solutions used in electrolytic coating
D01B	Mechanical treatment of natural fibrous or filamentary material to obtain fibres or filaments, e.g. for spinning
D01C 5/00	Carbonising rags to recover animal fibres
D01F 13/00	Recovery of starting material, waste material or solvents during the manufacture of artificial filaments or the like
D01G 11/00	Disintegrating fibre-containing articles to obtain fibres for re-use
D01H 11/00	Arrangements for confining or removing dust, fly, or the like
D06L 1/10	Regeneration of used chemical baths used for dry-cleaning or washing fibres, fabrics or the like
D21B 1/08	Dry treatment of waste paper or rags for making paper or for the production of cellulose
D21B 1/32	Defibrating waste paper
D21C 5/02	Processes for obtaining cellulose by working-up waste paper
D21C 11/14	Regeneration of pulp liquors by wet combustion
D21F 1/66	Re-use of pulp-water in wet end machines for making continuous webs of paper
D21H 17/01	Waste products added to the pulp or used in paper-impregnating material
E03F	Sewers, cesspools
E04F 17/10	Arrangements in buildings for the disposal of refuse
F23G	Consuming waste by combustion
F23J	Removal or treatment of combustion products or combustion residues
G03C 11/24	Removing emulsion from waste photographic material
G03G 21/10	Collecting or recycling waste developer used in electrography, electrophotography, magnetography
G21F 9/28	Treating radioactively contaminated solids
H01B 15/00	Apparatus or processes for salvaging material from electric cables
H01J 9/52	Recovery of material from discharge tubes or lamps
H01M 6/52	Reclaiming serviceable parts of waste cells or batteries
H01M 10/54	Reclaiming serviceable parts of waste accumulators.

4. *In this subclass, it is desirable to add the indexing codes of group B09B 101/00.*

C	B09B 3/00	Destroying solid waste or transforming solid waste into something useful or harmless [3,2006.01,2022.01]
N	B09B 3/10	• involving an adsorption step [2022.01]
N	B09B 3/20	• Agglomeration, binding or encapsulation of solid waste [2022.01]
N	B09B 3/21	• • using organic binders or matrix [2022.01]
N	B09B 3/23	• • • Binders with asphalt [2022.01]
N	B09B 3/24	• • • Binders with plastic [2022.01]
N	B09B 3/25	• • using mineral binders or matrix [2022.01]
N	B09B 3/27	• • • Binding by sodium silicate, e.g. cement or water glass [2022.01]
N	B09B 3/29	• • • involving a melting or softening step [2022.01]
N	B09B 3/30	• involving mechanical treatment (involving an extraction step B09B 3/80) [2022.01]
N	B09B 3/32	• • Compressing or compacting [2022.01]
N	B09B 3/35	• • Shredding, crushing or cutting [2022.01]
N	B09B 3/38	• • Stirring or kneading [2022.01]
N	B09B 3/40	• involving thermal treatment, e.g. evaporation (processes using mineral binders involving a melting or softening step B09B 3/29; involving radiation B09B 3/50) [2022.01]
N	B09B 3/45	• • Steam treatment, e.g. supercritical water gasification or oxidation [2022.01]
N	B09B 3/50	• involving radiation, e.g. electro-magnetic waves [2022.01]
N	B09B 3/60	• Biochemical treatment, e.g. by using enzymes [2022.01]
N	B09B 3/65	• • Anaerobic treatment [2022.01]

Compilation of amendments between 2021.01 and 2022.01 IPC

N	B09B 3/70	• Chemical treatment, e.g. pH adjustment or oxidation (involving an extraction step B09B 3/80; processes for making harmful chemical substances harmless by effecting a chemical change in the substances A62D 3/00) [2022.01]
N	B09B 3/80	• involving an extraction step [2022.01]
N	B09B 101/00	<u>Indexing scheme associated with groups B09B 1/00-B09B 5/00, relating to the type of disposed solid waste [2022.01]</u>
N	B09B 101/00	Type of solid waste [2022.01]
N	B09B 101/02	• Gases or liquids enclosed in discarded articles, e.g. aerosol cans or cooling systems of refrigerators [2022.01]
N	B09B 101/05	• Vehicles; Vehicle parts [2022.01]
N	B09B 101/10	• Cans [2022.01]
N	B09B 101/15	• Electronic waste [2022.01]
N	B09B 101/16	• • Batteries [2022.01]
N	B09B 101/17	• • Printed circuit boards [PCBs] [2022.01]
N	B09B 101/18	• • Mobile phones; Tablets [2022.01]
N	B09B 101/20	• Filters, e.g. oil filters [2022.01]
N	B09B 101/25	• Non-industrial waste, e.g. household waste [2022.01]
N	B09B 101/30	• Incineration ashes [2022.01]
N	B09B 101/35	• Asbestos [2022.01]
N	B09B 101/40	• Asphalt [2022.01]
N	B09B 101/45	• Concrete [2022.01]
N	B09B 101/50	• Glass [2022.01]
N	B09B 101/55	• Slag [2022.01]
N	B09B 101/60	• Ceramics, e.g. pottery [2022.01]
N	B09B 101/65	• Medical waste [2022.01]
N	B09B 101/67	• • Diapers or nappies [2022.01]
N	B09B 101/68	• • Transdermal patches [2022.01]
N	B09B 101/70	• Kitchen refuse; Food waste [2022.01]
N	B09B 101/75	• Plastic waste [2022.01]
N	B09B 101/77	• • containing chlorine [2022.01]
N	B09B 101/78	• • containing foamed plastics, e.g. polystyrol [2022.01]
N	B09B 101/80	• Rubber waste, e.g. scrap tyres [2022.01]
N	B09B 101/85	• Paper; Wood; Fabrics, e.g. cloths [2022.01]
N	B09B 101/90	• Soil, e.g. excavated soil from construction sites [2022.01]
N	B09B 101/95	• Waste catalysts; Waste ion exchange materials; Waste adsorbents [2022.01]
B21C		
L	B21C 45/00	Separating mandrels from work or vice versa [1,2006.01]
B22F		
M	B22F	Note(s) [6]
		<ol style="list-style-type: none"> 1. This subclass <u>covers</u> the making of metallic powder only insofar as powder with specific physical characteristics is made. 2. In this subclass, the following terms or expressions are used with the meanings indicated: "powder"-term "powder" includes somewhat larger particles which are worked, obtained or behave in a manner similar to powder, e.g. fibres. 3. <i>In this subclass, the expression "metallic powder" covers:</i> <ul style="list-style-type: none"> • <i>powders consisting of metal particles;</i> • <i>powders consisting of coated metal particles;</i> • <i>powders consisting of metal-coated non-metallic particles;</i> • <i>mixtures of powders of the kinds mentioned above;</i> • <i>powders of the kinds mentioned above as the main component mixed with or containing non-metallic material, e.g. lubricating or binding agents or organic material.</i>
C	B22F 1/00	Special treatment Metallic powder; Treatment of metallic powder, e.g. to facilitate working, or to improve properties; Metallic powders per se, e.g. mixtures of particles of different composition [1,2006.01,2022.01]
D	B22F 1/02	(transferred to B22F 1/00, B22F 1/102, B22F 1/16-B22F 1/18)
N	B22F 1/05	• Metallic powder characterised by the size or surface area of the particles [2022.01]
N	B22F 1/052	• • characterised by a mixture of particles of different sizes or by the particle size distribution [2022.01]
N	B22F 1/054	• • Nanosized particles [2022.01]
N	B22F 1/0545	• • • Dispersions or suspensions of nanosized particles [2022.01]

Compilation of amendments between 2021.01 and 2022.01 IPC

N	B22F 1/06	• Metallic powder characterised by the shape of the particles (nanosized particles B22F 1/054) [2022.01]
N	B22F 1/062	• • Fibrous particles [2022.01]
N	B22F 1/065	• • Spherical particles [2022.01]
N	B22F 1/0655	• • • Hollow particles [2022.01]
N	B22F 1/068	• • Flake-like particles [2022.01]
N	B22F 1/07	• Metallic powder characterised by particles having a nanoscale microstructure (nanosized particles B22F 1/054) [2022.01]
N	B22F 1/08	• Metallic powder characterised by particles having an amorphous microstructure [2022.01]
N	B22F 1/10	• Metallic powder containing lubricating or binding agents; Metallic powder containing organic material [2022.01]
N	B22F 1/102	• • Metallic powder coated with organic material [2022.01]
N	B22F 1/103	• • containing an organic binding agent comprising a mixture of, or obtained by reaction of, two or more components other than a solvent or a lubricating agent [2022.01]
N	B22F 1/105	• • containing inorganic lubricating or binding agents, e.g. metal salts [2022.01]
N	B22F 1/107	• • containing organic material comprising solvents, e.g. for slip casting [2022.01]
N	B22F 1/12	• Metallic powder containing non-metallic particles (containing lubricating or binding agents or organic material B22F 1/10) [2022.01]
N	B22F 1/14	• Treatment of metallic powder (mixing with lubricating or binding agents or with organic material B22F 1/10) [2022.01]
N	B22F 1/142	• • Thermal or thermo-mechanical treatment [2022.01]
N	B22F 1/145	• • Chemical treatment, e.g. passivation or decarburisation [2022.01]
N	B22F 1/148	• • Agglomerating [2022.01]
N	B22F 1/16	• Metallic particles coated with a non-metal (coated with lubricating or binding agents or with organic material B22F 1/10) [2022.01]
N	B22F 1/17	• Metallic particles coated with metal [2022.01]
N	B22F 1/18	• Non-metallic particles coated with metal [2022.01]
B28C		
M	B28C 5/48	• wherein the mixing is effected by vibrations (mixers with vibrating mechanisms in general B01F 11/00 B01F 31/00) [5,2006.01]
B41F		
M	B41F 7/36	• • • Inking-rollers serving also to apply ink repellent repellants [1,2006.01]
M	B41F 31/26	• Construction of inking rollers (inking-rollers serving also to apply ink repellent -repellants in rotary lithographic machines B41F 7/36) [1,2006.01]
B41J		
L	B41J 2/075	• • • • for many-valued deflection [5,2006.01]
B41L		
M	B41L 25/14	• Inking rollers serving also to apply ink repellent repellants [1,2006.01]
B42D		
L	B42D 25/45	• • Associating two or more layers [2014.01]
B60B		
L	B60B 3/08	• with disc body formed by two or more axially- spaced discs [1,2006.01]
B60G		

Compilation of amendments between 2021.01 and 2022.01 IPC

L	B60G	Subclass indexes	
		RIGID SUSPENSION	B60G 1/00
		RESILIENT SUSPENSION	
		General structures	
		for single wheels; single sets of tandem wheels; pivoted suspension arms and accessories therefor	B60G 3/00; B60G 5/00; B60G 7/00
		for rigid axle or axle housing for two or more wheels	B60G 9/00
		Characterised by arrangement, location, or kind of: springs; vibration-dampers; or combined springs and dampers	B60G 11/00; B60G 13/00; B60G 15/00
		Characterised by adjustment	B60G 17/00
		SUSPENSIONS WITH MEANS FOR SENSING GROUND UNEVENNESS	B60G 23/00
		INTERCONNECTED SYSTEMS FOR RESILIENTLY-SUSPENDED WHEELS	B60G 21/00
		OTHER SUSPENSION ARRANGEMENTS	B60G 99/00
L	B60G 5/04	• with two or more pivoted arms, the movements of which are resiliently interrelated [1,2006.01]	
L	B60G 9/00	Resilient suspensions for a rigid axle or axle housing for two or more wheels [1,2006.01]	
	B60L		
L	B60L 53/67	• • Controlling two or more charging stations [2019.01]	
L	B60L 58/18	• • of two or more battery modules [2019.01]	
	B60R		
C	B60R 1/00	Optical viewing arrangements (antiglare equipment ; Real-time viewing arrangements for drivers or passengers using optical image capturing systems, e.g. polarising , for windscreens or windows B60J 3/00) cameras or video systems specially adapted for use in or on vehicles [1,2,2006.01,2022.01]	
N	B60R 1/00	Note(s) [2022.01] <i>This group covers optical viewing arrangements using mirrors as well as real-time viewing arrangements using optical image capturing systems, e.g. the special adaptation of cameras or video systems in or on vehicles, for assisting drivers or passengers. In this context, "viewing" refers to a visual assistance of drivers or passengers using mirrors, cameras or the like.</i>	
N	B60R 1/20	• Real-time viewing arrangements for drivers or passengers using optical image capturing systems, e.g. cameras or video systems specially adapted for use in or on vehicles [2022.01]	
N	B60R 1/22	• • for viewing an area outside the vehicle, e.g. the exterior of the vehicle [2022.01]	
N	B60R 1/23	• • • with a predetermined field of view [2022.01]	
N	B60R 1/24	• • • • in front of the vehicle [2022.01]	
N	B60R 1/25	• • • • to the sides of the vehicle [2022.01]	
N	B60R 1/26	• • • • to the rear of the vehicle [2022.01]	
N	B60R 1/27	• • • • providing all-round vision, e.g. using omnidirectional cameras [2022.01]	
N	B60R 1/28	• • • with an adjustable field of view [2022.01]	
N	B60R 1/29	• • for viewing an area inside the vehicle, e.g. for viewing passengers or cargo [2022.01]	
N	B60R 1/30	• • providing vision in the non-visible spectrum, e.g. night or infrared vision [2022.01]	
N	B60R 1/31	• • providing stereoscopic vision [2022.01]	
	B60T		
L	B60T 15/16	• • • Arrangements enabling systems to be controlled from two or more positions [1,2006.01]	
L	B60T 17/10	• • Two or more cylinders acting on the same brake with means for rendering them effective selectively or successively, the number of effective cylinders being variable [1,2006.01]	
	B61C		
L	B61C 1/02	• of articulated construction; with two or more engines (appliances of booster engines B61C 15/02) [1,2006.01]	
L	B61C 7/00	Other locomotives or motor railcars characterised by the type of motive power plant used; Locomotives or motor railcars with two or more different kinds or types of motive power [1,2006.01]	

Compilation of amendments between 2021.01 and 2022.01 IPC

L	B61C 7/04	• Locomotives or motor railcars with two or more different kinds or types of engines, e.g. steam and IC engines [1,2006.01]
B61L		
C	B61L 27/00	Central railway traffic control systems; Trackside control ; Communication systems specially adapted therefor [1,2006.01,2022.01]
N	B61L 27/10	• Operations, e.g. scheduling or time tables [2022.01]
N	B61L 27/12	• • Preparing schedules [2022.01]
N	B61L 27/14	• • Following schedules [2022.01]
N	B61L 27/16	• • Trackside optimisation of vehicle or vehicle train operation [2022.01]
N	B61L 27/18	• • Crew rosters; Itineraries [2022.01]
N	B61L 27/20	• Trackside control of safe travel of vehicle or vehicle train, e.g. braking curve calculation [2022.01]
N	B61L 27/30	• Trackside multiple control systems, e.g. switch-over between different systems [2022.01]
N	B61L 27/33	• • Backup systems, e.g. switching when failures occur [2022.01]
N	B61L 27/37	• • Migration, e.g. parallel installations running simultaneously [2022.01]
N	B61L 27/40	• Handling position reports or trackside vehicle data [2022.01]
N	B61L 27/50	• Trackside diagnosis or maintenance, e.g. software upgrades [2022.01]
N	B61L 27/53	• • for trackside elements or systems, e.g. trackside supervision of trackside control system conditions [2022.01]
N	B61L 27/57	• • for vehicles or vehicle trains, e.g. trackside supervision of train conditions [2022.01]
N	B61L 27/60	• Testing or simulation [2022.01]
N	B61L 27/70	• Details of trackside communication [2022.01]
B62B		
L	B62B 13/06	• • arranged in two or more parallel lines [1,2006.01]
B62K		
L	B62K 5/08	• with steering devices acting on two or more wheels [1,2006.01]
B64C		
L	B64C 27/80	• • for differential adjustment of blade pitch between two or more lifting rotors [1,2006.01]
B65B		
L	B65B 9/12	• • Subdividing filled tubes to form two or more packages by sealing or securing involving displacement of contents [1,2006.01]
B65C		
L	B65C 1/04	• Affixing labels, e.g. wrap-around labels, to two or more flat surfaces of a polyhedral article [1,2006.01]
B65D		
L	B65D 19/06	• • with bodies formed by uniting or interconnecting two or more components [1,2006.01]
L	B65D 25/06	• • • adapted to be fitted in two or more alternative positions [1,2006.01]
L	B65D 35/10	• • made by uniting or interconnecting two or more components [1,2006.01]
L	B65D 75/28	• Articles or materials wholly enclosed in composite wrappers, i.e. wrappers formed by associating or interconnecting two or more sheets or blanks [1,2006.01]
L	B65D 77/04	• Articles or materials enclosed in two or more containers disposed one within another [1,2006.01]
M	B65D 81/28	• • Applications of food preservatives, fungicides, pesticides or animal repellents repellants [1,2006.01]
L	B65D 81/32	• for packaging two or more different materials which must be maintained separate prior to use in admixture (containers with removable or destructible partitions B65D 25/08) [1,2006.01]
B65G		
L	B65G 23/32	• for effecting drive at two or more points spaced along the length of the conveyors [1,2006.01]
B65H		
L	B65H 3/40	• by two or more separators acting alternately on the same pile (rotary or oscillating bodies carrying two or more separators B65H 3/42) [1,2006.01]
L	B65H 3/42	• by two or more separators mounted for movement with, or relative to, rotary or oscillating bodies [1,2006.01]
L	B65H 3/44	• Simultaneously, alternately, or selectively separating articles from two or more piles [1,2006.01]
L	B65H 21/00	Apparatus for splicing webs (during web-roll changing B65H 19/00; associating two or more webs B65H 39/16) [1,2006.01]

Compilation of amendments between 2021.01 and 2022.01 IPC

B66D		
L	B66D 3/06	• • with more than one pulley [1,2006.01]
C01F		
C	C01F 7/00	Compounds of aluminium [1,2006.01,2022.01]
C	C01F 7/02	• Aluminium oxide; Aluminium hydroxide; Aluminates [1,2006.01,2022.01]
N	C01F 7/021	• • After-treatment of oxides or hydroxides [2022.01]
N	C01F 7/022	• • • Classification [2022.01]
N	C01F 7/023	• • • Grinding, deagglomeration or disintegration [2022.01]
N	C01F 7/025	• • • Granulation or agglomeration [2022.01]
N	C01F 7/026	• • • Making or stabilising dispersions [2022.01]
N	C01F 7/027	• • • Treatment involving fusion or vaporisation [2022.01]
N	C01F 7/028	• • Beta-aluminas [2022.01]
C	C01F 7/04	• • Preparation of alkali metal aluminates; Aluminium oxide or hydroxide therefrom (C01F 7/028 takes precedence) [1,2006.01,2022.01]
N	C01F 7/043	• • • Lithium aluminates [2022.01]
N	C01F 7/046	• • • Stabilisation of aluminates [2022.01]
C	C01F 7/06	• • • by treating aluminous minerals or waste-like raw materials with alkali hydroxide, e.g. leaching of bauxite according to the Bayer process (obtaining aluminium oxide or hydroxide from the resulting aluminate solution C01F 7/14) [1,2006.01,2022.01]
N	C01F 7/0606	• • • • Making-up the alkali hydroxide solution from recycled spent liquor [2022.01]
N	C01F 7/0613	• • • • Pretreatment of the minerals, e.g. grinding [2022.01]
N	C01F 7/062	• • • • Digestion [2022.01]
N	C01F 7/0626	• • • • • Processes making use of tube digestion only [2022.01]
N	C01F 7/0633	• • • • • characterised by the use of additives [2022.01]
N	C01F 7/064	• • • • • Apparatus for digestion, e.g. digester vessels or heat exchangers [2022.01]
N	C01F 7/0646	• • • • Separation of the insoluble residue, e.g. of red mud [2022.01]
N	C01F 7/0653	• • • • • characterised by the flocculant added to the slurry (final clarification of the aluminate solution C01F 7/47) [2022.01]
N	C01F 7/066	• • • • Treatment of the separated residue [2022.01]
N	C01F 7/0666	• • • • Process control or regulation [2022.01]
N	C01F 7/0673	• • • • from phosphate-containing minerals [2022.01]
N	C01F 7/068	• • • • from carbonate-containing minerals, e.g. dawsonite [2022.01]
N	C01F 7/0686	• • • • from sulfate-containing minerals, e.g. alunite [2022.01]
N	C01F 7/0693	• • • • from waste-like raw materials, e.g. fly ash or Bayer calcination dust [2022.01]
C	C01F 7/08	• • by treating aluminous minerals with sodium carbonate, e.g. sinter processes (C01F 7/0613, C01F 7/066 take precedence) [1,2006.01,2022.01]
N	C01F 7/085	• • • • according to the lime-sinter process [2022.01]
L	C01F 7/12	• • Alkali metal aluminates from alkaline earth metal aluminates [1,2006.01]
C	C01F 7/14	• • Aluminium oxide or hydroxide from alkali metal aluminates [1,2006.01,2022.01]
N	C01F 7/141	• • • • from aqueous aluminate solutions by neutralisation with an acidic agent [2022.01]
N	C01F 7/142	• • • • • with carbon dioxide [2022.01]
N	C01F 7/144	• • • • from aqueous aluminate solutions by precipitation due to cooling, e.g. as part of the Bayer process [2022.01]
N	C01F 7/145	• • • • • characterised by the use of a crystal growth modifying agent other than aluminium hydroxide seed [2022.01]
N	C01F 7/147	• • • • • Apparatus for precipitation [2022.01]
N	C01F 7/148	• • • • Separation of the obtained hydroxide, e.g. by filtration or dewatering [2022.01]
C	C01F 7/16	• • Preparation of alkaline-earth metal aluminates or magnesium aluminates; Aluminium oxide or hydroxide therefrom (C01F 7/028 takes precedence) [1,2006.01,2022.01]
N	C01F 7/162	• • Magnesium aluminates [2022.01]
N	C01F 7/164	• • Calcium aluminates [2022.01]
N	C01F 7/166	• • Strontium aluminates [2022.01]
N	C01F 7/168	• • Barium aluminates [2022.01]
L	C01F 7/18	• • Aluminium oxide or hydroxide from alkaline earth metal aluminates [1,2006.01]
M	C01F 7/20	• • Preparation of aluminium oxide or hydroxide from aluminous ores with -using acids or salts [1,2006.01]
M	C01F 7/22	• • with halides or halogen acids [1,2006.01]
C	C01F 7/30	• • Preparation of aluminium oxide or hydroxide by thermal decomposition or by hydrolysis or oxidation of aluminium compounds [1,2006.01,2022.01]
N	C01F 7/302	• • Hydrolysis or oxidation of gaseous aluminium compounds in the gaseous phase [2022.01]
N	C01F 7/304	• • • • of organic aluminium compounds [2022.01]

Compilation of amendments between 2021.01 and 2022.01 IPC

N	C01F 7/306	... Thermal decomposition of hydrated chlorides, e.g. of aluminium trichloride hexahydrate [2022.01]
N	C01F 7/308	... Thermal decomposition of nitrates [2022.01]
M	C01F 7/32	... Thermal decomposition of sulfates including complex sulfates, e.g. alums [1,2006.01]
L	C01F 7/34	• Preparation of aluminium hydroxide by precipitation from solutions containing aluminium salts [1,2006.01]
L	C01F 7/38	• Preparation of aluminium oxide by thermal reduction of aluminous minerals [1,2006.01]
C	C01F 7/42	• Preparation of aluminium oxide or hydroxide from metallic aluminium, e.g. by oxidation [1,2006.01,2022.01]
N	C01F 7/422	... by oxidation with a gaseous oxidator at a high temperature [2022.01]
N	C01F 7/424	... using a plasma [2022.01]
N	C01F 7/426	... by applying mechanical energy to solid aluminium at a low temperature [2022.01]
N	C01F 7/428	... by oxidation in an aqueous solution [2022.01]
C	C01F 7/44	• Dehydration of aluminium oxide or hydroxide, i.e. all conversions of one form into another involving a loss of water [1,2006.01,2022.01]
N	C01F 7/441	... by calcination [2022.01]
N	C01F 7/442	... in presence of a calcination additive [2022.01]
N	C01F 7/444	... Apparatus therefor [2022.01]
N	C01F 7/445	... making use of a fluidised bed [2022.01]
N	C01F 7/447	... by wet processes [2022.01]
N	C01F 7/448	... using superatmospheric pressure, e.g. hydrothermal conversion of gibbsite into boehmite [2022.01]
M	C01F 7/46	• Purification of aluminium oxide, aluminium hydroxide or aluminates (C01F 7/028 takes precedence) [1,5,2006.01]
C	C01F 7/47	... of aluminates, e.g. removal of compounds of Si, Fe, Ga or of organic compounds from Bayer process liquors [5,2006.01,2022.01]
N	C01F 7/473	... Removal of organic compounds, e.g. sodium oxalate [2022.01]
N	C01F 7/476	... by oxidation [2022.01]
M	C01F 7/48	• Aluminium halides Halides, with or without other cations besides aluminium [1,2006.01]
M	C01F 7/52	• Double compounds containing both fluorine and other acid-halide groups [1,2006.01]
C	C01F 7/56	• Chlorides (containing fluorine C01F 7/52) [1,3,2006.01,2022.01]
N	C01F 7/57	• Basic aluminium chlorides, e.g. polyaluminium chlorides [2022.01]
M	C01F 7/66	• Aluminium nitrates (containing fluorine C01F 7/52) Nitrates, with or without other cations besides aluminium [1,3,2006.01]
M	C01F 7/68	• Aluminium compounds containing sulfur (containing fluorine C01F 7/52) [1,3,2006.01]
C	C01F 7/74	• Sulfates [1,2006.01,2022.01]
N	C01F 7/741	• Preparation from elemental aluminium or elemental aluminium containing materials, e.g. foil or dross [2022.01]
N	C01F 7/743	• Preparation from silicoaluminous materials, e.g. clays or bauxite [2022.01]
N	C01F 7/745	• Preparation from alums, e.g. alunite [2022.01]
N	C01F 7/746	• After-treatment, e.g. dehydration or stabilisation [2022.01]
N	C01F 7/748	• Purification [2022.01]
C	C01F 7/76	• Double salts, i.e. compounds containing, besides aluminium and sulfate ions, only other cations, e.g. alums [1,2006.01,2022.01]
N	C01F 7/762	• Ammonium or alkali metal aluminium sulfates [2022.01]
N	C01F 7/765	• Ammonium aluminium sulfates [2022.01]
N	C01F 7/767	• Alkaline earth metal aluminium sulfates [2022.01]
N	C01F 7/77	• Aluminium carbonates [2022.01]
N	C01F 7/78	• Compounds containing aluminium and two or more other elements, with the exception of oxygen and hydrogen (aluminates C01F 7/02; compounds containing aluminium, fluorine and alkali or alkaline earth metals C01F 7/54; nitrates containing other cations besides aluminium C01F 7/66; sulfides, sulfites or sulfates containing other cations besides aluminium C01F 7/70-C01F 7/74) [2022.01]
N	C01F 7/782	• containing carbonate ions, e.g. dawsonite [2022.01]
N	C01F 7/784	• Layered double hydroxide, e.g. comprising nitrate, sulfate or carbonate ions as intercalating anions [2022.01]
N	C01F 7/785	• Hydrotalcite [2022.01]
N	C01F 7/786	• containing, besides aluminium, only anions, e.g. Al[OH] _x Cl _y [SO ₄] _z (mixed halides C01F 7/48) [2022.01]
N	C01F 7/788	• Ammonium aluminium fluorides, e.g. ammonium hexafluoroaluminate [2022.01]
C03C		
L	C03C 25/226	• by sputtering [2018.01]

Compilation of amendments between 2021.01 and 2022.01 IPC

C04B		
M	C04B 111/27	• • Water resistance, i.e. waterproof or water repellant repellent materials [6,2006.01]
C06D		
L	C06D 5/06	• by reaction of two or more solids [1,2006.01]
L	C06D 5/08	• by reaction of two or more liquids [1,2006.01]
C07D		
L	C07D	Subclass indexes
		COMPOUNDS CONTAINING ONE HETERO RING
		HAVING NITROGEN AS RING HETERO ATOM
		only nitrogen atoms
		one nitrogen atom
		Polymethyleneimine C07D 295/00
		Preparation of lactams C07D 201/00
		three-membered ring C07D 203/00
		four-membered ring C07D 205/00
		five-membered ring C07D 207/00, C07D 209/00
		six-membered ring C07D 211/00, C07D 213/00,
		C07D 215/00, C07D 217/00,
		C07D 219/00, C07D 221/00
		C07D 223/00
		seven-membered ring C07D 225/00, C07D 227/00
		Other compounds
		two nitrogen atoms
		four-membered ring C07D 229/00
		five-membered ring C07D 231/00, C07D 233/00,
		C07D 235/00
		six-membered ring C07D 237/00, C07D 239/00,
		C07D 241/00
		Piperazine C07D 295/00
		seven-membered ring C07D 243/00
		Other compounds C07D 245/00, C07D 247/00
		three nitrogen atoms
		five-membered ring C07D 249/00
		six-membered ring C07D 251/00, C07D 253/00
		Other compounds C07D 255/00
		four or more nitrogen atoms C07D 257/00, C07D 259/00
		nitrogen and oxygen atoms
		five-membered ring C07D 261/00, C07D 263/00,
		C07D 271/00
		six-membered ring C07D 265/00, C07D 273/00
		morpholine C07D 295/00
		Other compounds C07D 267/00, C07D 269/00,
		C07D 273/00
		nitrogen and sulfur atoms
		five-membered ring C07D 275/00, C07D 277/00,
		C07D 285/00
		six-membered ring C07D 279/00, C07D 285/00
		Thiomorpholine C07D 295/00
		Other compounds C07D 281/00, C07D 283/00,
		C07D 285/00
		C07D 291/00
		nitrogen, oxygen, and sulfur atoms
		HAVING OXYGEN AS RING HETERO ATOM
		only oxygen atoms
		one oxygen atom
		three-membered ring C07D 301/00, C07D 303/00
		four-membered ring C07D 305/00
		five-membered ring C07D 307/00
		six-membered ring C07D 309/00, C07D 311/00
		Other compounds C07D 313/00, C07D 315/00
		two oxygen atoms
		five-membered ring C07D 317/00

Compilation of amendments between 2021.01 and 2022.01 IPC

six-membered ring	C07D 319/00
Other compounds	C07D 321/00
three or more oxygen atoms	C07D 323/00
Other compounds	C07D 325/00
oxygen and nitrogen atoms	
five-membered ring	C07D 261/00, C07D 263/00, C07D 271/00
six-membered ring	C07D 265/00, C07D 273/00
Morpholine	C07D 295/00
Other compounds	C07D 267/00, C07D 269/00, C07D 273/00
oxygen and sulfur atoms	C07D 327/00
oxygen, nitrogen and sulfur atoms	C07D 291/00
HAVING SULFUR AS RING HETERO ATOM	
only sulfur atoms	
one sulfur atom	
five-membered ring	C07D 333/00
six-membered ring	C07D 335/00
Other compounds	C07D 331/00, C07D 337/00
two or more sulfur atoms	C07D 339/00, C07D 341/00
sulfur and nitrogen atoms	
five-membered ring	C07D 275/00, C07D 277/00, C07D 285/00
six-membered ring	C07D 279/00, C07D 285/00
Thiomorpholine	C07D 295/00
Other compounds	C07D 281/00, C07D 283/00, C07D 285/00
sulfur and oxygen atoms	C07D 327/00
sulfur, nitrogen, and oxygen atoms	C07D 291/00
HAVING SELENIUM OR TELLURIUM AS RING HETERO ATOM	
only selenium or tellurium atoms	C07D 345/00
together with nitrogen atoms	C07D 293/00
together with oxygen atoms	C07D 329/00
together with sulfur atoms	C07D 343/00
HAVING HALOGEN AS RING HETERO ATOM	C07D 347/00
COMPOUNDS CONTAINING TWO OR MORE HETERO RINGS	
IN THE SAME RING SYSTEM	
HAVING NITROGEN AS RING HETERO ATOM	
only nitrogen	
at least one six-membered ring with one nitrogen atom	C07D 471/00
Tropane, granatane	C07D 451/00
Quinine, quinuclidine, isoquinuclidine	C07D 453/00
Emetine, berberine	C07D 455/00
Lysergic acid, ergot alkaloids	C07D 457/00
Yohimbine	C07D 459/00
Vincamine	C07D 461/00
Carbacephalosporins	C07D 463/00
Other compounds	C07D 487/00, C07D 507/00, C07D 513/00
Purine	C07D 473/00
Pteridine	C07D 475/00
Thienamycin	C07D 477/00
nitrogen and oxygen	C07D 491/00, C07D 498/00, C07D 507/00
Morphine	C07D 489/00
Oxapenicillins	C07D 503/00
Oxacephalosporins	C07D 505/00
nitrogen and sulfur	C07D 507/00, C07D 513/00
Penicillins	C07D 499/00
Cephalosporins	C07D 501/00

Compilation of amendments between 2021.01 and 2022.01 IPC

nitrogen, oxygen, and sulfur HAVING OXYGEN AS RING HETERO ATOM	C07D 507/00, C07D 515/00
only oxygen	C07D 493/00
oxygen and nitrogen	C07D 491/00, C07D 498/00, C07D 507/00
Morphine	C07D 489/00
Oxapenicillins	C07D 503/00
Oxacephalosporins	C07D 505/00
oxygen and sulfur	C07D 497/00
oxygen, nitrogen, and sulfur HAVING SULFUR AS RING HETERO ATOM	C07D 507/00, C07D 515/00
only sulfur in a particular ring	C07D 495/00
sulfur and oxygen	C07D 497/00
sulfur, nitrogen, and oxygen HAVING SELENIUM, TELLURIUM, OR HALOGEN AS RING HETERO ATOM	C07D 507/00, C07D 515/00 C07D 517/00
IN DIFFERENT RING SYSTEMS, EACH CONTAINING ONLY ONE HETERO RING HAVING NITROGEN AS RING HETERO ATOM	
only nitrogen	
at least one six-membered ring with one nitrogen atom	C07D 401/00
Other compounds	C07D 403/00
nitrogen and oxygen	C07D 405/00, C07D 413/00
nitrogen and sulfur	C07D 417/00
thiamine	C07D 415/00
nitrogen, oxygen, and sulfur HAVING OXYGEN AS RING HETERO ATOM	C07D 419/00
only oxygen	C07D 407/00
oxygen and nitrogen	C07D 405/00, C07D 413/00
oxygen and sulfur	C07D 411/00
oxygen, nitrogen, and sulfur HAVING SULFUR AS RING HETERO ATOM	C07D 419/00
only sulfur in a particular ring	C07D 409/00
sulfur and nitrogen	C07D 417/00
thiamine	C07D 415/00
sulfur and oxygen	C07D 411/00
sulfur, nitrogen, and oxygen HAVING SELENIUM, TELLURIUM, OR HALOGEN AS RING HETERO ATOM	C07D 419/00 C07D 421/00
COMPOUNDS CONTAINING TWO OR MORE RING SYSTEMS, HAVING EACH TWO OR MORE HETERO RINGS	C07D 519/00
ALKALOIDS	
Emetine	C07D 455/00
Ergot	C07D 457/00, C07D 519/00
Granatanine	C07D 451/00
Morphine	C07D 489/00
Nicotine	C07D 401/00
Papaverine	C07D 217/20
Quinine	C07D 453/00
Strychnine	C07D 498/00
Tropane	C07D 451/00
CEPHALOSPORIN	C07D 501/00
PENICILLIN	C07D 499/00
PTERIDINE	C07D 475/00
THIENAMYCIN	C07D 477/00
PURINE	C07D 473/00
THIAMINE	C07D 415/00
COMPOUNDS CONTAINING UNSPECIFIED HETERO RINGS	C07D 521/00

L C07D 239/60

••••• Three or more oxygen or sulfur atoms [2,2006.01]

C07K

Compilation of amendments between 2021.01 and 2022.01 IPC

M	C07K 14/145	• • • Rhabdoviridae, e.g. rabies virus, Duvenhage virus, Mekda -Mokola virus or vesicular stomatitis virus [6,2006.01]
C09D		
L	C09D 123/16	• • Ethene-propene or ethene-propene-diene copolymers [5,2006.01]
C09K		
N	C09K 23/00	Use of substances as emulsifying, wetting, dispersing, or foam-producing agents [2022.01]
N	C09K 23/02	• Alkyl sulfonates or sulfuric acid ester salts derived from monohydric alcohols [2022.01]
N	C09K 23/04	• Sulfonates or sulfuric acid ester salts derived from polyhydric alcohols or amino alcohols or derivatives thereof (sulfated or sulfonated fatty oils C09K 23/08) [2022.01]
N	C09K 23/06	• Esters of higher fatty acids with hydroxyalkylated sulfonic acids or salts thereof [2022.01]
N	C09K 23/08	• Sulfation or sulfonation products of fats, oils, waxes, or higher fatty acids or esters thereof with monovalent alcohols [2022.01]
N	C09K 23/10	• Derivatives of low-molecular-weight sulfocarboxylic acids or sulfopolycarboxylic acids [2022.01]
N	C09K 23/12	• Sulfonates of aromatic or alkylated aromatic compounds [2022.01]
N	C09K 23/14	• Derivatives of phosphoric acid [2022.01]
N	C09K 23/16	• Amines or polyamines [2022.01]
N	C09K 23/18	• Quaternary ammonium compounds [2022.01]
N	C09K 23/20	• Phosphonium and sulfonium compounds [2022.01]
N	C09K 23/22	• Amides or hydrazides [2022.01]
N	C09K 23/24	• • Amides of higher fatty acids with aminoalkylated sulfonic acids [2022.01]
N	C09K 23/26	• Sulfonamides [2022.01]
N	C09K 23/28	• Aminocarboxylic acids (proteins and protein hydrolysates C09K 23/30) [2022.01]
N	C09K 23/30	• Proteins; Protein hydrolysates [2022.01]
N	C09K 23/32	• Heterocyclic compounds [2022.01]
N	C09K 23/34	• Higher-molecular-weight carboxylic acid esters (esters of higher fatty acids with hydroxyalkylated sulfonic acids or salts thereof C09K 23/06) [2022.01]
N	C09K 23/36	• • Esters of polycarboxylic acids [2022.01]
N	C09K 23/38	• Alcohols, e.g. oxidation products of paraffins [2022.01]
N	C09K 23/40	• Phenols [2022.01]
N	C09K 23/42	• Ethers, e.g. polyglycol ethers of alcohols or phenols [2022.01]
N	C09K 23/44	• • Ether carboxylic acids [2022.01]
N	C09K 23/46	• • Ethers of aminoalcohols [2022.01]
N	C09K 23/48	• • Cellulose ethers [2022.01]
N	C09K 23/50	• Derivatives of lignin [2022.01]
N	C09K 23/52	• Natural or synthetic resins or their salts [2022.01]
N	C09K 23/54	• Silicon compounds [2022.01]
N	C09K 23/56	• Glucosides; Mucilage; Saponins [2022.01]
C12P		
C	C12P 7/62	• Carboxylic acid esters [3,2006.01,2022.01]
N	C12P 7/625	• • Polyesters of hydroxy carboxylic acids [2022.01]
C	C12P 7/64	• Fats; Fatty oils; Ester-type waxes; Higher fatty acids, i.e. having at least seven carbon atoms in an unbroken chain bound to a carboxyl group; Oxidised oils or fats [3,2006.01,2022.01]
N	C12P 7/6409	• • Fatty acids [2022.01]
N	C12P 7/6418	• • • by hydrolysis of fatty acid esters [2022.01]
N	C12P 7/6427	• • • Polyunsaturated fatty acids [PUFA], i.e. having two or more double bonds in their backbone [2022.01]
N	C12P 7/6431	• • • • Linoleic acids [18:2[n-6]] [2022.01]
N	C12P 7/6432	• • • • Eicosapentaenoic acids [EPA] [2022.01]
N	C12P 7/6434	• • • • Docosahexenoic acids [DHA] [2022.01]
N	C12P 7/6436	• • Fatty acid esters [2022.01]
N	C12P 7/6445	• • • Glycerides [2022.01]
N	C12P 7/6454	• • • • by esterification [2022.01]
N	C12P 7/6458	• • • • by transesterification, e.g. interesterification, ester interchange, alcoholysis or acidolysis [2022.01]
N	C12P 7/6463	• • • • obtained from glyceride producing microorganisms, e.g. single cell oil [2022.01]
N	C12P 7/6472	• • • • containing polyunsaturated fatty acid [PUFA] residues, i.e. having two or more double bonds in their backbone [2022.01]

Compilation of amendments between 2021.01 and 2022.01 IPC

N	C12P 7/6481	• • • • Phosphoglycerides (phosphoglycerides having carboxylic acids with less than seven carbon atoms C12P 7/62) [2022.01]
N	C12P 7/649	• • • Biodiesel, i.e. fatty acid alkyl esters [2022.01]
C25B		
M	C25B 1/04	• • • by electrolysis of water [2,2006.01,2021.01]
M	C25B 1/042	• • • <i>by electrolysis</i> of steam [2021.01]
M	C25B 1/044	• • • of producing mixed hydrogen and oxygen gas, e.g. Brown's-Brown's gas [HHO] [2021.01]
M	D01H	SPINNING OR TWISTING (unwinding, paying-out, forwarding, winding, or coiling filamentary material, not intimately associated with spinning or twisting ; B65H ; cores, formers, supports, or holders for coiled or wound material, e.g. bobbins, B65H ; twisting oakum D01G 35/00; crimping or curling of fibres, filaments, or yarns D02G 1/00 ; making chenille D03D ; D04D 3/00 ; testing yarns, rovings, slivers, fibres, or fibre webs G01)
M	D01H 3/14	• • Roller-driving arrangements (drafting arrangements of general application in spinning machines D01H 5/18) [1,2006.01]
M	D01H 5/00	Drafting machines or arrangements (arrangements in which draft is dependent on linear movement of take-up spindles, e.g. in mules, D01H 3/00 ; devices for combing or orienting fibres for open-end spinning machines D01H 4/30) [1,2006.01]
M	D01H 5/02	• Gill boxes or other drafting machines employing fallers or like pinned bars (lubricating fibres in gill boxes D01G 29/00) [1,2006.01]
M	D01H 5/28	• • in which fibres are controlled by inserting twist during drafting (mules D01H 3/00 ; constructions of false twist devices D02G 1/04) [1,2006.01]
M	D01H 5/56	• • Supports for drafting elements (saddles or top roller arms forming essential components of weighting arrangements D01H 5/48) [1,2006.01]
M	D01H 5/58	• • Arrangements for traversing drafting elements (traversing arrangements for roving guides D01H 13/06) [1,2006.01]
M	D01H 5/72	• • • Fibre-condensing guides (guides for slivers, rovings, or yarns applicable solely for spinning, twisting, curling, or crimping purposes D01H 13/04) [1,2006.01]
M	D01H 7/04	• • Spindles (spindle bearings, supports therefor, in general F16G) [1,2006.01]
M	D01H 7/18	• • • Arrangements on spindles for suppressing yarn balloons (thread guards or protectors D01H 1/42) [1,2006.01]
M	D01H 7/24	• • Flyer or like arrangements (multiple twist arrangements D01H 7/86) [1,2006.01]
M	D01H 7/50	• • • Interrelated flyer and bobbin drive mechanisms, e.g. winding-on motions for cotton-roving frames (package building mechanisms D01H 1/36) [1,2006.01]
M	D01H 7/60	• • • Rings or travellers; Manufacture thereof not otherwise provided for (hand tools for applying travellers to rings D01H 17/02) [1,2006.01]
M	D01H 7/64	• • • Ring supports, e.g. ring rails (poker guides or other rail supports D01H 7/10) [1,2006.01]
M	D01H 7/72	• • • Bobbin-supporting arrangements, e.g. bobbin rails (poker guides or other rail supports D01H 7/10) [1,2006.01]
M	D01H 7/84	• • • Spindles or yarn carriers for co-operation with rotary cups (removing yarn from centrifugal cups on to yarn carriers D01H 9/06) [1,2006.01]
M	D01H 7/90	• • Arrangements with two or more twisting devices in combination (D01H 7/86 ; D01H 7/88 <i>take-takes</i> precedence) [1,2006.01]
M	D01H 9/00	Arrangements for replacing or removing bobbins, cores, receptacles, or completed packages at paying-out or take-up stations (arrangements of general interest in the winding of filamentary material B65H) [1,2006.01]
M	D01H 9/14	• • for preparing machines for doffing of yarns (stop motions responsive to delivery of a measured length of material D01H 13/24) [1,2006.01]
M	D01H 11/00	Arrangements for confining or removing dust, fly , or the like (cleaning of running surfaces in open-end spinning machines D01H 4/22 ; separation in general B01D ; cleaning in general B08B ; air conditioning F24F , e.g. by filtering F24F 3/16 ; F24F 8/10) [1,5,2006.01]
M	D01H 13/00	Other common constructional features, details , or accessories (for open-end spinning D01H 4/00) [1,5,2006.01]
M	D01H 13/12	• Arrangements preventing snarls or inadvertent doubling of yarns (suction end catchers D01H 5/68) [1,2006.01]

Compilation of amendments between 2021.01 and 2022.01 IPC

M	D01H 13/14	• Warning or safety devices, e.g. automatic fault detectors, stop motions (warning or safety devices for filamentary material, not intimately associated with spinning or like machines B65H ; safety devices of general application F16P ; indicating devices of general application G08B) [1,2006.01]
M	D01H 13/32	• Counting, measuring, recording , or registering devices (in general, see in the appropriate subclass of section G , e.g. G01B) [1,2006.01]
M	D01H 15/00	Piecing arrangements (for open-end spinning machines D01H 4/48 ; in machines for producing textile fabrics, see the appropriate subclasses) [1,5,2006.01]
M	D01H 17/00	Hand tools (cop-tube applying apparatus D01H 9/12) [1,2006.01]
D02G		
L	D02G 1/20	• Combinations of two or more of the above-mentioned operations or devices; After-treatments for fixing crimp or curl [1,2006.01]
D03D		
M	D03D 9/00	Open-work fabrics (ladder-tape fabrics D03D 1/08) [1,2006.01]
M	D03D 11/02	• Fabrics formed with pockets, tubes, loops, folds, tucks , or flaps (fabrics for curtain heading tapes D03D 1/06 ; fabrics consisting of a single tube D03D 3/02) [1,2006.01]
M	D03D 15/527	• • waterproof or water-repellent [2021.01]
M	D03D 45/00	Looms with automatic weft replenishment (automatic replenishment in smallware looms D03D 35/00, in circular looms D03D 37/00 ; bobbins rewound on loom D03J 1/12) [1,2006.01]
M	D03D 47/24	• • by gripper or dummy shuttle (travelling-wave-shed looms D03D 47/26; inserting mechanisms for shuttles D03D 49/24 ; gripper or dummy shuttles per se D03J 5/06) [1,2006.01]
M	D03D 49/00	Details or constructional features not peculiar to specially adapted for looms of a particular type (temples D03J 1/22) [1,2006.01]
M	D03D 49/06	• • Warp let-off mechanisms (construction of warp beam D02H) [1,2006.01]
M	D03D 49/18	• • Devices for indicating warp tension (measuring tension of threads in general G01L 5/04) [1,2006.01]
M	D03D 49/20	• • Take-up motions; Cloth beams (storage racks for beams D02H) [1,2006.01]
M	D03D 49/24	• Mechanisms for inserting shuttle in shed (shuttles per se D03J 5/00) [1,2006.01]
M	D03D 49/70	• Devices for cutting weft threads (cutting weft in looms with automatic weft replenishment D03D 45/50 ; apparatus for slitting fabric D03J 1/08) [1,2006.01]
D06F		
L	D06F 45/00	Wringing machines with two or more co-operating rollers; Similar cold-smoothing apparatus [1,2006.01]
E03C		
L	E03C 1/048	• • • supplying water through two or more openings around or along one side of the water-basin [1,2006.01]
E04B		
L	E04B 1/14	• • the elements being composed of two or more materials (of reinforced concrete E04B 1/04) [1,2006.01]
L	E04B 1/30	• • the supporting parts being composed of two or more materials; Composite steel and concrete constructions (of reinforced concrete E04B 1/20) [1,2006.01]
L	E04B 2/28	• • Walls having cavities between, but not in, the elements; Walls of elements each consisting of two or more parts kept in distance by means of spacers, all parts being solid [1,2006.01]
L	E04B 2/42	• • Walls having cavities between, as well as in, the elements; Walls of elements each consisting of two or more parts, kept in distance by means of spacers, at least one of the parts having cavities [1,2006.01]
L	E04B 2/62	• • • the members being formed of two or more elements in side-by-side relationship [1,2006.01]
E04C		
L	E04C 3/36	• • of materials not covered by groups E04C 3/32 or E04C 3/34; of a combination of two or more materials [1,2006.01]
L	E04C 3/46	• • of materials not covered by groups E04C 3/40-E04C 3/44; of a combination of two or more materials [1,2006.01]
E04D		
L	E04D 1/28	• Roofing elements comprising two or more layers, e.g. for insulation [1,2006.01]
L	E04D 3/35	• Roofing slabs or stiff sheets comprising two or more layers, e.g. for insulation [1,2006.01]

Compilation of amendments between 2021.01 and 2022.01 IPC

L	E04D 11/02	• Built-up roofs, i.e. consisting of two or more layers bonded together <u>in situ</u> , at least one of the layers being of watertight composition (gravelling of flat roofs E04D 7/00; venting or ventilation E04D 13/17) [1,2006.01]
E04H		
L	E04H 1/04	• • Apartment houses arranged in two or more levels [1,2006.01]
E05B		
L	E05B 83/20	• • • with two or more wings, which together close a single compartment [2014.01]
E05C		
L	E05C 17/32	• • • consisting of two or more pivoted rods [1,2006.01]
E05G		
M	E05G 1/00	Safes or strong-rooms for valuables (savings boxes A45C 1/12; floatable safes B63C 7/30; storage containers without attack or fire repellent-retardant features B65D; bank buildings in general, e.g. modular construction or floor plan, E04H 1/06; buildings resistant to earthquake or war action E04H 9/00) [1,2006.01]
M	E05G 1/10	• with alarm, signal, or indicator (burglar, theft, or intruder alarm <u>per se</u> G08B 13/00; fire or explosion alarm <u>per se</u> G08B 17/00) [2,2006.01]
M	E05G 1/12	• with fluent-material releasing, generating or distributing means, e.g. repellent-fire-retardant or fire extinguishing <u>means</u> (E05G 1/14 takes precedence; identifying, scaring or incapacitating burglars, thieves or intruders with smoke, gas, powder or liquid G08B 15/02) [2,6,2006.01]
F01B		
L	F01B 1/10	• with more than one main shaft, e.g. coupled to common output shaft (combinations of two or more machines or engines F01B 21/00) [1,2006.01]
L	F01B 7/00	Machines or engines with two or more pistons reciprocating within same cylinder or within essentially coaxial cylinders (in opposite arrangement relative to main shaft F01B 1/08) [1,2006.01]
F01C		
L	F01C 11/00	Combinations of two or more machines or engines, each being of rotary-piston or oscillating-piston type (F01C 13/00 takes precedence; combinations of two or more pumps F04; fluid gearing F16H) [1,2006.01]
F01D		
L	F01D 1/10	• • having two or more stages subjected to working-fluid flow without essential intermediate pressure change, i.e. with velocity stages (F01D 1/12 takes precedence) [1,2006.01]
F01K		
L	F01K 3/12	• having two or more accumulators [1,2006.01]
L	F01K 7/40	• • Use of two or more feed-water heaters in series [1,2006.01]
F01L		
L	F01L 1/12	• Transmitting-gear between valve drive and valve (simultaneously operating two or more valves F01L 1/26) [1,2006.01]
L	F01L 3/02	• Selecting particular materials for valve members or valve seats; Valve members or valve seats composed of two or more materials [1,2006.01]
F02B		
L	F02B 23/04	• • the combustion space being subdivided into two or more chambers (with pre-combustion chambers F02B 19/00) [1,2006.01]
L	F02B 73/00	Combinations of two or more engines, not otherwise provided for [1,2006.01]
M	F02D	CONTROLLING COMBUSTION ENGINES (vehicle fittings, acting on a single sub-unit only, for automatically controlling vehicle speed B60K 31/00; conjoint control of vehicle sub-units of different type or different function, road vehicle drive control systems for purposes other than the control of a single sub-unit B60W or cyclically operating valves for combustion engines F01L ; controlling combustion engine lubrication F01M ; cooling internal combustion engines F01P ; supplying combustion engines with combustible mixtures or constituents thereof, e.g. carburettors, injection pumps, F02M ; starting of combustion engines F02N ; controlling of ignition F02P ; controlling gas-turbine plants, jet-propulsion plants, or combustion-product engine plants, see the relevant subclasses for these plants) [4,2006.01]

Compilation of amendments between 2021.01 and 2022.01 IPC

L	F02D	Subclass indexes	
		CONTROLLING COMBUSTION ENGINES IN GENERAL	
		Characterised by action on engine operation	
		on injection: general; low pressure; other means	F02D 1/00; F02D 3/00; F02D 7/00
		by throttling air or fuel-and-air induction or exhaust	F02D 9/00
		on valve-operating cycle; varying compression ratio	F02D 13/00; F02D 15/00
		cutting-out cylinders, rendering engines inoperative or idling	F02D 17/00
		on delivery of fuel or combustion-air, not otherwise provided for	F02D 33/00
		on two or more associated functions not otherwise provided for	F02D 37/00
		Characterised by initiating or actuating means	
		non-automatic initiation, e.g. by operator	F02D 11/00
		initiation by speed-sensing governors or by interior or exterior conditions, not otherwise provided for	F02D 31/00, F02D 35/00
		Programme control	F02D 28/00
		CONTROL OF PARTICULAR ENGINES	
		engines: characterised by fuel; by combustion medium used; by supercharge	F02D 19/00; F02D 21/00; F02D 23/00
		co-operating engines; reversible engines; engines driving vehicle or particular devices	F02D 25/00; F02D 27/00; F02D 29/00
		OTHER CONTROL	
		Non-electrical	F02D 39/00
		Electrical	F02D 41/00-F02D 45/00
M	F02D 3/00	Controlling low-pressure fuel injection, i.e. where the fuel-air fuel-mixture containing fuel thus injected will be substantially compressed by the compression stroke of the engine, by means other than controlling only an injection pump (carburettors F02M) [1,2,2006.01]	
M	F02D 9/08	• Throttle valves specially adapted therefor; Arrangements of such valves in conduits (throttle valves modified for use in, or arranged in, carburettors F02M ; throttle valves in general F16K) [1,2006.01]	
M	F02D 11/00	Arrangements for, or adaptations to, non-automatic engine control initiation means, e.g. operator initiated (specially for reversing F02D 27/00 ; arrangement or mounting of prime-mover control devices in vehicles B60K 26/00) [1,2,5,2006.01]	
M	F02D 11/04	• characterised by mechanical control linkages (with power drive or assistance F02D 11/06 takes precedence) [1,5,2006.01]	
M	F02D 13/00	Controlling the engine output power by varying inlet or exhaust valve operating characteristics, e.g. timing (modifying valve gear F01L) [1,2006.01]	
M	F02D 15/00	Varying compression ratio (modifying valve gear F01L) [1,2006.01]	
M	F02D 19/02	• peculiar to engines working with gaseous fuels (apparatus, or control parts thereof, for mixing gas and air F02M) [1,2006.01]	
M	F02D 19/12	• peculiar to engines working with non-fuel substances or with anti-knock agents, e.g. with anti-knock fuel (apparatus, or control parts thereof, for delivering such substances or agents F02M) [1,2006.01]	
M	F02D 21/08	• the other gas being the exhaust gas of engine (circulation of exhaust gas in oxygen-fed engines F02D 21/04) [1,2006.01]	
M	F02D 21/10	• having secondary air added to fuel-air mixture (apparatus, or control parts thereof, for delivering secondary air F02M) [1,2006.01]	
M	F02D 28/00	Programme-control of engines (programme-control specific to a type or purpose covered by one of the groups of this subclass, except groups F02D 29/00 ; F02D 39/00 ; or by one group of another subclass, e.g. of F01L ; see that group) [2,2006.01]	
L	F02D 37/00	Non-electrical conjoint control of two or more functions of engines, not otherwise provided for [1,2006.01]	
M	F02D 37/02	• one of the functions being ignition (ignition control per se F02P) [1,2006.01]	
M	F02D 41/18	• by measuring intake air flow (measuring flow, in general G01F) [4,2006.01]	

Compilation of amendments between 2021.01 and 2022.01 IPC

M	F02D 41/20	• Output circuits, e.g. for controlling currents in command coils (current control in inductive loads in general H03K 17/64) [4,2006.01]
M	F02D 41/34	• • • with means for controlling injection timing or duration (ignition timing F02P 5/00) [4,2006.01]
M	F02D 41/36	• • • with means for controlling distribution (arrangement of ignition distributors F02P 7/00) [4,2006.01]
M	F02D 43/00	Conjoint electrical control of two or more functions, e.g. ignition, fuel-air mixture, recirculation, supercharging, or exhaust-gas treatment (electrical control of exhaust gas treating apparatus per se F01N 9/00) [4,2006.01]
M	F02D 45/00	Electrical control not provided for in groups F02D 41/00-F02D 43/00 (electrical control of exhaust gas treating apparatus F01N 9/00 ; electrical control of one of the functions: ignition, lubricating, cooling, starting, intake heating, see the relevant subclasses for such functions) [4,2006.01]
M	F02K	JET-PROPULSION PLANTS (arrangement or mounting of jet-propulsion plants in land vehicles or vehicles in general B60K ; arrangement or mounting of jet-propulsion plants in waterborne vessels B63H ; controlling aircraft attitude, flight direction, or altitude by jet reaction B64C ; arrangement or mounting of jet-propulsion plants in aircraft B64D ; plants characterised by the power of the working fluid being divided between jet propulsion and another form of propulsion, e.g. propeller, F02B, F02C ; features of jet-propulsion plants common to gas-turbine plants, air intakes or fuel supply control of air-breathing jet-propulsion plants F02C F02C 7/00, F02C 9/00)
M	F02K 1/06	• Varying effective area of jet pipe or nozzle (F02K 1/30 takes precedence by using fluid jets to influence the jet flow F02K 1/30) [1,3,2006.01]
M	F02K 1/54	• Nozzles having means for reversing jet thrust (F02K 1/32 takes precedence reversing jet thrust using fluid jets F02K 1/32) [3,2006.01]
M	F02K 3/08	• with supplementary heating of the working fluid (after burners, combustion chambers F23R) ; Control thereof (control of fuel supply therefor F02C 9/26) [1,3,2006.01]
M	F02K 9/00	Rocket-engine plants, i.e. plants carrying both fuel and oxidant therefor; Control thereof (chemical composition of propellants C06B, C06D) [1,3,2006.01]
M	F02K 9/32	• • Constructional parts; Details (shape or structure of solid propellant charges F02K 9/10 ; starting or ignition means or arrangements F02K 9/95 ; rocket nozzles F02K 9/97) not otherwise provided for [3,2006.01]
M	F02K 9/46	• • • using pumps (pumps per se F04) [3,2006.01]
M	F02K 9/52	• • • Injectors (in general B05B) [3,2006.01]
M	F02K 9/54	• • • Leakage detectors; Purging systems; Filtration systems (filters per se B01D) [3,2006.01]
M	F02K 9/58	• • • • Propellant feed valves (valves in general F16K) [3,2006.01]
M	F02K 9/60	• • Constructional parts; Details (starting or ignition means or arrangements F02K 9/95 ; rocket nozzles F02K 9/97) not otherwise provided for [3,2006.01]
M	F02K 9/80	• characterised by thrust or thrust vector control (F02K 9/26, F02K 9/56, F02K 9/94 take precedence burning control of solid propellants F02K 9/26 ; feeding control of liquid or gaseous propellants F02K 9/56 ; re-ignitable, restartable or intermittently operated rocket-engine plants F02K 9/94) [3,2006.01]
F02M		
L	F02M 25/00	Engine-pertinent apparatus for adding non-fuel substances or small quantities of secondary fuel to combustion-air, main fuel or fuel-air mixture (adding secondary air to fuel-air mixture F02M 23/00; adding exhaust gases F02M 26/00; fuel-injection apparatus operating simultaneously on two or more fuels or on a liquid fuel and another liquid F02M 43/00) [1,2006.01]
L	F02M 41/00	Fuel-injection apparatus with two or more injectors fed from a common pressure-source sequentially by means of a distributor [1,2006.01]
M	F02M 43/00	Fuel-injection apparatus operating simultaneously on two or more fuels, or on a liquid fuel and another liquid, e.g. the other liquid being an anti-knock additive [1,2006.01]
F02P		
L	F02P 15/02	• Arrangements having two or more sparking plugs [1,2006.01]
F04F		

Compilation of amendments between 2021.01 and 2022.01 IPC

L	F04F 1/10	• • of multiple type, e.g. with two or more units in parallel (F04F 1/08 takes precedence) [1,2006.01]
F15B		
L	F15B 9/16	• Systems essentially having two or more interacting servomotors [1,2006.01]
L	F15B 11/16	• with two or more servomotors [1,2006.01]
L	F15B 11/22	• • Synchronisation of the movement of two or more servomotors [1,2006.01]
L	F15B 13/06	• • for use with two or more servomotors [1,2006.01]
F16B		
L	F16B 37/08	• Quickly-detachable nuts, e.g. consisting of two or more parts; Nuts movable along the bolt after tilting the nut [1,2006.01]
F16C		
L	F16C 13/04	• • Bearings with only partial enclosure of the member to be borne; Bearings with local support at two or more points [1,2006.01]
L	F16C 19/08	• • • with two or more rows of balls [1,2006.01]
L	F16C 19/18	• • • with two or more rows of balls [1,2006.01]
L	F16C 19/28	• • • with two or more rows of rollers [1,2006.01]
L	F16C 19/38	• • • with two or more rows of rollers [1,2006.01]
L	F16C 19/48	• • • with two or more rows of needles [1,2006.01]
F16D		
L	F16D 13/32	• • • in which two or more axially-movable members are pressed from one side towards an axially-located member [1,2006.01]
L	F16D 39/00	Combinations of couplings according to two or more of the groups F16D 31/00-F16D 37/00 [1,2006.01]
F16F		
L	F16F 9/18	• • • • with a closed cylinder and a piston separating two or more working spaces therein [1,2006.01]
L	F16F 15/131	• • • the rotating system comprising two or more gyratory masses [6,2006.01]
F16H		
L	F16H 1/22	• • • with a plurality of driving or driven shafts; with arrangements for dividing torque between two or more intermediate shafts [1,2006.01]
L	F16H 3/58	• • with sets of orbital gears, each consisting of two or more intermeshing orbital gears [1,2006.01]
L	F16H 21/34	• • • • with two or more connecting-rods to each crank or eccentric [1,2006.01]
L	F16H 37/06	• • with a plurality of driving or driven shafts; with arrangements for dividing torque between two or more intermediate shafts [1,2006.01]
F16J		
L	F16J 15/3232	• • • • having two or more lips [2016.01]
F16K		
L	F16K 31/28	• • • • with two or more floats actuating one valve [1,2006.01]
L	F16K 35/14	• interlocking two or more valves [1,2006.01]
D	F21	Note(s) (deleted)
F22B		
L	F22B 21/14	• • involving a single upper drum and two or more lower drums [1,2006.01]
F22G		
M	F22G 5/12	• by attemperating the superheated steam, e.g. by injected water sprays (spray-mixers B01F 5/48 B01F 25/70) [1,2006.01]
F23N		
L	F23N 3/06	• by conjoint operation of two or more valves or dampers (by power-assisted systems F23N 3/08) [1,2006.01]
F24C		
L	F24C 1/02	• adapted for the use of two or more kinds of fuel or energy supply (combinations of two or more stoves or ranges each having a different kind of fuel or energy supply F24C 11/00) [1,2006.01,2021.01]
L	F24C 3/00	Stoves or ranges for gaseous fuels (stoves or ranges specially adapted for the use of two or more kinds of fuel or energy supply F24C 1/02) [1,2006.01]

Compilation of amendments between 2021.01 and 2022.01 IPC

L	F24C 5/00	Stoves or ranges for liquid fuels (stoves or ranges specially adapted for the use of two or more kinds of fuel or energy supply F24C 1/02) [1,2006.01]
L	F24C 7/00	Stoves or ranges heated by electric energy (stoves or ranges specially adapted for the use of two or more kinds of fuel or energy supply F24C 1/02) [1,2006.01]
	F24D	
C	F24D 1/00	Steam central heating systems (district heating systems F24D 10/00; central heating systems using heat accumulated in storage masses F24D 11/00) [1,2006.01,2022.01]
C	F24D 3/00	Hot-water central heating systems (district heating systems F24D 10/00; central heating systems using heat accumulated in storage masses F24D 11/00) [1,2006.01,2022.01]
C	F24D 5/00	Hot-air central heating systems (district heating systems F24D 10/00; central heating systems using heat accumulated in storage masses F24D 11/00; air conditioning F24F); Exhaust-gas central heating systems [1,2006.01,2022.01]
C	F24D 7/00	Central heating systems employing heat-transfer fluids not covered by groups F24D 1/00-F24D 5/00, e.g. oil, salt -or gas (district heating systems F24D 10/00; central heating systems using heat accumulated in storage masses F24D 11/00) [1,2006.01,2022.01]
C	F24D 9/00	Central heating systems employing combinations of heat-transfer fluids covered by two or more of groups F24D 1/00-F24D 7/00 (district heating systems F24D 10/00; central heating systems using heat accumulated in storage masses F24D 11/00) [1,2006.01,2022.01]
C	F24D 10/00	District heating systems [5,2006.01,2022.01]
C	F24D 11/00	Central heating systems using heat accumulated in storage masses (self-contained storage heating units F24D 15/02) [1,2006.01,2022.01]
C	F24D 15/00	Other domestic- or space-heating systems [1,2006.01,2022.01]
C	F24D 17/00	Domestic hot-water supply systems [1,2006.01,2022.01]
N	F24D 18/00	Small-scale combined heat and power [CHP] generation systems specially adapted for domestic heating, space heating or domestic hot-water supply [2022.01]
N	F24D 18/00	Note(s) [2022.01] In this group, it is desirable to add the indexing codes of groups F24D 101/00-F24D 105/00.
N	<u>F24D 101/00</u>	<u>Indexing scheme associated with group F24D 18/00, relating to electric generators, thermal aspects and constructional aspects of small-scale combined heat and power [CHP] systems [2022.01]</u>
N	F24D 101/00	Electric generators of small-scale CHP systems [2022.01]
N	F24D 101/10	• Gas turbines; Steam engines or steam turbines; Water turbines, e.g. located in water pipes [2022.01]
N	F24D 101/20	• Wind turbines [2022.01]
N	F24D 101/30	• Fuel cells [2022.01]
N	F24D 101/40	• Photovoltaic [PV] modules [2022.01]
N	F24D 101/50	• Thermophotovoltaic [TPV] modules [2022.01]
N	F24D 101/60	• Thermoelectric generators, e.g. Peltier or Seebeck elements [2022.01]
N	F24D 101/70	• Electric generators driven by internal combustion engines [ICE] [2022.01]
N	F24D 101/80	• Electric generators driven by external combustion engines, e.g. Stirling engines [2022.01]
N	F24D 103/00	Thermal aspects of small-scale CHP systems [2022.01]
N	F24D 103/10	• Small-scale CHP systems characterised by their heat recovery units [2022.01]
N	F24D 103/13	• characterised by their heat exchangers [2022.01]
N	F24D 103/17	• Storage tanks [2022.01]
N	F24D 103/20	• Additional heat sources for supporting thermal peak loads [2022.01]
N	F24D 105/00	Constructional aspects of small-scale CHP systems [2022.01]
N	F24D 105/10	• Sound insulation [2022.01]
	F24F	
L	F24F 1/0014	••• having two or more outlet openings [2019.01]
L	F24F 1/0033	••• having two or more fans [2019.01]

M	F24H	FLUID HEATERS, e.g. WATER OR AIR HEATERS, HAVING HEAT-GENERATING MEANS, IN-GENERAL (heat-transfer, heat-exchange or heat-storage materials G09K 5/00 ; tube furnaces for thermal non-catalytic cracking G10G 9/20 ; devices, e.g. valves, for venting and aerating enclosures F16K 24/00 ; steam traps or like apparatus F16T ; steam generation F22 ; combustion apparatus F23 ; domestic stoves or ranges F24B, F24C ; domestic or space-heating systems F24D ; furnaces, kilns, ovens, retorts F27 ; heat exchangers F28 ; electric heating elements or arrangements H05B HEAT PUMPS, IN GENERAL (steam generation F22)
M	F24H	Subclass indexes
		WATER HEATERS F24H 1/00
		AIR HEATERS; STORAGE HEATERS F24H 3/00; F24H 7/00
		FLUID HEATERS USING HEAT PUMPS F24H 4/00
		COMBINATIONS OF COMBINED WATER AND AIR HEATERS F24H 6/00
		STORAGE HEATERS F24H 7/00
		FLUID HEATERS FOR EXTRACTING LATENT HEAT FROM FLUE GASES F24H 8/00
		DETAILS F24H 9/00
		CONTROL F24H 15/00
C	F24H 1/00	Water heaters having heat generating means, e.g. boiler boilers, flow-heater, continuous-flow heaters or water-storage heater (F24H 7/00, F24H 8/00 take precedence; details F24H 9/00 ; heaters (steam boilers F22B ; domestic stoves or ranges with additional provisions for heating water F24B 9/00, F24C 13/00) [1,5,2006.01,2022.01]
T	F24H 1/06	• Portable or mobile, e.g. collapsible [1,2006.01,2022.01]
T	F24H 1/08	• Packaged or self-contained boilers, i.e. water heaters with control devices and pump in a single unit [1,2006.01,2022.01]
C	F24H 1/10	• Continuous-flow heaters, i.e. heaters in which heat is generated only while the water is flowing, e.g. with direct contact of the water with the heating medium (F24H 1/50 takes precedence) [1,5,2006.01,2022.01]
T	F24H 1/12	• • in which the water is kept separate from the heating medium [1,2006.01,2022.01]
T	F24H 1/14	• • • by tubes, e.g. bent in serpentine form [1,2006.01,2022.01]
T	F24H 1/16	• • • helically or spirally coiled [1,2006.01,2022.01]
C	F24H 1/18	• Water-storage heaters (F24H 1/50 takes precedence; combined with water heating stoves for central heating F24H 1/22) [1,5,2006.01,2022.01]
T	F24H 1/20	• • with immersed heating elements, e.g. electric elements or furnace tubes [1,2006.01,2022.01]
C	F24H 1/22	• Water heaters other than continuous-flow or water-storage heaters, e.g. water heaters for central heating (F24H 1/50 takes precedence) [1,5,2006.01,2022.01]
C	F24H 1/24	• • with water mantle surrounding the combustion chamber or chambers (F24H 1/40, F24H 1/44 take precedence) [1,3,2006.01,2022.01]
T	F24H 1/26	• • • the water mantle forming an integral body [1,2006.01,2022.01]
T	F24H 1/28	• • • including one or more furnace or fire tubes [1,2006.01,2022.01]
T	F24H 1/30	• • • the water mantle being built-up from sections [1,2006.01,2022.01]
T	F24H 1/32	• • • with vertical sections arranged side by side [1,2006.01,2022.01]
T	F24H 1/34	• • with water chamber arranged adjacent to the combustion chamber or chambers, e.g. above or at side (F24H 1/24, F24H 1/44 take precedence) [1,2006.01,2022.01]
T	F24H 1/36	• • • the water chamber including one or more fire tubes [1,2006.01,2022.01]
T	F24H 1/38	• • with water contained in separate elements, e.g. radiator-type element (F24H 1/40, F24H 1/44 take precedence) [1,2006.01,2022.01]
C	F24H 1/40	• • with water tube or tubes (F24H 1/44 takes precedence) [1,2006.01,2022.01]
T	F24H 1/41	• • • in serpentine form [3,2006.01,2022.01]
T	F24H 1/43	• • • helically or spirally coiled [3,2006.01,2022.01]
C	F24H 1/44	• • with combinations of two or more of the types covered by groups F24H 1/24-F24H 1/40 [1,2006.01,2022.01]
T	F24H 1/46	• Water heaters having plural combustion chambers [1,2,5,2006.01,2022.01]
T	F24H 1/48	• Water heaters for central heating incorporating heaters for domestic water [5,2006.01,2022.01]
C	F24H 1/50	• • incorporating domestic water tanks [5,2006.01,2022.01]
T	F24H 1/52	• • incorporating heat exchangers for domestic water (F24H 1/50 takes precedence) [5,2006.01,2022.01]

Compilation of amendments between 2021.01 and 2022.01 IPC

N	F24H 1/54	• Water heaters for bathtubs or pools; Water heaters for reheating the water in bathtubs or pools [2022.01]
T	F24H 3/00	Air heaters having heat generating means (F24H 7/00 , F24H 8/00 take precedence; details F24H 9/00 ; domestic stoves or ranges with additional provisions for convection heating of air F24B , F24C) [1,5,2006.01,2022.01]
C	F24H 3/02	• with forced circulation (F24H 3/12 takes precedence) [1,2006.01,2022.01]
C	F24H 3/04	• • the air being in direct contact with the heating medium, e.g. electric heating element [1,2006.01,2022.01]
T	F24H 3/06	• • the air being kept separate from the heating medium, e.g. using forced circulation of air over radiators [1,2006.01,2022.01]
T	F24H 3/08	• • • by tubes [1,2006.01,2022.01]
T	F24H 3/10	• • • by plates [1,2006.01,2022.01]
C	F24H 3/12	• with additional heating arrangements [1,2006.01,2022.01]
M	F24H 4/00	Fluid heaters using characterised by the use of heat pumps [5,2006.01]
C	F24H 4/02	• Liquid Water heaters [5,2006.01,2022.01]
M	F24H 4/06	• Gas Air heaters [5,2006.01]
T	F24H 6/00	Combined water and air heaters (F24H 8/00 takes precedence) [1,5,2006.01,2022.01]
C	F24H 7/00	Storage heaters, i.e. heaters in which the energy is stored as heat in masses for subsequent release (domestic stoves or ranges with additional heat storage masses F24B 1/24 , F24C 15/34) [1,2006.01,2022.01]
C	F24H 7/02	• the released heat being conveyed to a transfer fluid , e.g. air, water [1,2006.01,2022.01]
C	F24H 8/00	Fluid heaters having heat generating means specially adapted characterised by means for extracting latent heat from flue gases by means of condensation [5,2006.01,2022.01]
C	F24H 9/00	Details [1,2006.01,2022.01]
L	F24H 9/06	• Arrangement of mountings or supports [1,2006.01]
C	F24H 9/12	• Connecting Arrangements for connecting heaters to circulation pipes (pipe joints in general F16L) [1,2006.01,2022.01]
N	F24H 9/13	• • for water heaters [2022.01]
M	F24H 9/14	• Connecting Arrangements for connecting different sections, e.g. in water heaters (in radiators F28F 9/26 arrangements for connecting heaters to circulation pipes F24H 9/12) [1,2006.01]
C	F24H 9/16	• Arrangements for water drainage (valves for drainage F16K , e.g. F16K 21/00 ; in pipes or pipe systems in general F16L 55/00 ; in domestic or space heating systems F24D 19/08) [1,2006.01,2022.01]
N	F24H 9/17	• • Means for retaining water leaked from heaters [2022.01]
C	F24H 9/18	• Arrangement or mounting of grates , burners, or heating elements (burners F23D ; grates F23H ; electric heating elements H05B) means [1,2006.01,2022.01]
N	F24H 9/1809	• • for water heaters [2022.01]
N	F24H 9/1818	• • • Arrangement or mounting of electric heating means [2022.01]
N	F24H 9/1832	• • • Arrangement or mounting of combustion heating means, e.g. grates or burners [2022.01]
N	F24H 9/1836	• • • • using fluid fuel [2022.01]
N	F24H 9/1845	• • • • using solid fuel [2022.01]
N	F24H 9/1854	• • for air heaters [2022.01]
N	F24H 9/1863	• • • Arrangement or mounting of electric heating means [2022.01]
N	F24H 9/1877	• • • Arrangement or mounting of combustion heating means, e.g. grates or burners [2022.01]
N	F24H 9/1881	• • • • using fluid fuel [2022.01]
N	F24H 9/189	• • • • using solid fuel [2022.01]
C	F24H 9/20	• Arrangement or mounting of control or safety devices (control valves F16K ; safety devices for burners F23D ; combustion control devices F23N ; of systems comprising a heater, see the relevant subclasses, e.g. of control heating systems F24D 19/10 ; automatic switching for electric heating apparatus H05B 1/02) [1,2006.01,2022.01]
N	F24H 9/25	• • of remote control devices or control-panels [2022.01]
N	F24H 9/28	• • characterised by the graphical user interface [GUI] [2022.01]
N	F24H 9/40	• Arrangements for preventing corrosion [2022.01]
N	F24H 9/45	• • for preventing galvanic corrosion, e.g. cathodic or electrolytic means [2022.01]

Compilation of amendments between 2021.01 and 2022.01 IPC

N	F24H 15/00	Control of fluid heaters [2022.01]
N	F24H 15/10	• characterised by the purpose of the control [2022.01]
N	F24H 15/104	•• Inspection; Diagnosis; Trial operation [2022.01]
N	F24H 15/108	•• Resuming operation, e.g. after power outages [2022.01]
N	F24H 15/112	•• Preventing or detecting blocked flues [2022.01]
N	F24H 15/116	••• Disabling the heating means in response thereto [2022.01]
N	F24H 15/12	•• Preventing or detecting fluid leakage [2022.01]
N	F24H 15/124	•• Preventing or detecting electric faults, e.g. electric leakage [2022.01]
N	F24H 15/128	•• Preventing overheating [2022.01]
N	F24H 15/132	••• Preventing the operation of water heaters with low water levels, e.g. dry-firing [2022.01]
N	F24H 15/136	•• Defrosting or de-icing; Preventing freezing [2022.01]
N	F24H 15/14	•• Cleaning; Sterilising; Preventing contamination by bacteria or microorganisms, e.g. by replacing fluid in tanks or conduits [2022.01]
N	F24H 15/144	•• Measuring or calculating energy consumption [2022.01]
N	F24H 15/148	••• Assessing the current energy consumption [2022.01]
N	F24H 15/152	••• Forecasting future energy consumption [2022.01]
N	F24H 15/156	•• Reducing the quantity of energy consumed; Increasing efficiency [2022.01]
N	F24H 15/16	•• Reducing cost using the price of energy, e.g. choosing or switching between different energy sources [2022.01]
N	F24H 15/164	••• where the price of the electric supply changes with time [2022.01]
N	F24H 15/168	•• Reducing the electric power demand peak [2022.01]
N	F24H 15/172	•• Scheduling based on user demand, e.g. determining starting point of heating [2022.01]
N	F24H 15/174	•• Supplying heated water with desired temperature or desired range of temperature [2022.01]
N	F24H 15/175	••• where the difference between the measured temperature and a set temperature is kept under a predetermined value [2022.01]
N	F24H 15/176	•• Improving or maintaining comfort of users [2022.01]
N	F24H 15/18	••• Preventing sudden or unintentional change of fluid temperature [2022.01]
N	F24H 15/184	•• Preventing harm to users from exposure to heated water, e.g. scalding [2022.01]
N	F24H 15/196	•• Automatically filling bathtubs or pools; Reheating the water in bathtubs or pools [2022.01]
N	F24H 15/20	• characterised by control inputs [2022.01]
N	F24H 15/204	•• Temperature of the air before heating [2022.01]
N	F24H 15/208	•• Temperature of the air after heating [2022.01]
N	F24H 15/212	•• Temperature of the water [2022.01]
N	F24H 15/215	••• before heating [2022.01]
N	F24H 15/219	••• after heating [2022.01]
N	F24H 15/223	••• in the water storage tank [2022.01]
N	F24H 15/225	•••• at different heights of the tank [2022.01]
N	F24H 15/227	•• Temperature of the refrigerant in heat pump cycles [2022.01]
N	F24H 15/231	••• at the evaporator [2022.01]
N	F24H 15/232	••• at the condenser [2022.01]
N	F24H 15/235	•• Temperature of exhaust gases [2022.01]
N	F24H 15/238	•• Flow rate [2022.01]
N	F24H 15/242	•• Pressure [2022.01]
N	F24H 15/246	•• Water level [2022.01]
N	F24H 15/248	••• of water storage tanks [2022.01]
N	F24H 15/25	•• Temperature of the heat-generating means in the heater [2022.01]
N	F24H 15/254	•• Room temperature [2022.01]
N	F24H 15/258	•• Outdoor temperature [2022.01]
N	F24H 15/262	•• Weather information or forecast [2022.01]
N	F24H 15/265	•• Occupancy [2022.01]
N	F24H 15/269	•• Time, e.g. hour or date [2022.01]
N	F24H 15/273	•• Address or location [2022.01]
N	F24H 15/277	•• Price [2022.01]
N	F24H 15/281	•• Input from user [2022.01]
N	F24H 15/288	•• Accumulation of deposits, e.g. lime or scale [2022.01]
N	F24H 15/292	•• Metering of electricity sold to the grid [2022.01]
N	F24H 15/296	•• Information from neighbouring devices [2022.01]
N	F24H 15/30	• characterised by control outputs; characterised by the components to be controlled [2022.01]
N	F24H 15/305	•• Control of valves (of heat pumps F24H 15/385, F24H 15/39) [2022.01]

Compilation of amendments between 2021.01 and 2022.01 IPC

N	F24H 15/31	• • • of valves having only one inlet port and one outlet port, e.g. flow rate regulating valves [2022.01]
N	F24H 15/315	• • • of mixing valves [2022.01]
N	F24H 15/32	• • • of switching valves (for by-passing F24H 15/325) [2022.01]
N	F24H 15/325	• • • of by-pass valves [2022.01]
N	F24H 15/33	• • Control of dampers [2022.01]
N	F24H 15/335	• • Control of pumps, e.g. on-off control (control of compressors of heat pumps F24H 15/38) [2022.01]
N	F24H 15/34	• • • Control of the speed of pumps [2022.01]
N	F24H 15/345	• • Control of fans, e.g. on-off control (control of fans of heat pump units F24H 15/375) [2022.01]
N	F24H 15/35	• • • Control of the speed of fans [2022.01]
N	F24H 15/355	• • Control of heat-generating means in heaters [2022.01]
N	F24H 15/36	• • • of burners [2022.01]
N	F24H 15/365	• • • • of two or more burners, e.g. an array of burners [2022.01]
N	F24H 15/37	• • • of electric heaters [2022.01]
N	F24H 15/375	• • Control of heat pumps [2022.01]
N	F24H 15/38	• • • Control of compressors of heat pumps [2022.01]
N	F24H 15/385	• • • Control of expansion valves of heat pumps [2022.01]
N	F24H 15/39	• • • Control of valves for distributing refrigerant to different evaporators or condensers in heat pumps [2022.01]
N	F24H 15/395	• • Information to users, e.g. alarms [2022.01]
N	F24H 15/40	• characterised by the type of controllers [2022.01]
N	F24H 15/407	• • using electrical switching, e.g. TRIAC [2022.01]
N	F24H 15/414	• • using electronic processing, e.g. computer-based [2022.01]
N	F24H 15/421	• • • using pre-stored data [2022.01]
N	F24H 15/429	• • • • for selecting operation modes [2022.01]
N	F24H 15/436	• • • • for selecting sleeping modes [2022.01]
N	F24H 15/443	• • • using a central controller connected to several sub-controllers [2022.01]
N	F24H 15/45	• • • remotely accessible [2022.01]
N	F24H 15/457	• • • • using telephone networks or Internet communication [2022.01]
N	F24H 15/464	• • • • using local wireless communication [2022.01]
N	F24H 15/479	• • • • for programming the system [2022.01]
N	F24H 15/486	• • using timers [2022.01]
N	F24H 15/493	• • specially adapted for enabling recognition of parts newly installed in the fluid heating system, e.g. for retrofitting or for repairing by replacing parts [2022.01]

M	F25B	REFRIGERATION MACHINES, PLANTS , OR SYSTEMS; COMBINED HEATING AND REFRIGERATION SYSTEMS; HEAT PUMP SYSTEMS (heat-transfer, heat-exchange or heat-storage materials, e.g. refrigerants, or materials for the production of heat or cold by chemical reactions other than by combustion C09K 5/00 ; pumps, compressors F04 ; use of heat pumps for domestic or space-heating or for domestic hot-water supply F24D ; air-conditioning, air-humidification F24F ; fluid heaters using heat pumps F24H)
---	------	---

D F25B Note(s) [5]

(deleted)

M	F25B 1/00	<u>Compression machines, plant, plants or systems</u>
M	F25B 1/00	Compression machines, plant, plants or systems with non-reversible cycle (F25B 3/00, F25B 5/00, F25B 6/00, F25B 7/00, F25B 9/00 take precedence) [1,5,2006.01]
M	F25B 3/00	Self-contained rotary compression machines, i.e. with compressor, condenser , and evaporator rotating as a single unit [1,2006.01]
M	F25B 5/00	Compression machines, plant, plants or systems, with several evaporator circuits, e.g. for varying refrigerating capacity (with cascade operation F25B 7/00) [1,2006.01]
M	F25B 6/00	Compression machines, plant, plants or systems, with several condenser circuits [5,2006.01]
M	F25B 7/00	Compression machines, plant, plants or systems, with cascade operation, i.e. with two or more circuits, the heat from the condenser of one circuit being absorbed by the evaporator of the next circuit (F25B 9/00 takes precedence) [1,2006.01]

Compilation of amendments between 2021.01 and 2022.01 IPC

M	F25B 9/00	Compression machines, plant , plants or systems, in which the refrigerant is air or other gas of low boiling point [1,2006.01]
M	F25B 11/00	Compression machines, plant , plants or systems, using turbines, e.g. gas turbines [1,2006.01]
M	F25B 13/00	Compression machines, plant , plants or systems, with reversible cycle (defrosting cycles F25B 47/02) [1,2006.01]
<u>M</u>	<u>F25B 15/00</u>	<u>Sorption machines, plant, plants or systems</u>
M	F25B 15/00	Sorption machines, plant , plants or systems, operating continuously, e.g. absorption type [1,2006.01]
M	F25B 17/00	Sorption machines, plant , plants or systems, operating intermittently, e.g. absorption or adsorption type [1,2006.01]
M	F25B 19/00	Machines, plant , plants or systems, using evaporation of a refrigerant but without recovery of the vapour [1,2006.01]
<u>M</u>	<u>F25B 19/00</u>	<u>Machines, plant, plants or systems, with a single mode of operation, not covered by groups F25B 1/00-F25B 17/00</u>
M	F25B 21/00	Machines, plant , plants or systems, using electric or magnetic effects [1,2006.01]
M	F25B 21/02	• using Peltier effect; using Nernst-Ettinghausen effect (thermoelectric elements H01L 35/00 ; H01L 37/00) [1,2006.01]
M	F25B 23/00	Machines, plant , plants or systems, with a single mode of operation not covered by groups F25B 1/00-F25B 21/00, e.g. using selective radiation effect [1,2006.01]
M	F25B 25/00	Machines, plant , plants or systems, using a combination of modes of operation covered by two or more of the groups F25B 1/00-F25B 23/00 (combinations of two or more modes of operation covered by a single main group, see the relevant group) [1,2006.01]
M	F25B 27/00	Machines, plant , plants or systems, using particular sources of energy (F25B 30/06 takes precedence) [1,2006.01]
D	F25B 30/00	Note(s) [5] (deleted)
M	F25B 30/00	Heat pumps (F25B 1/00-F25B 25/00 , F25B 29/00 take precedence) [5,2006.01]
M	F25B 31/00	Compressor arrangements (compressors per se F04) [1,2006.01]
M	F25B 37/00	Absorbers; Adsorbers (boiler-absorbers F25B 35/00 ; separating processes involving the treatment of liquids with solid sorbents B01D 15/00 ; separation of gases or vapours by adsorption B01D 53/02 ; separation of gases or vapours by absorption B01D 53/14 ; investigating using adsorption or absorption G01N 30/00) [1,2006.01]
M	F25B 49/00	Arrangement or mounting of control or safety devices (testing refrigerators G01M ; control in general G05) [1,2006.01]
M	F25B 49/02	• for compression type machines, plant , plants or systems [5,2006.01]
M	F25B 49/04	• for sorption type machines, plant , plants or systems [5,2006.01]
F25D		
L	F25D 9/00	Devices not associated with refrigerating machinery and not covered by groups F25D 1/00-F25D 7/00; Combinations of devices covered by two or more of the groups F25D 1/00-F25D 7/00 [1,2006.01]
F27B		
L	F27B 1/02	• with two or more shafts or chambers, e.g. multi-storey [1,2006.01]
F28B		
L	F28B 7/00	Combinations of two or more condensers, e.g. provision of reserve condenser [1,2006.01]
F41G		
L	F41G 1/52	• • for rifles or shotguns having two or more barrels, or adapted to fire different kinds of ammunition, e.g. ball or shot [1,2006.01]
L	G01	Note(s) [6,7] 1. This class <u>covers</u> , in addition to "true" measuring instruments, other indicating or recording devices of analogous construction, and also signalling or control devices insofar as they are concerned with measurement (as defined in Note 2 below) and are not specially adapted to the particular purpose of signalling or

control.

2. In this class, the following term is used with the meaning indicated:

- "measuring" is used to cover considerably more than its primary or basic meaning. In this primary sense, it means finding a numerical expression of the value of a variable in relation to a unit or datum or to another variable of the same nature, e.g. expressing a length in terms of another length as in measuring a length with a scale; the value may be obtained directly (as just suggested) or by measuring some other variable of which the value can be related to the value of the required variable, as in measuring a change in temperature by measuring a resultant change in the length of a column of mercury. However, since the same device or instrument may, instead of giving an immediate indication, be used to produce a record or to initiate a signal to produce an indication or control effect, or may be used in combination with other devices or instruments to give a conjoint result from measurement of two or more variables of the same or different kinds, it is necessary to interpret "measuring" as including also any operation that would make it possible to obtain such a numerical expression by the additional use of some way of converting a value into figures. Thus the expression in figures may be actually made by a digital presentation or by reading a scale, or an indication of it may be given without the use of figures, e.g. by some perceptible feature (variable) of the entity (e.g. object, substance, beam of light) of which the variable being measured is a property or condition or by an analogue of such a feature (e.g. the corresponding position of a member without any scale, a corresponding voltage generated in some way). In many cases there is no such value indication but only an indication of difference or equality in relation to a standard or datum (of which the value may or may not be known in figures); the standard or datum may be the value of another variable of the same nature but of a different entity (e.g. a standard measure) or of the same entity at a different time.
- In its simplest form, measurement may give merely an indication of presence or absence of a certain condition or quality, e.g. movement (in any direction or in a particular direction), or whether a variable exceeds a predetermined value.

3. Attention is drawn to the Notes following the titles of class B81 and subclass B81B relating to "microstructural devices" and "microstructural systems" and the Notes following the title of subclass B82B relating to "nanostructures".

4. Attention is drawn to the Notes following the title of section G, especially as regards the definition of the term "variable".

5. In many measuring arrangements, a first variable to be measured is transformed into a second, or further, variables. The second, or further, variables may be (a) a condition related to the first variable and produced in a member, or (b) a displacement of a member. Further transformation may be needed.

- When classifying such an arrangement, (i) the transformation step, or each transformation step, that is of interest is classified, or (ii) if interest lies only in the system as a whole, the first variable is classified in the appropriate place.
- This is particularly important where two or more conversions take place, for instance where a first variable, for example pressure, is transformed into a second variable, for example an optical property of a sensing body, and that second variable is expressed by means of a third variable, for example an electric effect. In such a case, the following classification places should be considered: the place for the transformation of the first variable, that for sensing the condition caused by that variable, subclass G01D for expression of the measurement, and finally the place for the overall system, if any.

6. The measurement of change in the value of a physical property is classified in the same subclass as the measurement of that physical property, e.g. measurement of expansion of length is classified in subclass G01D.

G01B

C	G01B 9/02	• Interferometers [1,2006.01,2022.01]
N	G01B 9/02001	• • characterised by controlling or generating intrinsic radiation properties [2022.01]
N	G01B 9/02002	• • • using two or more frequencies [2022.01]

Compilation of amendments between 2021.01 and 2022.01 IPC

N	G01B 9/02003	•••• using beat frequencies [2022.01]
N	G01B 9/02004	•••• using frequency scans [2022.01]
N	G01B 9/02015	•• characterised by the beam path configuration [2022.01]
N	G01B 9/02017	••• with multiple interactions between the target object and light beams, e.g. beam reflections occurring from different locations [2022.01]
N	G01B 9/02018	•••• Multipass interferometers, e.g. double-pass [2022.01]
N	G01B 9/02055	•• Reduction or prevention of errors; Testing; Calibration [2022.01]
N	G01B 9/02056	••• Passive reduction of errors [2022.01]
N	G01B 9/02061	•••• Reduction or prevention of effects of tilts or misalignment [2022.01]
N	G01B 9/0209	•• Low-coherence interferometers [2022.01]
N	G01B 9/02091	••• Tomographic interferometers, e.g. based on optical coherence [2022.01]
N	G01B 9/02097	•• Self-interferometers [2022.01]
N	G01B 9/02098	••• Shearing interferometers [2022.01]
G01C		
L	G01C 11/06	•• by comparison of two or more pictures of the same area [1,2006.01]
M	G01C 23/00	Combined instruments indicating more than one navigational value, e.g. for aircraft; Combined measuring devices for measuring two or more variables of movement, e.g. distance, speed or acceleration [1,2006.01]
G01D		
M	G01D 1/16	• giving a value which is a function of two or more values, e.g. product or ratio [1,2006.01]
L	G01D 5/56	Note(s) For a combination of two or more of the means specified, the first applicable one of subgroups G01D 5/56-G01D 5/62 takes precedence over any others of these groups.
L	G01D 7/02	• Indicating value of two or more variables simultaneously [1,2006.01]
L	G01D 7/08	•• using a common indicating element for two or more variables [1,2006.01]
L	G01D 9/28	• Producing one or more recordings, each recording being of the values of two or more different variables (G01D 9/38, G01D 9/40 take precedence) [1,2006.01]
L	G01D 9/32	•• there being a common recording element for two or more variables [1,2006.01]
L	G01D 21/02	• Measuring two or more variables by means not covered by a single other subclass [1,2006.01]
G01F		
C	G01F 1/00	Measuring the volume flow or mass flow of fluid or fluent solid material wherein the fluid passes through the a meter in a continuous flow (measuring a proportion of the volume flow G01F 5/00) [1,2,2006.01,2022.01]
N	G01F 1/002	• wherein the flow is in an open channel [2022.01]
M	G01F 1/20	•• by detection of dynamic effects of the fluid flow [2,2006.01]
C	G01F 1/32	••• by swirl flowmeter, e.g. using Karman vortices using swirl flowmeters [2,2006.01,2022.01]
N	G01F 1/325	•••• Means for detecting quantities used as proxy variables for swirl [2022.01]
C	G01F 1/66	• by measuring frequency, phase shift or propagation time of electromagnetic or other waves, e.g. using ultrasonic flowmeters [2,2006.01,2022.01]
N	G01F 1/661	•• using light [2022.01]
N	G01F 1/663	•• by measuring Doppler frequency shift [2022.01]
N	G01F 1/667	•• Arrangements of transducers for ultrasonic flowmeters; Circuits for operating ultrasonic flowmeters [2022.01]
C	G01F 1/708	•• Measuring the time taken to traverse a fixed distance [4,2006.01,2022.01]
N	G01F 1/7082	••• using acoustic detecting arrangements [2022.01]
N	G01F 1/7084	••• using thermal detecting arrangements [2022.01]
N	G01F 1/7086	••• using optical detecting arrangements [2022.01]
N	G01F 1/7088	••• using electrically charged particles as tracers [2022.01]
L	G01F 3/18	••••• involving two or more cylinders [1,2006.01]
L	G01F 7/00	Volume-flow measuring devices with two or more measuring ranges; Compound meters [1,2006.01]
C	G01F 15/06	• Indicating or recording devices, e.g. for remote indication [1,2006.01,2022.01]
N	G01F 15/061	•• for remote indication [2022.01]
N	G01F 15/063	••• using electrical means [2022.01]
C	G01F 23/00	Indicating or measuring liquid level or level of fluent solid material, e.g. indicating in terms of volume or indicating by means of an alarm [1,2006.01,2022.01]

Compilation of amendments between 2021.01 and 2022.01 IPC

M	G01F 23/22	• by measurement of measuring physical variables, other than linear dimensions, pressure ; or weight, dependent on the level to be measured, e.g. by difference of heat transfer of steam or water (involving the use of floats G01F 23/30) [1,2006.01]
C	G01F 23/26	• • by measuring variations of capacity or inductance of capacitors or inductors arising from the presence of liquid or fluent solid material in the electric or electromagnetic fields [1,2006.01,2022.01]
N	G01F 23/263	• • • by measuring variations in capacitance of capacitors [2022.01]
C	G01F 23/296	• • • Acoustic waves [6,2006.01,2022.01]
N	G01F 23/2962	• • • • Measuring transit time of reflected waves [2022.01]
N	G01F 23/2965	• • • • Measuring attenuation of transmitted waves [2022.01]
N	G01F 23/80	• Arrangements for signal processing [2022.01]
C	G01F 25/00	Testing or calibrating calibration of apparatus for measuring volume, volume flow ; or liquid level ; or for metering by volume [1,2006.01,2022.01]
N	G01F 25/10	• of flowmeters [2022.01]
N	G01F 25/17	• • using calibrated reservoirs [2022.01]
N	G01F 25/20	• of apparatus for measuring liquid level [2022.01]
G01J		
L	G01J 3/36	• • • Investigating two or more bands of a spectrum by separate detectors [1,2006.01]
C	G01J 5/00	Radiation pyrometry, e.g. infrared or optical thermometry [1,2006.01,2022.01]
C	G01J 5/02	• Details Constructional details [1,2006.01,2022.01]
N	G01J 5/03	• • Arrangements for indicating or recording specially adapted for radiation pyrometers [2022.01]
N	G01J 5/05	• • Means for preventing contamination of the components of the optical system; Means for preventing obstruction of the radiation path [2022.01]
C	G01J 5/06	• • Arrangements for eliminating effects of disturbing radiation ; Arrangements for compensating changes in sensitivity (for adjusting of solid angle of collected radiation G01J 5/07 ; means for wavelength selection G01J 5/0801) [1,2006.01,2022.01]
N	G01J 5/061	• • • by controlling the temperature of the apparatus or parts thereof, e.g. using cooling means or thermostats [2022.01]
N	G01J 5/068	• • • by controlling parameters other than temperature [2022.01]
N	G01J 5/07	• • Arrangements for adjusting the solid angle of collected radiation, e.g. adjusting or orienting field of view, tracking position or encoding angular position (optical collimating elements G01J 5/0806) [2022.01]
C	G01J 5/08	• • Optical features arrangements [1,2006.01,2022.01]
N	G01J 5/0801	• • • Means for wavelength selection or discrimination [2022.01]
N	G01J 5/0802	• • • • Optical filters [2022.01]
N	G01J 5/0803	• • • Arrangements for time-dependent attenuation of radiation signals [2022.01]
N	G01J 5/0804	• • • • Shutters [2022.01]
N	G01J 5/0805	• • • • Means for chopping radiation [2022.01]
N	G01J 5/0806	• • • Focusing or collimating elements, e.g. lenses or concave mirrors [2022.01]
N	G01J 5/0808	• • • Convex mirrors [2022.01]
N	G01J 5/0813	• • • Planar mirrors; Parallel phase plates [2022.01]
N	G01J 5/0818	• • • Waveguides [2022.01]
N	G01J 5/0821	• • • • Optical fibres [2022.01]
N	G01J 5/0831	• • • Masks; Aperture plates; Spatial light modulators [2022.01]
N	G01J 5/0875	• • • Windows; Arrangements for fastening thereof [2022.01]
L	G01J 5/12	• • using thermoelectric elements, e.g. thermocouples [1,2006.01]
M	G01J 5/14	• • Electrical features thereof [1,2006.01]
D	G01J 5/18	(transferred to G01J 5/03)
M	G01J 5/20	• • using resistors, thermistors or semiconductors sensitive to radiation , e.g. photoconductive devices [1,2006.01]
M	G01J 5/22	• • • Electrical features thereof [1,2006.01]
M	G01J 5/24	• • • • Use of a specially - adapted circuit circuits , e.g. bridge circuit circuits [1,2006.01]
D	G01J 5/26	(transferred to G01J 5/03)
M	G01J 5/28	• • using photo-emissive, photo-conductive, or photo-voltaic photoemissive or photovoltaic cells [1,2006.01]
M	G01J 5/30	• • • Electrical features thereof [1,2006.01]
D	G01J 5/32	(transferred to G01J 5/03)
C	G01J 5/34	• • using capacitors, e.g. pyroelectric capacitors [1,2006.01,2022.01]
N	G01J 5/35	• • • Electrical features thereof [2022.01]
M	G01J 5/40	• • using bimetallic bimaterial elements [1,2006.01]
M	G01J 5/44	• • using change of resonant frequency, e.g. of piezo-electric crystal crystals [1,2006.01]

Compilation of amendments between 2021.01 and 2022.01 IPC

T	G01J 5/48	• <i>Thermography; Techniques using wholly visual means</i> [1,2006.01,2022.01]
D	G01J 5/50	(transferred to G01J 5/00)
C	G01J 5/52	• <i>using comparison with reference sources, e.g. disappearing-filament pyrometer</i> [1,2006.01,2022.01]
N	G01J 5/53	• <i>Reference sources, e.g. standard lamps; Black bodies</i> [2022.01]
M	G01J 5/54	• <i>Optical features arrangements</i> [1,2006.01]
M	G01J 5/56	• <i>Electrical features thereof</i> [1,2006.01]
C	G01J 5/58	• <i>using absorption; using polarisation - using extinction effect</i> [1,2006.01,2022.01]
N	G01J 5/59	• <i>using polarisation; Details thereof</i> [2022.01]
L	G01J 5/60	• <i>using determination of colour temperature</i> [1,2006.01]
D	G01J 5/62	(transferred to G01J 5/0805)
N	G01J 5/70	• <i>Passive compensation of pyrometer measurements, e.g. using ambient temperature sensing or sensing of temperature within housing</i> [2022.01]
N	G01J 5/80	• <i>Calibration (using comparison with reference sources G01J 5/52)</i> [2022.01]
N	G01J 5/90	• <i>Testing, inspecting or checking operation of radiation pyrometers</i> [2022.01]

G01L

L	G01L 7/00	Measuring the steady or quasi-steady pressure of a fluid or a fluent solid material by mechanical or fluid pressure-sensitive elements (transmitting or indicating the displacement of mechanical pressure-sensitive elements by electric or magnetic means G01L 9/00; measuring differences of two or more pressure values G01L 13/00; measuring two or more pressure values simultaneously G01L 15/00) [1,2006.01]
L	G01L 9/00	Measuring steady or quasi-steady pressure of a fluid or a fluent solid material by electric or magnetic pressure-sensitive elements; Transmitting or indicating the displacement of mechanical pressure-sensitive elements, used to measure the steady or quasi-steady pressure of a fluid or fluent solid material, by electric or magnetic means (measuring differences of two or more pressure values G01L 13/00; measuring two or more pressure values simultaneously G01L 15/00) [1,2006.01]
L	G01L 13/00	Devices or apparatus for measuring differences of two or more fluid pressure values [1,2006.01]
L	G01L 15/00	Devices or apparatus for measuring two or more fluid pressure values simultaneously [1,2006.01]
L	G01P	MEASURING LINEAR OR ANGULAR SPEED, ACCELERATION, DECELERATION OR SHOCK; INDICATING PRESENCE OR ABSENCE OF MOVEMENT; INDICATING DIRECTION OF MOVEMENT (measuring angular rate using gyroscopic effects G01C 19/00; combined measuring devices for measuring two or more variables of movement G01C 23/00; measuring velocity of sound G01H 5/00; measuring velocity of light G01J 7/00; determining direction or velocity of solid objects by reflection or reradiation of radio or other waves and based on propagation effects, e.g. Doppler effect, propagation time or direction of propagation, G01S; measuring speed of nuclear radiation G01T)

G01R

L	G01R 7/00	Instruments capable of converting two or more currents or voltages into a single mechanical displacement (G01R 9/00 takes precedence) [1,2006.01]
---	-----------	---

G01S

L	G01S 5/00	Position-fixing by co-ordinating two or more direction or position-line determinations; Position-fixing by co-ordinating two or more distance determinations [1,2,2006.01]
---	-----------	--

G01W

M	G01W 1/02	• Instruments for indicating weather conditions by measuring two or more variables, e.g. humidity, pressure, temperature, cloud cover - or wind speed (G01W 1/10 takes precedence) [1,2006.01]
M	G02	Note(s) [4]

In this class, the following ~~expression is~~ *terms are* used with the meaning indicated:

- "optical" ~~applies or~~ *"optics" apply* not only to visible light but also to ~~ultra-violet or infra-red radiations~~ *ultraviolet or infrared radiation*.

M	G02B	OPTICAL ELEMENTS, SYSTEMS, OR APPARATUS (G02F takes precedence; optical elements specially adapted for use in lighting devices or systems thereof F21V 1/00-F21V 13/00 ; measuring instruments, see the relevant subclass of class G01 ; e.g. optical rangefinders G01C ; testing of optical elements, systems, or apparatus G01M 11/00 ; spectacles G02C ; apparatus or arrangements for taking photographs or for projecting or viewing them G03B ; sound lenses G10K 11/30 ; electron and ion "optics" H01J ; X-ray "optics" H01J ; H05G 1/00 ; optical elements structurally combined with electric discharge tubes H01J 5/16 ; H01J 29/89 ; H01J 37/22 ; microwave "optics" H01Q ; combination of optical elements with television receivers H04N 5/72 ; optical systems or arrangements in colour television systems H04N 9/00 ; heating arrangements specially adapted for transparent or reflecting areas H05B 3/84) [1,7]
M	G02B	Note(s) [7]

1. Attention is drawn to the Notes following the titles of class B81 and subclass B81B relating to "microstructural devices" and "microstructural systems"

2. *This subclass does not cover:*

- *devices or arrangements, the optical operation of which is modified by changing the optical properties of the medium of the devices or arrangements for the control of the intensity, colour, phase, polarisation or direction of light, frequency-changing, non-linear optics, optical logic elements;*
- *optical analogue/digital converters;*

which are covered by subclass G02F.

M	G02B 1/00	Optical elements characterised by the material of which they are made (compositions of optical glasses G03C 3/00) ; Optical coatings for optical elements [1,2006.01]
M	G02B 3/00	Simple or compound lenses (artificial eyes A61F 2/14 ; spectacle lenses or contact lenses for the eyes G02C ; watch or clock glasses G04B 39/00) [1,2006.01]
L	G02B 5/00	Optical elements other than lenses (light guides G02B 6/00; optical logic elements G02F 3/00) [1,4,2006.01]
M	G02B 5/20	• Filters (polarising elements G02B 5/30 ; filters specially adapted for photographic purposes G03B 11/00) [1,2006.01]
M	G02B 5/30	• Polarising elements (light-modulating devices <i>with active elements</i> G02F 1/00) [1,2006.01]
M	G02B 5/32	• Holograms used as optical elements (processes or apparatus for producing holograms G03H) [2,2006.01]
M	G02B 6/02	• Optical fibre-fibres with cladding (mechanical structures for providing tensile strength and external protection G02B 6/44) [4,2006.01]
M	G02B 6/10	• of the optical waveguide type (G02B 6/02, G02B 6/24 take precedence; devices or arrangements for the control of light by electric, magnetic, electro-magnetic or acoustic means G02F 1/00; transferring the modulation of modulated light G02F 2/00; optical logic elements G02F 3/00; optical analogue/digital converters G02F 7/00 ; stores using opto-electronic devices G11C 11/42 ; electric waveguides H01P ; transmission of information by optical means H04B 10/00 ; multiplex systems H04J 14/00) [4,2006.01]
M	G02B 6/12	• • of the integrated circuit kind (production or processing of single crystals G30B ; electric integrated circuits H01L 27/00) [4,2006.01]
M	G02B 6/24	• Coupling light guides (for electric waveguides H01P 1/00) [4,5,2006.01]
M	G02B 6/27	• • • with polarisation selective and adjusting means (polarisation elements in general G02B 5/30 ; polarisation systems in general G02B 27/28 ; optical polarisation multiplex systems H04J 14/06) [6,2006.01]
M	G02B 6/293	• • • • with wavelength selective means (for optical elements in use, see the relevant subgroups of this subclass; optical wavelength division multiplexing systems H04J 14/02) [6,2006.01]
M	G02B 6/35	• • • having switching means (optical switching in general G02B 26/08 ; by changing the optical properties of the medium G02F 1/00) [6,2006.01]
M	G02B 6/43	• • • Arrangements comprising a plurality of opto-electronic elements and associated optical interconnections (light emissive or light sensitive semiconductor devices H01L 27/00 ; H01L 31/00 ; H01L 33/00 ; semiconductor lasers monolithically integrated with other components H01S 5/026) [6,2006.01]

Compilation of amendments between 2021.01 and 2022.01 IPC

M	G02B 7/09	• • • adapted for automatic focusing or varying magnification (automatic-generation-of focusing-signals G02B 7/28) [5,2006.01,2021.01]
M	G02B 7/182	• • for mirrors (optical-devices-or-arrangements-using-movable-or-deformable-optical elements-for-controlling-the-intensity, colour, phase, polarisation-or-direction-of-light G02B 26/00) [5,2006.01,2021.01]
M	G02B 7/185	• • • with means for adjusting the shape of the mirror surface (mirrors-with-curved-faces G02B 5/10) [5,2006.01,2021.01]
M	G02B 7/28	• Systems for automatic generation of focusing signals (measuring-distance-per-se G01C ; G01S ; using-such-signals-to-control-focus-of-particular-apparatus, see the subclasses-for the-apparatus, e.g. G03B ; G03F) [5,2006.01,2021.01]
M	G02B 13/20	• Soft-focus objectives (diffusing-elements-in-general G02B 5/02) [1,2006.01]
M	G02B 17/00	Systems with reflecting surfaces, with or without refracting elements (microscopes G02B 21/00 ; telescopes, periscopes G02B 23/00 ; beam-shaping-not-otherwise-provided-for G02B 27/09 ; for beam-splitting-or-combining G02B 27/10 ; for optical projection G02B 27/18) [1,6,2006.01]
M	G02B 21/00	Microscopes (eyepieces G02B 25/00 ; polarising-systems G02B 27/28 ; measuring microscopes G01B 9/04 ; microtomes G01N 1/06 ; scanning-probe-techniques-or apparatus G01Q) [1,7,2006.01]
M	G02B 21/34	• Microscope slides, e.g. mounting specimens on microscope slides (preparing-specimens-for-investigation G01N 1/28 ; means-for-supporting-the-objects-or-the-materials-to-be analysed-in-electron-microscopes H01J 37/20) [1,2006.01]
M	G02B 23/00	Telescopes, e.g. binoculars (measuring-telescopes G01B 9/06) ; Periscopes; Instruments for viewing the inside of hollow bodies (diagnostic-instruments A61B) ; Viewfinders (objectives G02B 9/00 ; G02B 11/00 ; G02B 15/00 ; G02B 17/00 ;) ; Optical aiming or sighting devices (non-optical-aspects-of-weapon-aiming-or-sighting devices F41G) eyepieces G02B 25/00 [1,4,2006.01]
M	G02B 23/10	• • reflecting into the field of view additional indications, e.g. from collimator (collimators-in-general G02B 27/30 ; graticules G02B 27/34) [1,2006.01]
M	G02B 23/12	• with means for image conversion or intensification (objectives-for-image-conversion-or-intensification G02B 13/16 ; electrical-image-converters-with-optical-input-and-optical output H01J 31/50) [1,2006.01]
M	G02B 23/16	• Housings; Caps; Mountings; Supports, e.g. with counterweight (cases-or-receptacles A45G) [1,2006.01]
M	G02B 25/00	Eyepieces; Magnifying glasses (simple-lenses G02B 3/00) [1,2006.01]
M	G02B 26/00	Optical devices or arrangements <i>for the control of light</i> using movable or deformable optical elements for-controlling-the-intensity, colour, phase, polarisation-or-direction-of-light, e.g. switching, gating-or-modulating (mechanically-operable-parts-of-lighting-devices-for-the-control-of-light order F21V ; specially-adapted-for-measuring-characteristics-of-light G01J ; devices-or-arrangements, the-optical-operation-of which-is-modified-by-changing-the-optical-by-modification-of-the-optical properties-of the medium-media of the devices-or-arrangements G02F 1/00 ; control-of-light-in-general G05D 25/00 ; control-of-light-sources H01S 3/10 ; H05B 39/00-H05B 47/00 elements-involved-therein G02F 1/00) [4,2006.01]
M	G02B 26/10	• • Scanning systems (for-special-applications, see the relevant-places, e.g. G03B 27/32 ; G03F 3/08 ; G03G 15/04 ; G09G 3/00 ; H04N) [4,2006.01]
M	G02B 27/02	• Viewing or reading apparatus (stereoscopic systems G02B 30/00 ; of-the-projection-type G03B ; slide-changing-apparatus G03B) [1,2006.01]
M	G02B 27/40	• Optical focusing aids (beam-splitting-or-combining-systems G02B 27/10) [1,2006.01]
M	G02B 27/44	• • Grating systems; Zone plate systems (G02B 27/46 takes precedence; spectrometry G01J) [3,2006.01]
M	G02B 27/46	• • Systems using spatial filters (character-recognition G06K 9/00) [3,2006.01]
M	G02B 27/48	• Laser speckle optics (speckle-suppression-in-holography G03H 1/32) [3,2006.01]
M	G02B 27/60	• Systems using <i>moiré fringes</i> (means-for-converting-the-output-of-a-sensing-member-using diffraction-gratings G01D 5/38) <i>moiré fringes</i> [3,2006.01]
M	G02B 27/62	• Optical apparatus specially adapted for adjusting optical elements during the assembly of optical systems (adjusting-means-being-part-of-the-system-to-be-assembled G02B 7/00) [3,2006.01]
M	G02B 27/64	• Imaging systems using optical elements for stabilisation of the lateral and angular position of the image (focusing-systems G02B 7/04 ; adjustment-of-optical-system-relative-to-image-or-object-surface G03B 5/00) [3,2006.01]

M	G02F	OPTICAL DEVICES OR ARRANGEMENTS FOR THE OPTICAL OPERATION OF WHICH IS MODIFIED BY CHANGING CONTROL OF LIGHT BY MODIFICATION OF THE OPTICAL PROPERTIES OF THE MEDIUM OF THE DEVICES OR ARRANGEMENTS FOR THE CONTROL OF THE INTENSITY, COLOUR, PHASE, POLARISATION OR DIRECTION OF LIGHT, e.g. SWITCHING, GATING, MODULATING OR DEMODULATING; TECHNIQUES OR PROCEDURES FOR THE OPERATION THEREOF MEDIA OF THE ELEMENTS INVOLVED THEREIN; NON-LINEAR OPTICS; FREQUENCY-CHANGING OF LIGHT; NON-LINEAR OPTICS; OPTICAL LOGIC ELEMENTS; OPTICAL ANALOGUE/DIGITAL CONVERTERS [2,4]
L	G02F 1/00	Devices or arrangements for the control of the intensity, colour, phase, polarisation or direction of light arriving from an independent light source, e.g. switching, gating or modulating; Non-linear optics [1,2,4,2006.01]
	G03B	
M	G03B 9/04	• Single movable plate with two or more apertures of graded size, e.g. sliding plate or pivoting plate [1,2006.01,2021.01]
L	G03B 9/06	• Two or more co-operating pivoted blades e.g. iris type (shutters functioning as diaphragms by limiting extent of opening movement G03B 9/08) [1,2006.01,2021.01]
L	G03B 35/04	• with movement of beam-selecting members in a system defining two or more viewpoints [1,2006.01,2021.01]
L	G03B 35/20	• using two or more projectors [1,2006.01,2021.01]
	G05B	
L	G05B 19/408	• • • characterised by data handling or data format, e.g. reading, buffering or conversion of data [6,2006.01]
	G05D	
M	G05D 13/24	• • • counterbalanced by two or more different appliances acting simultaneously upon the riser, e.g. with both spring force and fluid pressure or with both spring force and electromagnetic force [1,2006.01]
L	G05D 27/00	Simultaneous control of variables covered by two or more of main groups G05D 1/00-G05D 25/00 [1,2006.01]
	G05G	
L	G05G 5/02	• Means preventing undesired movements of a controlling member which can be moved in two or more separate steps or ways, e.g. restricting to a stepwise movement or to a particular sequence of movements (G05G 5/28 takes precedence) [1,2006.01]
	G06C	
M	G06C 1/00	Computing aids in which the computing members form at least part of the displayed result and are manipulated directly by hand, e.g. abacus, abacuses or pocket adding device devices [1,2006.01]
	G06E	
L	G06E 1/02	• operating upon the order or content of the data handled [5,2006.01]
	G06F	
L	G06F	Note(s)
		In this subclass, the following terms or expressions are used with the meaning indicated: <ul style="list-style-type: none"> • "handling" includes processing or transporting of data; • "data processing equipment" means an association of an electric digital data processor classifiable under group G06F 7/00, with one or more arrangements classifiable under groups G06F 1/00-G06F 5/00 and G06F 9/00-G06F 13/00.
L	G06F 3/00	Input arrangements for transferring data to be processed into a form capable of being handled by the computer; Output arrangements for transferring data from processing unit to output unit, e.g. interface arrangements [1,4,2006.01]
C	G06F 3/0481	• • • based on specific properties of the displayed interaction object or a metaphor-based environment, e.g. interaction with desktop elements like windows or icons, or assisted by a cursor's changing behaviour or appearance [2013.01,2022.01]
N	G06F 3/04812	• • • • Interaction techniques based on cursor appearance or behaviour, e.g. being affected by the presence of displayed objects [2022.01]
N	G06F 3/04815	• • • • Interaction with a metaphor-based environment or interaction object displayed as three-dimensional, e.g. changing the user viewpoint with respect to the environment or object [2022.01]

Compilation of amendments between 2021.01 and 2022.01 IPC

N	G06F 3/04817	•••• using icons (graphical or visual programming using iconic symbols G06F 8/34) [2022.01]
M	G06F 3/0482	•••• interaction Interaction with lists of selectable items, e.g. menus [2013.01]
M	G06F 3/0483	•••• interaction Interaction with page-structured environments, e.g. book metaphor [2013.01]
C	G06F 3/0484	••• for the control of specific functions or operations, e.g. selecting or manipulating an object or , an image or a displayed text element , setting a parameter value or selecting a range [2013.01,2022.01]
N	G06F 3/04842	•••• Selection of displayed objects or displayed text elements (G06F 3/0482 takes precedence) [2022.01]
N	G06F 3/04845	•••• for image manipulation, e.g. dragging, rotation, expansion or change of colour [2022.01]
N	G06F 3/04847	•••• Interaction techniques to control parameter settings, e.g. interaction with sliders or dials [2022.01]
C	G06F 3/0485	•••• Scrolling or panning [2013.01,2022.01]
N	G06F 3/04855	••••• Interaction with scrollbars [2022.01]
L	G06F 3/0487	••• using specific features provided by the input device, e.g. functions controlled by the rotation of a mouse with dual sensing arrangements, or of the nature of the input device, e.g. tap gestures based on pressure sensed by a digitiser [2013.01]
C	G06F 3/0488	•••• using a touch-screen or digitiser, e.g. input of commands through traced gestures [2013.01,2022.01]
N	G06F 3/04883	••••• for inputting data by handwriting, e.g. gesture or text [2022.01]
N	G06F 3/04886	••••• by partitioning the display area of the touch-screen or the surface of the digitising tablet into independently controllable areas, e.g. virtual keyboards or menus [2022.01]
C	G06F 3/0489	•••• using dedicated keyboard keys or combinations thereof [2013.01,2022.01]
N	G06F 3/04892	••••• Arrangements for controlling cursor position based on codes indicative of cursor displacements from one discrete location to another, e.g. using cursor control keys associated to different directions or using the tab key (arrangements for controlling cursor position based on coordinate signals G06F 3/038) [2022.01]
N	G06F 3/04895	••••• Guidance during keyboard input operation, e.g. prompting [2022.01]
L	G06F 5/00	Methods or arrangements for data conversion without changing the order or content of the data handled [1,4,2006.01]
L	G06F 5/14	•••• for overflow or underflow handling, e.g. full or empty flags [2006.01]
L	G06F 7/00	Methods or arrangements for processing data by operating upon the order or content of the data handled (logic circuits H03K 19/00) [1,2006.01]
L	G06F 7/495	••••••• in digit-serial fashion, i.e. having a single digit-handling circuit treating all denominations after each other [2006.01]
M	G06F 7/499	••• Denomination or exception handling, e.g. rounding or overflow [2006.01]
L	G06F 7/504	•••• in bit-serial fashion, i.e. having a single digit-handling circuit treating all denominations after each other [2006.01]
L	G06F 7/505	•••• in bit-parallel fashion, i.e. having a different digit-handling circuit for each denomination [2006.01]
M	G06F 7/78	•• for changing the order of data flow, e.g. matrix transposition or LIFO buffers; Overflow or underflow handling therefor [2006.01]
L	G06F 12/126	••••• with special data handling, e.g. priority of data or instructions, handling errors or pinning [2016.01]
L	G06F 13/14	• Handling requests for interconnection or transfer [4,2006.01]
L	G06F 21/56	••• Computer malware detection or handling, e.g. anti-virus arrangements [2013.01]
L	G06F 40/00	Handling natural language data (speech analysis or synthesis, speech recognition G10L) [2020.01]
L	G06F 40/109	••• Font handling; Temporal or kinetic typography [2020.01]
L	G06F 40/12	•• Use of codes for handling textual entities [2020.01]
L	G06F 40/129	•••• Handling non-Latin characters, e.g. kana-to-kanji conversion [2020.01]
L	G06F 40/163	••• Handling of whitespace [2020.01]
G06G		
L	G06G 1/00	Hand-manipulated computing devices (planimeters G01B 5/26) [1,2006.01]
M	G06K	RECOGNITION OF DATA GRAPHICAL DATA READING (image or video recognition or understanding G06V); PRESENTATION OF DATA; RECORD CARRIERS; HANDLING RECORD CARRIERS (printing per se B41J)

Compilation of amendments between 2021.01 and 2022.01 IPC

M	G06K	Note(s) characters or other data <ul style="list-style-type: none"> • <i>reading graphical representations from record carriers, e.g. barcodes</i> ; • presenting visually or otherwise the data recognised or the result of a computation. <ol style="list-style-type: none"> 1. This subclass <u>covers</u>: <ul style="list-style-type: none"> • marking, sensing, and conveying of record carriers; 2. This subclass does not cover printing per se.
M	G06K	Subclass indexes READING Characters; graphs <i>Graphs</i> G06K 9/00; G06K 11/00 RECOGNISING Characters; patterns <i>Patterns</i> G06K 9/00 CONVERTING POSITION OF MANUAL WRITING OR TRACING G06K 11/00 MEMBER INTO SIGNALS PERMANENT VISUAL PRESENTATION OF OUTPUT DATA G06K 15/00 MARKING, PRINTING-OUT G06K 1/00, G06K 3/00 VERIFYING G06K 5/00 SENSING G06K 7/00 CONVEYING G06K 13/00 COMBINATIONS OF OPERATIONS COVERED BY TWO OR MORE G06K 17/00 OF THE PRECEDING GROUPS RECORD CARRIERS, PUNCHED CARDS G06K 19/00, G06K 21/00
M	G06K 7/00	Methods or arrangements for sensing record carriers (G06K 9/00 takes precedence; methods or arrangements for marking the record carrier in digital fashion G06K 1/00 ; <i>arrangements for image or video recognition or understanding G06V 10/00 ; character recognition, recognising digital ink or document-oriented image-based pattern recognition G06V 30/00</i> [1,2006.01]
C	G06K 9/00	Methods or arrangements for reading or recognising printed or written characters or for recognising patterns, e.g. fingerprints (methods or arrangements for graph-reading or for converting the pattern of mechanical parameters, e.g. force or presence, into electrical signals G06K 11/00; <i>image or video recognition or understanding G06V ; speech recognition G10L 15/00</i>) [1,7,2006.01,2022.01]
D	G06K 9/03	(transferred to G06V 10/98, G06V 30/12)
D	G06K 9/18	(transferred to G06V 30/224)
D	G06K 9/20	(transferred to G06V 10/10, G06V 30/14)
D	G06K 9/22	(transferred to G06V 10/12, G06V 30/142)
D	G06K 9/24	(transferred to G06V 10/12, G06V 30/142)
D	G06K 9/26	(transferred to G06V 30/144)
D	G06K 9/28	(transferred to G06V 30/144)
D	G06K 9/30	(transferred to G06V 30/144)
D	G06K 9/32	(transferred to G06V 10/24, G06V 30/146)
D	G06K 9/34	(transferred to G06V 10/26, G06V 30/148)
D	G06K 9/36	(transferred to G06V 10/20, G06V 30/16)
D	G06K 9/38	(transferred to G06V 10/28, G06V 30/162)
D	G06K 9/38	(transferred to G06V 10/28, G06V 30/162)
D	G06K 9/40	(transferred to G06V 10/30, G06V 30/164)
D	G06K 9/42	(transferred to G06V 10/32, G06V 30/166)
D	G06K 9/44	(transferred to G06V 10/34, G06V 30/168)
D	G06K 9/46	(transferred to G06V 10/40, G06V 30/18)
D	G06K 9/48	(transferred to G06V 10/46, G06V 30/182)
D	G06K 9/50	(transferred to G06V 10/26, G06V 30/184)
D	G06K 9/52	(transferred to G06V 10/42, G06V 30/186)
D	G06K 9/54	(transferred to G06V 10/20, G06V 30/20)
D	G06K 9/56	(transferred to G06V 10/36, G06V 30/20)
D	G06K 9/58	(transferred to G06V 10/88, G06V 30/20)
D	G06K 9/60	(transferred to G06V 10/00, G06V 10/20, G06V 30/20)

Compilation of amendments between 2021.01 and 2022.01 IPC

C	G06K 9/62	• Methods or arrangements for <i>pattern</i> recognition using electronic means [3,2006.01,2022.01]
D	G06K 9/64	(transferred to G06V 10/75, G06V 30/192)
D	G06K 9/66	(transferred to G06V 10/70, G06V 30/194)
D	G06K 9/68	(transferred to G06V 10/75, G06V 30/196)
D	G06K 9/70	(transferred to G06V 10/75, G06V 30/198)
D	G06K 9/72	(transferred to G06V 10/75, G06V 30/262)
D	G06K 9/74	(transferred to G06V 10/88, G06V 30/199)
D	G06K 9/76	(transferred to G06V 10/88, G06V 30/199)
D	G06K 9/78	(transferred to G06V 10/00, G06V 10/70, G06V 30/20)
D	G06K 9/80	(transferred to G06V 10/00, G06V 10/70, G06V 30/20)
D	G06K 9/82	(transferred to G06V 10/88, G06V 30/20)
M	G06K 11/00	Methods or arrangements for graph-reading or for converting the pattern of mechanical parameters, e.g. force or presence, into electrical signals (combined with <i>pattern recognition G06K 9/00 ; arrangements for image or video recognition or understanding G06V 10/00 ; character recognition, recognising digital ink or document-oriented image-based pattern recognition G06K 9/00 G06V 30/00</i>) [1,2,2006.01]
M	G06K 21/00	Information retrieval from punched cards designed for manual use or handling by machine (G06K 19/00 takes precedence; detection or correction of errors by rescanning patterns G06K 9/03 <i>G06V 30/00</i> ; checking correct operation of card-conveying mechanisms G06K 13/06); Apparatus for handling such cards, e.g. marking or correcting [1,2006.01]
M	G06N	COMPUTER SYSTEMS <i>COMPUTING ARRANGEMENTS</i> BASED ON SPECIFIC COMPUTATIONAL MODELS [7]
M	G06N 3/00	Computer systems <i>Computing arrangements</i> based on biological models [7,2006.01]
M	G06N 5/00	Computer systems <i>Computing arrangements</i> using knowledge-based models [7,2006.01]
M	G06N 7/00	Computer systems <i>Computing arrangements</i> based on specific mathematical models [7,2006.01]
M	G06N 7/02	• using fuzzy logic (computer systems <i>computing arrangements</i> based on biological models G06N 3/00; computer systems <i>computing arrangements</i> using knowledge-based models G06N 5/00) [7,2006.01]
C	G06N 10/00	Quantum computers <i>computing</i> , i.e. computer systems <i>information processing based on quantum-mechanical phenomena</i> [2019.01,2022.01]
N	G06N 10/20	• Models of quantum computing, e.g. quantum circuits or universal quantum computers [2022.01]
N	G06N 10/40	• Physical realisations or architectures of quantum processors or components for manipulating qubits, e.g. qubit coupling or qubit control [2022.01]
N	G06N 10/60	• Quantum algorithms, e.g. based on quantum optimisation, or quantum Fourier or Hadamard transforms [2022.01]
N	G06N 10/70	• Quantum error correction, detection or prevention, e.g. surface codes or magic state distillation [2022.01]
N	G06N 10/80	• Quantum programming, e.g. interfaces, languages or software-development kits for creating or handling programs capable of running on quantum computers; Platforms for simulating or accessing quantum computers, e.g. cloud-based quantum computing [2022.01]
G06Q		
M	G06Q 10/10	• Office automation, e.g. computer aided management of electronic mail or groupware (electronic mail network systems H04L 12/58 ; electronic mail protocols H04L 29/06 <i>user-to-user messaging in packet-switching networks, transmitted according to store and-forward or real-time protocols, e.g. e-mail H04L 51/00</i>); Time management, e.g. calendars, reminders, meetings or time accounting [2012.01]
L	G06Q 50/18	• Legal services; Handling legal documents [2012.01]
G06T		
L	G06T 19/00	Manipulating 3D models or images for computer graphics [2011.01]
N	G06V	IMAGE OR VIDEO RECOGNITION OR UNDERSTANDING [2022.01]

Compilation of amendments between 2021.01 and 2022.01 IPC

N	G06V	Note(s) [2022.01]
		<ol style="list-style-type: none"> 1. This subclass <u>covers</u>: <ul style="list-style-type: none"> • methods or arrangements for pattern recognition or machine learning specially adapted for images or video. 2. In this subclass, the following terms or expressions are used with the meaning indicated: <ul style="list-style-type: none"> • “pattern recognition” means detection, categorisation, authentication and identification of patterns for explanatory purposes or to derive a certain meaning in images or video, by acquiring, preprocessing or extracting distinctive features and matching, clustering or classifying these features or representations thereof; • “feature extraction” means deriving descriptive or quantitative measures from images or video; • “clustering” means grouping or separating patterns according to their (dis)similarity or closeness; • “classification” means the identification of an object/feature as belonging to a class of objects/features by assigning of a label. 3. In this subclass, subject matter classified in groups G06V 20/00-G06V 40/00 is also classified in groups G06V 10/10 or G06V 10/20 respectively, if recognition relies on specific processing at the stages of acquisition or preprocessing.
N	G06V 10/00	Arrangements for image or video recognition or understanding (character recognition in images or video G06V 30/10) [2022.01]
N	G06V 10/10	• Image acquisition (document image scanning and transmission H04N 1/00; control of digital cameras H04N 5/232) [2022.01]
N	G06V 10/12	• • Details of acquisition arrangements; Constructional details thereof [2022.01]
N	G06V 10/14	• • • Optical characteristics of the device performing the acquisition or on the illumination arrangements [2022.01]
N	G06V 10/141	• • • • Control of illumination [2022.01]
N	G06V 10/143	• • • • Sensing or illuminating at different wavelengths [2022.01]
N	G06V 10/145	• • • • Illumination specially adapted for pattern recognition, e.g. using gratings [2022.01]
N	G06V 10/147	• • • • Details of sensors, e.g. sensor lenses (fingerprint or palmprint sensors G06V 40/13; vascular sensors G06V 40/145; eye sensors G06V 40/19) [2022.01]
N	G06V 10/20	• Image preprocessing [2022.01]
N	G06V 10/22	• • by selection of a specific region containing or referencing a pattern; Locating or processing of specific regions to guide the detection or recognition [2022.01]
N	G06V 10/24	• • Aligning, centring, orientation detection or correction of the image [2022.01]
N	G06V 10/25	• • Determination of region of interest [ROI] or a volume of interest [VOI] [2022.01]
N	G06V 10/26	• • Segmentation of patterns in the image field; Cutting or merging of image elements to establish the pattern region, e.g. clustering-based techniques; Detection of occlusion [2022.01]
N	G06V 10/28	• • Quantising the image, e.g. histogram thresholding for discrimination between background and foreground patterns [2022.01]
N	G06V 10/30	• • Noise filtering [2022.01]
N	G06V 10/32	• • Normalisation of the pattern dimensions [2022.01]
N	G06V 10/34	• • Smoothing or thinning of the pattern; Morphological operations; Skeletonisation [2022.01]
N	G06V 10/36	• • Applying a local operator, i.e. means to operate on image points situated in the vicinity of a given point; Non-linear local filtering operations, e.g. median filtering [2022.01]
N	G06V 10/40	• Extraction of image or video features [2022.01]
N	G06V 10/42	• • Global feature extraction by analysis of the whole pattern, e.g. using frequency domain transformations or autocorrelation [2022.01]
N	G06V 10/422	• • • for representing the structure of the pattern or shape of an object therefor [2022.01]
N	G06V 10/424	• • • • Syntactic representation, e.g. by using alphabets or grammars [2022.01]
N	G06V 10/426	• • • • Graphical representations [2022.01]
N	G06V 10/44	• • Local feature extraction by analysis of parts of the pattern, e.g. by detecting edges, contours, loops, corners, strokes or intersections; Connectivity analysis, e.g. of connected components [2022.01]
N	G06V 10/46	• • Descriptors for shape, contour or point-related descriptors, e.g. scale invariant feature transform [SIFT] or bags of words [BoW]; Salient regional features (colour feature extraction G06V 10/56) [2022.01]
N	G06V 10/48	• • by mapping characteristic values of the pattern into a parameter space, e.g. Hough transformation [2022.01]

Compilation of amendments between 2021.01 and 2022.01 IPC

N	G06V 10/50	• • by performing operations within image blocks; by using histograms, e.g. histogram of oriented gradients [HoG]; by summing image-intensity values; Projection analysis [2022.01]
N	G06V 10/52	• • Scale-space analysis, e.g. wavelet analysis (multi-scale boundary representations G06V 10/42) [2022.01]
N	G06V 10/54	• • relating to texture [2022.01]
N	G06V 10/56	• • relating to colour [2022.01]
N	G06V 10/58	• • relating to hyperspectral data [2022.01]
N	G06V 10/60	• • relating to illumination properties, e.g. using a reflectance or lighting model [2022.01]
N	G06V 10/62	• • relating to a temporal dimension, e.g. time-based feature extraction; Pattern tracking [2022.01]
N	G06V 10/70	• using pattern recognition or machine learning (optical pattern recognition or electronic computations therefor G06V 10/88) [2022.01]
N	G06V 10/72	• • Data preparation, e.g. statistical preprocessing of image or video features [2022.01]
N	G06V 10/74	• • Image or video pattern matching; Proximity measures in feature spaces [2022.01]
N	G06V 10/75	• • • Organisation of the matching processes, e.g. simultaneous or sequential comparisons of image or video features; Coarse-fine approaches, e.g. multi-scale approaches; using context analysis; Selection of dictionaries [2022.01]
N	G06V 10/762	• • using clustering, e.g. of similar faces in social networks [2022.01]
N	G06V 10/764	• • using classification, e.g. of video objects [2022.01]
N	G06V 10/766	• • using regression, e.g. by projecting features on hyperplanes [2022.01]
N	G06V 10/77	• • Processing image or video features in feature spaces; using data integration or data reduction, e.g. principal component analysis [PCA] or independent component analysis [ICA] or self-organising maps [SOM]; Blind source separation [2022.01]
N	G06V 10/771	• • • Feature selection, e.g. selecting representative features from a multi-dimensional feature space [2022.01]
N	G06V 10/772	• • • Determining representative reference patterns, e.g. averaging or distorting patterns; Generating dictionaries [2022.01]
N	G06V 10/774	• • • Generating sets of training patterns; Bootstrap methods, e.g. bagging or boosting [2022.01]
N	G06V 10/776	• • • Validation; Performance evaluation [2022.01]
N	G06V 10/778	• • • Active pattern-learning, e.g. online learning of image or video features [2022.01]
N	G06V 10/80	• • • Fusion, i.e. combining data from various sources at the sensor level, preprocessing level, feature extraction level or classification level (multimodal speaker identification or verification G10L 17/10) [2022.01]
N	G06V 10/82	• • using neural networks [2022.01]
N	G06V 10/84	• • using probabilistic graphical models from image or video features, e.g. Markov models or Bayesian networks [2022.01]
N	G06V 10/86	• • using syntactic or structural representations of the image or video pattern, e.g. symbolic string recognition; using graph matching [2022.01]
N	G06V 10/88	• Image or video recognition using optical means, e.g. reference filters, holographic masks, frequency domain filters or spatial domain filters [2022.01]
N	G06V 10/94	• Hardware or software architectures specially adapted for image or video understanding [2022.01]
N	G06V 10/96	• Management of image or video recognition tasks [2022.01]
N	G06V 10/98	• Detection or correction of errors, e.g. by rescanning the pattern or by human intervention; Evaluation of the quality of the acquired patterns [2022.01]
N	G06V 20/00	Scenes; Scene-specific elements (control of digital cameras H04N 5/232) [2022.01]
N	G06V 20/00	Note(s) [2022.01]
		In this group the following term is used with the meaning indicated:
		• “scene” is a visual representation of the world or of some elements of it, as captured by a sensor or generated by a computer.
N	G06V 20/05	• Underwater scenes [2022.01]
N	G06V 20/10	• Terrestrial scenes (scenes under surveillance with static cameras G06V 20/52; scenes perceived from the exterior of a vehicle G06V 20/56; scenes perceived from the interior of a vehicle G06V 20/59) [2022.01]
N	G06V 20/13	• • Satellite images [2022.01]
N	G06V 20/17	• • taken from planes or by drones [2022.01]
N	G06V 20/20	• in augmented reality scenes [2022.01]
N	G06V 20/30	• in albums, collections or shared content, e.g. social network photos or video [2022.01]

Compilation of amendments between 2021.01 and 2022.01 IPC

N	G06V 20/40	• in video content (extracting overlay text G06V 20/62; video retrieval G06F 16/70; processing of video elementary streams in video servers H04N 21/234; processing of video elementary streams in video clients H04N 21/44) [2022.01]
N	G06V 20/50	• Context or environment of the image [2022.01]
N	G06V 20/52	• • Surveillance or monitoring of activities, e.g. for recognising suspicious objects (recognising microscopic objects G06V 20/69) [2022.01]
N	G06V 20/54	• • • of traffic, e.g. cars on the road, trains or boats [2022.01]
N	G06V 20/56	• • exterior to a vehicle by using sensors mounted on the vehicle [2022.01]
N	G06V 20/58	• • • Recognition of moving objects or obstacles, e.g. vehicles or pedestrians; Recognition of traffic objects, e.g. traffic signs, traffic lights or roads [2022.01]
N	G06V 20/59	• • inside of a vehicle, e.g. relating to seat occupancy, driver state or inner lighting conditions [2022.01]
N	G06V 20/60	• Type of objects [2022.01]
N	G06V 20/62	• • Text, e.g. of license plates, overlay texts or captions on TV images [2022.01]
N	G06V 20/64	• • Three-dimensional objects [2022.01]
N	G06V 20/66	• • Trinkets, e.g. shirt buttons or jewellery items (recognising microscopic objects G06V 20/69) [2022.01]
N	G06V 20/68	• • Food, e.g. fruit or vegetables [2022.01]
N	G06V 20/69	• • Microscopic objects, e.g. biological cells or cellular parts [2022.01]
N	G06V 20/70	• Labelling scene content, e.g. deriving syntactic or semantic representations [2022.01]
N	G06V 20/80	• Recognising image objects characterised by unique random patterns [2022.01]
N	G06V 20/90	• Identifying an image sensor based on its output data [2022.01]
N	G06V 30/00	Character recognition; Recognising digital ink; Document-oriented image-based pattern recognition (scanning, transmission or reproduction of documents or the like H04N 1/00) [2022.01]
N	G06V 30/00	Note(s) [2022.01] This groups <u>covers</u> recognition of characters or digital ink, where the characters or the digital ink can include representations in three dimensions, e.g. as written by performing gestures in the air.
N	G06V 30/10	• Character recognition [2022.01]
N	G06V 30/12	• • Detection or correction of errors, e.g. by rescanning the pattern [2022.01]
N	G06V 30/14	• • Image acquisition [2022.01]
N	G06V 30/142	• • • using hand-held instruments; Constructional details of the instruments [2022.01]
N	G06V 30/144	• • • using a slot moved over the image; using discrete sensing elements at predetermined points; using automatic curve following means [2022.01]
N	G06V 30/146	• • • Aligning or centering of the image pick-up or image-field [2022.01]
N	G06V 30/148	• • • Segmentation of character regions [2022.01]
N	G06V 30/16	• • Image preprocessing [2022.01]
N	G06V 30/162	• • • Quantising the image signal [2022.01]
N	G06V 30/164	• • • Noise filtering [2022.01]
N	G06V 30/166	• • • Normalisation of pattern dimensions [2022.01]
N	G06V 30/168	• • • Smoothing or thinning of the pattern; Skeletonisation [2022.01]
N	G06V 30/18	• • Extraction of features or characteristics of the image [2022.01]
N	G06V 30/182	• • • by coding the contour of the pattern [2022.01]
N	G06V 30/184	• • • by analysing segments intersecting the pattern [2022.01]
N	G06V 30/186	• • • by deriving mathematical or geometrical properties from the whole image [2022.01]
N	G06V 30/19	• • Recognition using electronic means [2022.01]
N	G06V 30/192	• • • using simultaneous comparisons or correlations of the image signals with a plurality of references [2022.01]
N	G06V 30/194	• • • • References adjustable by an adaptive method, e.g. learning [2022.01]
N	G06V 30/196	• • • using sequential comparisons of the image signals with a plurality of references [2022.01]
N	G06V 30/198	• • • • the selection of the next reference depending on the result of the preceding comparison [2022.01]
N	G06V 30/199	• • Arrangements for recognition using optical reference masks, e.g. holographic masks [2022.01]
N	G06V 30/20	• • Combination of acquisition, preprocessing or recognition functions [2022.01]
N	G06V 30/22	• • characterised by the type of writing [2022.01]
N	G06V 30/222	• • • of characters separated by spaces [2022.01]
N	G06V 30/224	• • • of printed characters having additional code marks or containing code marks [2022.01]
N	G06V 30/226	• • • of cursive writing [2022.01]
N	G06V 30/228	• • • of three-dimensional handwriting, e.g. writing in the air [2022.01]

Compilation of amendments between 2021.01 and 2022.01 IPC

N	G06V 30/24	• characterised by the processing or recognition method (segmentation of character regions G06V 30/148) [2022.01]
N	G06V 30/242	•• Division of the character sequences into groups prior to recognition; Selection of dictionaries [2022.01]
N	G06V 30/244	••• using graphical properties, e.g. alphabet type or font [2022.01]
N	G06V 30/246	••• using linguistic properties, e.g. specific for English or German language [2022.01]
N	G06V 30/26	• Techniques for post-processing, e.g. correcting the recognition result [2022.01]
N	G06V 30/262	•• using context analysis, e.g. lexical, syntactic or semantic context [2022.01]
N	G06V 30/28	• specially adapted to the type of the alphabet, e.g. Latin alphabet [2022.01]
N	G06V 30/30	• based on the type of data [2022.01]
N	G06V 30/302	•• Images containing characters for discriminating human versus automated computer access [2022.01]
N	G06V 30/304	•• Music notations [2022.01]
N	G06V 30/32	• Digital ink [2022.01]
N	G06V 30/40	• Document-oriented image-based pattern recognition [2022.01]
N	G06V 30/41	• Analysis of document content (recognition of printed characters based on code marks G06V 30/224) [2022.01]
N	G06V 30/412	•• Layout analysis of documents structured with printed lines or input boxes, e.g. business forms or tables [2022.01]
N	G06V 30/413	•• Classification of content, e.g. text, photographs or tables [2022.01]
N	G06V 30/414	•• Extracting the geometrical structure, e.g. layout tree; Block segmentation, e.g. bounding boxes for graphics or text [2022.01]
N	G06V 30/416	•• Extracting the logical structure, e.g. chapters, sections or page numbers; Identifying elements of the document, e.g. authors [2022.01]
N	G06V 30/418	•• Document matching, e.g. of document images [2022.01]
N	G06V 30/42	• based on the type of document [2022.01]
N	G06V 30/422	•• Technical drawings; Geographical maps [2022.01]
N	G06V 30/424	•• Postal images, e.g. labels or addresses on parcels or postal envelopes [2022.01]
N	G06V 40/00	Recognition of biometric, human-related or animal-related patterns in image or video data [2022.01]
N	G06V 40/10	• Human or animal bodies, e.g. vehicle occupants or pedestrians; Body parts, e.g. hands [2022.01]
N	G06V 40/12	• Fingerprints or palmprints [2022.01]
N	G06V 40/13	•• Sensors therefor [2022.01]
N	G06V 40/14	• Vascular patterns [2022.01]
N	G06V 40/145	•• Sensors therefor [2022.01]
N	G06V 40/16	• Human faces, e.g. facial parts, sketches or expressions [2022.01]
N	G06V 40/18	• Eye characteristics, e.g. of the iris [2022.01]
N	G06V 40/19	•• Sensors therefor [2022.01]
N	G06V 40/20	• Movements or behaviour, e.g. gesture recognition (recognition of facial expressions G06V 40/16) [2022.01]
N	G06V 40/30	• Writer recognition; Reading and verifying signatures [2022.01]
N	G06V 40/40	• Spoof detection, e.g. liveness detection [2022.01]
N	G06V 40/50	• Maintenance of biometric data or enrolment thereof [2022.01]
N	G06V 40/60	• Static or dynamic means for assisting the user to position a body part for biometric acquisition [2022.01]
N	G06V 40/70	• Multimodal biometrics, e.g. combining information from different biometric modalities [2022.01]
G07D		
L	G07D 11/20	• Controlling or monitoring the operation of devices; Data handling [2019.01]
G07F		
L	G07F 5/12	• wherein two or more coins of the same denomination are required for each transaction [1,2006.01]
L	G07F 5/14	• wherein two or more coins of different denominations are required for each transaction [1,2006.01]
G08C		
M	G08C 13/02	• to yield a signal which is a function of two or more signals, e.g. sum or product [1,2006.01]
G10D		
L	G10D 3/22	• Material for manufacturing stringed musical instruments; Treatment of the material [2020.01]

Compilation of amendments between 2021.01 and 2022.01 IPC

L	G10D 9/08	• Material for manufacturing wind musical instruments; Treatment of the material [2020.01]
L	G10D 13/24	• • Material for manufacturing percussion musical instruments; Treatment of the material [2020.01]
G10F		
L	G10F 1/22	• Combinations of two or more instruments [1,2006.01]
G10K		
L	G10K 11/36	• Devices for manipulating acoustic surface waves (electro-acoustic amplifiers H03F 13/00; networks comprising electro-acoustic elements H03H 9/00) [3,2006.01]
G10L		
L	G10L 13/033	• • Voice editing, e.g. manipulating the voice of the synthesiser [2013.01]
G11B		
L	G11B 7/1275	• • • • Two or more lasers having different wavelengths [2012.01]
L	G11B 7/1356	• • • Double or multiple prisms, i.e. having two or more prisms in cooperation [2012.01]
L	G11B 7/24067	• • • Combinations of two or more layers with specific interrelation [2013.01]
G16C		
L	G16C 20/00	Chemoinformatics, i.e. ICT specially adapted for the handling of physicochemical or structural data of chemical particles, elements, compounds or mixtures [2019.01]
L	G16H	HEALTHCARE INFORMATICS, i.e. INFORMATION AND COMMUNICATION TECHNOLOGY [ICT] SPECIALLY ADAPTED FOR THE HANDLING OR PROCESSING OF MEDICAL OR HEALTHCARE DATA [2018.01]
L	G16H 10/00	ICT specially adapted for the handling or processing of patient-related medical or healthcare data (for medical reports G16H 15/00; for therapies or health-improving plans G16H 20/00; for the handling or processing of medical images G16H 30/00) [2018.01]
L	G16H 20/00	ICT specially adapted for therapies or health-improving plans, e.g. for handling prescriptions, for steering therapy or for monitoring patient compliance [2018.01]
L	G16H 30/00	ICT specially adapted for the handling or processing of medical images (computerised tomography A61B 6/03) [2018.01]
L	G16H 30/20	• for handling medical images, e.g. DICOM, HL7 or PACS [2018.01]
L	G16H 70/00	ICT specially adapted for the handling or processing of medical references [2018.01]
G21F		
L	G21F 7/06	• Structural combination with remotely-controlled apparatus, e.g. with manipulators [1,2006.01]
H01F		
L	H01F 19/02	• Audio-frequency transformers or mutual inductances, i.e. not suitable for handling frequencies considerably beyond the audio range [1,2006.01]
L	H01F 19/04	• Transformers or mutual inductances suitable for handling frequencies considerably beyond the audio range [1,2006.01]
L	H01F 19/06	• • Broad-band transformers, e.g. suitable for handling frequencies well down into the audio range [1,2006.01]
L	H01F 19/08	• • Transformers having magnetic bias, e.g. for handling pulses [1,2006.01]
H01H		
L	H01H 5/26	• • • having two or more snap-action motions in succession [1,2006.01]
L	H01H 13/34	• • • • having two or more snap-action motions in succession [1,2006.01]
L	H01H 21/46	• • • • • with two or more snap-action motions in succession [1,2006.01]
L	H01H 31/08	• • • for interlocking two or more parts of the mechanism for operating contacts [1,2006.01]
L	H01H 31/10	• • • for interlocking two or more switches [1,2006.01]
L	H01H 71/34	• • • • having two or more armatures controlled by a common winding [1,2006.01]
L	H01H 83/14	• operated by unbalance of two or more currents or voltages, e.g. for differential protection [1,2006.01]
L	H01H 83/22	• • the other condition being unbalance of two or more currents or voltages [1,2006.01]
H01J		
L	H01J 31/20	• • • for displaying images or patterns in two or more colours [1,2006.01]
H01L		
L	H01L 31/078	• • • including different types of potential barriers provided for in two or more of groups H01L 31/061-H01L 31/075 [5,2006.01,2012.01]
H01Q		

Compilation of amendments between 2021.01 and 2022.01 IPC

L	H01Q 3/26	<ul style="list-style-type: none"> • varying the relative phase or relative amplitude of energisation between two or more active radiating elements; varying the distribution of energy across a radiating aperture (H01Q 3/22, H01Q 3/24 take precedence) [1,2006.01]
H01R		
M	H01R	<p>Note(s) [7]</p> <ol style="list-style-type: none"> 1. This subclass <u>covers</u>: <ul style="list-style-type: none"> • all kinds of contact-making disconnectable and non-disconnectable electric line connecting devices, coupling devices, lamp or similar holders or current collectors for all kinds of electric lines, cables or apparatus; • non-printed means for electric connections to or between printed circuits. 2. This subclass <u>does not cover</u> mounting of connections in or on specified apparatus. Such mounting is covered by the relevant subclass for such apparatus, e.g. mounting in junction or distribution boxes is covered by subclass H02B or H02G, high-temperature connections for heating elements is covered by group H05B 3/08. Structural association of one part of a coupling device with specific electric apparatus is classified with the apparatus, e.g. association of cap with incandescent lamp is covered by subclass H01K. 3. In this subclass, the following expressions are used with the meaning indicated: <ul style="list-style-type: none"> • "pin" is a rigid or flexible conductor for engagement with an appropriately shaped socket to establish contact therewith; • "socket" is a rigid or flexible conductor for receiving an appropriate pin to establish electrical contact therewith; • "coupling devices" are devices having two or more parts specially adapted so as to be capable of ready and repeated physical engagement or disengagement, without the use of a tool, for the purpose of establishing or breaking an electrical path. Examples of such devices having more than two parts are: <ol style="list-style-type: none"> a. adapters for linking two coupling parts; b. rails or bus-bars provided with a plurality of discrete connecting locations for counterparts. 4. General details are classified in groups H01R 4/00, H01R 9/00, H01R 11/00, H01R 12/00.
H02J		
L	H02J	<p>Note(s)</p> <ol style="list-style-type: none"> 1. This subclass <u>covers</u> : <ul style="list-style-type: none"> • ac or dc mains or distribution networks; • circuit arrangements for battery supplies, including charging or control thereof, or co-ordinated supply from two or more sources of any kind; • circuit arrangements or systems for wireless supply or distribution of electric power. 2. This subclass <u>does not cover</u> : <ul style="list-style-type: none"> • control of a single motor, generator or dynamo-electric converter, of the types covered by subclass H01F or H02K, which is covered by subclass H02P; • control of a single motor or generator, of the types covered by subclass H02N, which is covered by that subclass.
M	H02J 3/38	<ul style="list-style-type: none"> • Arrangements for parallelly feeding a single network by two or more generators, converters or transformers [1,2006.01]
H02K		
C	H02K 1/27	• • • Rotor cores with permanent magnets [5,2006.01,2022.01]
N	H02K 1/2706	• • • • Inner rotors [2022.01]
N	H02K 1/2713	• • • • • the magnetisation axis of the magnets being axial, e.g. claw-pole type [2022.01]
N	H02K 1/272	• • • • • the magnetisation axis of the magnets being perpendicular to the rotor axis [2022.01]
N	H02K 1/2726	• • • • • • the rotor consisting of a single magnet or two or more axially juxtaposed single magnets [2022.01]
N	H02K 1/2733	• • • • • • • Annular magnets [2022.01]
N	H02K 1/274	• • • • • • • the rotor consisting of two or more circumferentially positioned magnets [2022.01]
N	H02K 1/2746	• • • • • • • the rotor consisting of magnets arranged with the same polarity, e.g. consequent pole type [2022.01]
N	H02K 1/2753	• • • • • • • the rotor consisting of magnets or groups of magnets arranged with alternating polarity [2022.01]

Compilation of amendments between 2021.01 and 2022.01 IPC

N	H02K 1/276	••••• Magnets embedded in the magnetic core, e.g. interior permanent magnets [IPM] [2022.01]
N	H02K 1/278	••••• Surface mounted magnets; Inset magnets [2022.01]
N	H02K 1/2781	••••• Magnets shaped to vary the mechanical air gap between the magnets and the stator [2022.01]
N	H02K 1/2783	••••• with magnets arranged in Halbach arrays [2022.01]
N	H02K 1/2786	•••• Outer rotors [2022.01]
N	H02K 1/2787	•••• the magnetisation axis of the magnets being perpendicular to the rotor axis [2022.01]
N	H02K 1/2788	••••• the rotor consisting of a single magnet or two or more axially juxtaposed single magnets [2022.01]
N	H02K 1/2789	••••• the rotor consisting of two or more circumferentially positioned magnets [2022.01]
N	H02K 1/279	••••• Magnets embedded in the magnetic core [2022.01]
N	H02K 1/2791	••••• Surface mounted magnets; Inset magnets [2022.01]
N	H02K 1/27915	••••• Magnets shaped to vary the mechanical air gap between the magnets and the stator [2022.01]
N	H02K 1/2792	••••• with magnets arranged in Halbach arrays [2022.01]
N	H02K 1/2793	•••• Rotors axially facing stators [2022.01]
N	H02K 1/2795	•••• the rotor consisting of two or more circumferentially positioned magnets [2022.01]
N	H02K 1/2796	••••• where both axial sides of the rotor face a stator [2022.01]
N	H02K 1/2798	••••• where both axial sides of the stator face a rotor [2022.01]

H02P

L	H02P 5/46	• for speed regulation of two or more dynamo-electric motors in relation to one another [1,2006.01]
---	-----------	--

H03J

L	H03J 1/16	•• Single control means independently performing two or more functions [1,2006.01]
---	-----------	---

H03K

M	H03K	Note(s) [6] <ol style="list-style-type: none"> This subclass <u>covers</u> : <ul style="list-style-type: none"> methods, circuits, devices ; or apparatus using active elements operating in a discontinuous or switching manner for generating, counting, amplifying, shaping, modulating, demodulating ; or otherwise manipulating signals; electronic switching not involving contact-making and breaking; logic circuits handling electric pulses. In this subclass, the following expression is used with the meaning indicated: <ul style="list-style-type: none"> "active element" exercises control over the conversion of input energy into an oscillation or a discontinuous flow of energy. In this subclass, where the claims of a patent document are not limited to a specific circuit element, the document is classified at least according to the elements used in the described embodiment.
---	------	---

L	H03K 5/00	Manipulation of pulses not covered by one of the other main groups of this subclass (circuits with regenerative action H03K 3/00, H03K 4/00; by the use of non-linear magnetic or dielectric devices H03K 3/45) [1,2006.01]
---	-----------	--

L	H03K 6/00	Manipulating pulses having a finite slope and not covered by one of the other main groups of this subclass (circuits with regenerative action H03K 4/00) [1,2006.01]
---	-----------	---

H04L

M	H04L	Note(s) <ol style="list-style-type: none"> This subclass <u>covers</u> transmission of signals having been supplied in digital form and includes data transmission, telegraphic communication, or methods or arrangements for monitoring. <i>In this subclass it is desirable to add the indexing codes of group H04L 101/00.</i>
---	------	---

Compilation of amendments between 2021.01 and 2022.01 IPC

M	H04L	Subclass indexes	
		SYSTEMS CHARACTERISED BY:	
		The code used: Morse; Baudot; details	H04L 15/00; H04L 17/00; H04L 13/00
		Otherwise: step by step; mosaic printers; other systems	H04L 19/00; H04L 21/00; H04L 23/00
		BASEBAND SYSTEMS	H04L 25/00
		MODULATED-CARRIER SYSTEMS	H04L 27/00
		DATA SWITCHING NETWORKS	H04L 12/00
		ARRANGEMENTS OF GENERAL APPLICATION	
		<i>Cryptography; Security; errors; secret, Errors; Network security</i>	H04L 1/00; H04L 9/00
		Multiple communications; synchronising	H04L 5/00; H04L 7/00
		<i>Arrangements for maintenance, administration or management of data switching networks</i>	H04L 41/00
		<i>Arrangements for monitoring or testing data switching networks</i>	H04L 43/00
		<i>Routing or path finding of packets in data switching networks</i>	H04L 45/00
		<i>Traffic control in data switching networks</i>	H04L 47/00
		<i>Packet switching elements</i>	H04L 49/00
		<i>User-to-user messaging in packet-switching networks, transmitted according to store-and-forward or real-time protocols</i>	H04L 51/00
		<i>Network arrangements, protocols or services for addressing or naming</i>	H04L 61/00
		<i>Network arrangements, protocols or services for supporting real-time applications in data packet communication</i>	H04L 65/00
		<i>Network arrangements or protocols for supporting network services or applications</i>	H04L 67/00
		OTHER ARRANGEMENTS, APPARATUS OR SYSTEMS	H04L 29/00 H04L 69/00
C	H04L 9/00	Arrangements for secret or secure communication communications ; Network security protocols [1,2006.01,2022.01]	
N	H04L 9/40	• Network security protocols [2022.01]	
D	H04L 12/24	(transferred to H04L 41/00-H04L 41/5074)	
D	H04L 12/26	(transferred to H04L 43/00-H04L 43/55)	
T	H04L 12/54	• Store-and-forward switching systems (packet switching systems H04L 12/70 H04L 45/00 , H04L 47/00) [5,6,2006.01,2013.01,2022.01]	
D	H04L 12/58	(transferred to H04L 51/00-H04L 51/58)	
D	H04L 12/60	(transferred to H04L 12/54)	
D	H04L 12/62	(transferred to H04L 12/54)	
D	H04L 12/70	(transferred to H04L 45/00, H04L 45/76, H04L 47/00)	
D	H04L 12/701	(transferred to H04L 45/00-H04L 45/02, H04L 45/76)	
D	H04L 12/703	(transferred to H04L 45/28)	
D	H04L 12/705	(transferred to H04L 45/18)	
D	H04L 12/707	(transferred to H04L 45/24)	
D	H04L 12/709	(transferred to H04L 45/243)	
D	H04L 12/711	(transferred to H04L 45/247)	
D	H04L 12/713	(transferred to H04L 45/586)	
D	H04L 12/715	(transferred to H04L 45/00, H04L 45/64-H04L 45/655)	
D	H04L 12/717	(transferred to H04L 45/42)	
D	H04L 12/721	(transferred to H04L 45/00, H04L 45/12, H04L 45/44, H04L 47/00, H04L 47/30)	
D	H04L 12/723	(transferred to H04L 45/50)	
D	H04L 12/725	(transferred to H04L 45/00, H04L 45/30-H04L 45/302)	
D	H04L 12/727	(transferred to H04L 45/121)	
D	H04L 12/729	(transferred to H04L 45/125)	
D	H04L 12/733	(transferred to H04L 45/122)	
D	H04L 12/735	(transferred to H04L 45/128)	
D	H04L 12/741	(transferred to H04L 45/74)	
D	H04L 12/743	(transferred to H04L 45/00, H04L 45/7453-H04L 45/7459)	
D	H04L 12/745	(transferred to H04L 45/748)	
D	H04L 12/747	(transferred to H04L 45/00, H04L 45/745-H04L 45/7452)	
D	H04L 12/749	(transferred to H04L 45/741)	

Compilation of amendments between 2021.01 and 2022.01 IPC

D	H04L 12/751	(transferred to H04L 45/02)
D	H04L 12/753	(transferred to H04L 45/00, H04L 45/48-H04L 45/488)
D	H04L 12/755	(transferred to H04L 45/00-H04L 45/021, H04L 45/03-H04L 45/0377)
D	H04L 12/757	(transferred to H04L 45/023)
D	H04L 12/759	(transferred to H04L 45/028)
D	H04L 12/761	(transferred to H04L 45/16)
D	H04L 12/763	(transferred to H04L 45/17)
D	H04L 12/771	(transferred to H04L 45/60)
D	H04L 12/773	(transferred to H04L 45/74, H04L 45/74-H04L 45/741, H04L 45/741-H04L 45/745, H04L 45/745-H04L 45/7452, H04L 45/7452-H04L 45/7453, H04L 45/7453-H04L 45/7459, H04L 45/7459-H04L 45/748, H04L 45/748)
D	H04L 12/775	(transferred to H04L 45/58)
D	H04L 12/781	(transferred to H04L 45/52)
D	H04L 12/801	(transferred to H04L 47/00-H04L 47/12, H04L 47/127, H04L 47/17-H04L 47/193, H04L 47/215, H04L 47/33-H04L 47/35)
D	H04L 12/803	(transferred to H04L 47/00, H04L 47/122-H04L 47/125)
D	H04L 12/805	(transferred to H04L 47/36)
D	H04L 12/807	(transferred to H04L 47/27)
D	H04L 12/811	(transferred to H04L 47/25, H04L 47/38)
D	H04L 12/813	(transferred to H04L 47/20)
D	H04L 12/815	(transferred to H04L 47/22)
D	H04L 12/819	(transferred to H04L 47/21)
D	H04L 12/823	(transferred to H04L 47/32)
D	H04L 12/825	(transferred to H04L 47/00, H04L 47/25-H04L 47/263)
D	H04L 12/827	(transferred to H04L 47/265)
D	H04L 12/829	(transferred to H04L 47/267)
D	H04L 12/833	(transferred to H04L 47/31)
D	H04L 12/835	(transferred to H04L 47/30)
D	H04L 12/841	(transferred to H04L 47/00, H04L 47/28-H04L 47/283)
D	H04L 12/851	(transferred to H04L 47/00, H04L 47/24-H04L 47/2408, H04L 47/2425-H04L 47/2441, H04L 47/2475-H04L 47/2483)
D	H04L 12/853	(transferred to H04L 47/2416)
D	H04L 12/855	(transferred to H04L 47/2466)
D	H04L 12/857	(transferred to H04L 47/2491)
D	H04L 12/859	(transferred to H04L 47/2475)
D	H04L 12/861	(transferred to H04L 49/00, H04L 49/90-H04L 49/9005, H04L 49/9047-H04L 49/9057)
D	H04L 12/863	(transferred to H04L 47/00, H04L 47/50, H04L 47/62-H04L 47/628, H04L 47/6295)
D	H04L 12/865	(transferred to H04L 47/6275)
D	H04L 12/867	(transferred to H04L 47/629)
D	H04L 12/869	(transferred to H04L 47/00, H04L 47/60-H04L 47/62)
D	H04L 12/873	(transferred to H04L 47/52)
D	H04L 12/875	(transferred to H04L 47/56)
D	H04L 12/877	(transferred to H04L 47/525)
D	H04L 12/879	(transferred to H04L 49/901)
D	H04L 12/883	(transferred to H04L 49/9015)
D	H04L 12/885	(transferred to H04L 49/9023)
D	H04L 12/891	(transferred to H04L 47/41)
D	H04L 12/893	(transferred to H04L 47/40)
D	H04L 12/901	(transferred to H04L 45/80)
D	H04L 12/903	(transferred to H04L 45/85)
D	H04L 12/905	(transferred to H04L 45/851)
D	H04L 12/911	(transferred to H04L 47/00, H04L 47/70-H04L 47/72, H04L 47/726-H04L 47/74, H04L 47/78)
D	H04L 12/913	(transferred to H04L 47/724)
D	H04L 12/915	(transferred to H04L 47/00, H04L 47/783-H04L 47/785)
D	H04L 12/917	(transferred to H04L 47/76)
D	H04L 12/919	(transferred to H04L 47/765)
D	H04L 12/923	(transferred to H04L 47/762)
D	H04L 12/925	(transferred to H04L 47/722)
D	H04L 12/927	(transferred to H04L 47/80)
D	H04L 12/931	(transferred to H04L 49/00-H04L 49/10, H04L 49/20-H04L 49/201, H04L 49/35-H04L 49/506, H04L 49/65)

Compilation of amendments between 2021.01 and 2022.01 IPC

D	H04L 12/933	(transferred to H04L 49/00-H04L 49/109, H04L 49/15-H04L 49/1546)
D	H04L 12/935	(transferred to H04L 49/111)
D	H04L 12/937	(transferred to H04L 49/00, H04L 49/112, H04L 49/253)
D	H04L 12/939	(transferred to H04L 49/00, H04L 49/113, H04L 49/55-H04L 49/552)
D	H04L 12/943	(transferred to H04L 49/115)
D	H04L 12/945	(transferred to H04L 49/116)
D	H04L 12/947	(transferred to H04L 49/00, H04L 49/118, H04L 49/25)
D	H04L 12/951	(transferred to H04L 47/43)
D	H04L 12/953	(transferred to H04L 47/43)
D	H04L 12/955	(transferred to H04L 47/431)
D	H04L 29/00	(transferred to H04L 69/00-H04L 69/40)
D	H04L 29/02	(transferred to H04L 65/00, H04L 65/1066-H04L 65/1108, H04L 65/80, H04L 67/14-H04L 67/148)
D	H04L 29/04	(transferred to H04L 69/14)
D	H04L 29/06	(transferred to H04L 9/40, H04L 65/60-H04L 65/756, H04L 67/01-H04L 67/1396)
D	H04L 29/08	(transferred to H04L 65/40-H04L 65/4061, H04L 67/00, H04L 67/50-H04L 67/75, H04L 69/30)
D	H04L 29/10	(transferred to H04L 69/32-H04L 69/329)
D	H04L 29/12	(transferred to H04L 61/00-H04L 61/2596, H04L 65/1059, H04L 67/2866-H04L 67/2869, H04L 69/40)
D	H04L 29/14	(transferred to H04L 69/40)
N	H04L 41/00	Arrangements for maintenance, administration or management of data switching networks, e.g. of packet switching networks [2022.01]
N	H04L 41/02	• Standardisation; Integration [2022.01]
N	H04L 41/0213	• • Standardised network management protocols, e.g. simple network management protocol [SNMP] [2022.01]
N	H04L 41/022	• • Multivendor or multi-standard integration [2022.01]
N	H04L 41/0226	• • Mapping or translating multiple network management protocols [2022.01]
N	H04L 41/0233	• • Object-oriented techniques, for representation of network management data, e.g. common object request broker architecture [CORBA] [2022.01]
N	H04L 41/0246	• • Exchanging or transporting network management information using the Internet; Embedding network management web servers in network elements; Web-services-based protocols [2022.01]
N	H04L 41/0253	• • • using browsers or web-pages for accessing management information [2022.01]
N	H04L 41/026	• • • using e-messaging for transporting management information, e.g. email, instant messaging or chat [2022.01]
N	H04L 41/0266	• • • using meta-data, objects or commands for formatting management information, e.g. using eXtensible markup language [XML] [2022.01]
N	H04L 41/0273	• • • using web services for network management, e.g. simple object access protocol [SOAP] [2022.01]
N	H04L 41/04	• Network management architectures or arrangements [2022.01]
N	H04L 41/042	• • comprising distributed management centres cooperatively managing the network [2022.01]
N	H04L 41/044	• • comprising hierarchical management structures [2022.01]
N	H04L 41/045	• • comprising client-server management architectures [2022.01]
N	H04L 41/046	• • comprising network management agents or mobile agents therefor [2022.01]
N	H04L 41/052	• • using standardised network management architectures, e.g. telecommunication management network [TMN] or unified network management architecture [UNMA] [2022.01]
N	H04L 41/06	• Management of faults, events, alarms or notifications [2022.01]
N	H04L 41/0604	• • using filtering, e.g. reduction of information by using priority, element types, position or time [2022.01]
N	H04L 41/0631	• • using root cause analysis; using analysis of correlation between notifications, alarms or events based on decision criteria, e.g. hierarchy, tree or time analysis [2022.01]
N	H04L 41/0654	• • using network fault recovery (ring fault isolation or reconfiguration in loop networks without recovery actions by a network management system H04L 12/437) [2022.01]
N	H04L 41/0659	• • • by isolating or reconfiguring faulty entities [2022.01]
N	H04L 41/0663	• • • Performing the actions predefined by failover planning, e.g. switching to standby network elements [2022.01]
N	H04L 41/0668	• • • by dynamic selection of recovery network elements, e.g. replacement by the most appropriate element after failure [2022.01]
N	H04L 41/0677	• • Localisation of faults [2022.01]

Compilation of amendments between 2021.01 and 2022.01 IPC

N	H04L 41/0681	•• Configuration of triggering conditions [2022.01]
N	H04L 41/0686	•• Additional information in the notification, e.g. enhancement of specific meta-data [2022.01]
N	H04L 41/069	•• using logs of notifications; Post-processing of notifications [2022.01]
N	H04L 41/0695	•• the faulty arrangement being the maintenance, administration or management system [2022.01]
N	H04L 41/08	• Configuration management of networks or network elements (address allocation H04L 61/50) [2022.01]
N	H04L 41/0803	•• Configuration setting [2022.01]
N	H04L 41/0806	••• for initial configuration or provisioning, e.g. plug-and-play [2022.01]
N	H04L 41/0813	••• characterised by the conditions triggering a change of settings [2022.01]
N	H04L 41/0816	•••• the condition being an adaptation, e.g. in response to network events [2022.01]
N	H04L 41/082	•••• the condition being updates or upgrades of network functionality [2022.01]
N	H04L 41/0823	••• characterised by the purposes of a change of settings, e.g. optimising configuration for enhancing reliability (for optimising operational conditions of wireless networks H04W 24/02) [2022.01]
N	H04L 41/0826	•••• for reduction of network costs (H04L 41/0833 takes precedence) [2022.01]
N	H04L 41/083	•••• for increasing network speed [2022.01]
N	H04L 41/0833	•••• for reduction of network energy consumption [2022.01]
N	H04L 41/084	••• Configuration by using pre-existing information, e.g. using templates or copying from other elements [2022.01]
N	H04L 41/085	•• Retrieval of network configuration; Tracking network configuration history [2022.01]
N	H04L 41/0853	••• by actively collecting configuration information or by backing up configuration information [2022.01]
N	H04L 41/0859	••• by keeping history of different configuration generations or by rolling back to previous configuration versions [2022.01]
N	H04L 41/0866	•• Checking the configuration [2022.01]
N	H04L 41/0869	••• Validating the configuration within one network element [2022.01]
N	H04L 41/0873	••• Checking configuration conflicts between network elements [2022.01]
N	H04L 41/0893	•• Assignment of logical groups to network elements [2022.01]
N	H04L 41/0894	•• Policy-based network configuration management [2022.01]
N	H04L 41/0895	•• Configuration of virtualised networks or elements, e.g. virtualised network function or OpenFlow elements [2022.01]
N	H04L 41/0896	•• Bandwidth or capacity management, i.e. automatically increasing or decreasing capacities (flow or congestion control using dynamic resource allocation, e.g. in-call renegotiation, H04L 47/76) [2022.01]
N	H04L 41/0897	••• by horizontal or vertical scaling of resources, or by migrating entities, e.g. virtual resources or entities [2022.01]
N	H04L 41/12	• Discovery or management of network topologies [2022.01]
N	H04L 41/122	•• of virtualised topologies e.g. software-defined networks [SDN] or network function virtualisation [NFV] [2022.01]
N	H04L 41/14	• Network analysis or design [2022.01]
N	H04L 41/142	•• using statistical or mathematical methods [2022.01]
N	H04L 41/147	•• for predicting network behaviour [2022.01]
N	H04L 41/149	•• for prediction of maintenance [2022.01]
N	H04L 41/16	• using machine learning or artificial intelligence [2022.01]
N	H04L 41/18	• Delegation of network management function, e.g. customer network management [CNM] [2022.01]
N	H04L 41/22	• comprising specially adapted graphical user interfaces [GUI] [2022.01]
N	H04L 41/28	• Restricting access to network management systems or functions, e.g. using authorisation function to access network configuration [2022.01]
N	H04L 41/34	• Signalling channels for network management communication [2022.01]
N	H04L 41/342	•• between virtual entities, e.g. orchestrators, SDN or NFV entities [2022.01]
N	H04L 41/344	•• Out-of-band transfers [2022.01]
N	H04L 41/40	• using virtualisation of network functions or resources, e.g. SDN or NFV entities [2022.01]
N	H04L 41/50	• Network service management, e.g. ensuring proper service fulfilment according to agreements [2022.01]
N	H04L 41/5003	•• Managing SLA; Interaction between SLA and QoS [2022.01]
N	H04L 41/5006	••• Creating or negotiating SLA contracts, guarantees or penalties [2022.01]
N	H04L 41/5009	••• Determining service level performance parameters or violations of service level contracts, e.g. violations of agreed response time or mean time between failures [MTBF] [2022.01]

Compilation of amendments between 2021.01 and 2022.01 IPC

N	H04L 41/5019	• • • Ensuring fulfilment of SLA [2022.01]
N	H04L 41/5022	• • • • by giving priorities, e.g. assigning classes of service [2022.01]
N	H04L 41/5025	• • • • by proactively reacting to service quality change, e.g. by reconfiguration after service quality degradation or upgrade [2022.01]
N	H04L 41/5041	• • characterised by the time relationship between creation and deployment of a service [2022.01]
N	H04L 41/5051	• • • Service on demand, e.g. definition and deployment of services in real time [2022.01]
N	H04L 41/5054	• • • Automatic deployment of services triggered by the service manager, e.g. service implementation by automatic configuration of network components [2022.01]
N	H04L 41/5061	• • characterised by the interaction between service providers and their network customers, e.g. customer relationship management [2022.01]
N	H04L 41/5067	• • • Customer-centric QoS measurements [2022.01]
N	H04L 41/507	• • • Filtering out customers affected by service problems [2022.01]
N	H04L 41/5074	• • • Handling of user complaints or trouble tickets [2022.01]
N	H04L 43/00	Arrangements for monitoring or testing data switching networks [2022.01]
N	H04L 43/02	• Capturing of monitoring data [2022.01]
N	H04L 43/022	• • by sampling [2022.01]
N	H04L 43/024	• • • by adaptive sampling [2022.01]
N	H04L 43/026	• • using flow identification [2022.01]
N	H04L 43/028	• • by filtering [2022.01]
N	H04L 43/04	• Processing captured monitoring data, e.g. for logfile generation [2022.01]
N	H04L 43/045	• • for graphical visualisation of monitoring data [2022.01]
N	H04L 43/06	• Generation of reports [2022.01]
N	H04L 43/062	• • related to network traffic [2022.01]
N	H04L 43/065	• • related to network devices [2022.01]
N	H04L 43/067	• • using time frame reporting [2022.01]
N	H04L 43/08	• Monitoring or testing based on specific metrics, e.g. QoS, energy consumption or environmental parameters [2022.01]
N	H04L 43/0805	• • by checking availability [2022.01]
N	H04L 43/0811	• • • by checking connectivity [2022.01]
N	H04L 43/0817	• • • by checking functioning [2022.01]
N	H04L 43/0823	• • Errors, e.g. transmission errors [2022.01]
N	H04L 43/0829	• • • Packet loss [2022.01]
N	H04L 43/0852	• • Delays [2022.01]
N	H04L 43/0864	• • • Round trip delays [2022.01]
N	H04L 43/087	• • • Jitter [2022.01]
N	H04L 43/0876	• • Network utilisation, e.g. volume of load or congestion level [2022.01]
N	H04L 43/0882	• • • Utilisation of link capacity [2022.01]
N	H04L 43/0888	• • • Throughput [2022.01]
N	H04L 43/0894	• • • Packet rate [2022.01]
N	H04L 43/091	• • Measuring contribution of individual network components to actual service level [2022.01]
N	H04L 43/10	• Active monitoring, e.g. heartbeat, ping or trace-route [2022.01]
N	H04L 43/103	• • with adaptive polling, i.e. dynamically adapting the polling rate [2022.01]
N	H04L 43/106	• • using time related information in packets, e.g. by adding timestamps [2022.01]
N	H04L 43/12	• Network monitoring probes [2022.01]
N	H04L 43/16	• Threshold monitoring [2022.01]
N	H04L 43/18	• Protocol analysers [2022.01]
N	H04L 43/20	• the monitoring system or the monitored elements being virtualised, abstracted or software-defined entities, e.g. SDN or NFV [2022.01]
N	H04L 43/50	• Testing arrangements [2022.01]
N	H04L 43/55	• • Testing of service level quality, e.g. simulating service usage [2022.01]
N	H04L 45/00	Routing or path finding of packets in data switching networks (routing or path finding in wireless networks H04W 40/00) [2022.01]
N	H04L 45/02	• Topology update or discovery [2022.01]
N	H04L 45/021	• • Ensuring consistency of routing table updates, e.g. by using epoch numbers [2022.01]
N	H04L 45/023	• • Delayed use of routing table updates [2022.01]
N	H04L 45/028	• • Dynamic adaptation of the update intervals, e.g. event-triggered updates [2022.01]
N	H04L 45/03	• • by updating link state protocols [2022.01]
N	H04L 45/033	• • by updating distance vector protocols [2022.01]
N	H04L 45/036	• • Updating the topology between route computation elements, e.g. between OpenFlow controllers [2022.01]

Compilation of amendments between 2021.01 and 2022.01 IPC

N	H04L 45/037	• • • Routes obligatorily traversing service-related nodes [2022.01]
N	H04L 45/0377	• • • • for service chaining [2022.01]
N	H04L 45/12	• Shortest path evaluation [2022.01]
N	H04L 45/121	• • by minimising delays [2022.01]
N	H04L 45/122	• • by minimising distances, e.g. by selecting a route with minimum of number of hops [2022.01]
N	H04L 45/125	• • based on throughput or bandwidth [2022.01]
N	H04L 45/128	• • for finding disjoint paths [2022.01]
N	H04L 45/16	• Multipoint routing [2022.01]
N	H04L 45/17	• Shortcut routing, e.g. using next hop resolution protocol [NHRP] [2022.01]
N	H04L 45/18	• Loop-free operations [2022.01]
N	H04L 45/24	• Multipath [2022.01]
N	H04L 45/243	• • using M+N parallel active paths [2022.01]
N	H04L 45/247	• • using M:N active or standby paths [2022.01]
N	H04L 45/28	• using route fault recovery [2022.01]
N	H04L 45/30	• Routing of multiclass traffic [2022.01]
N	H04L 45/302	• Route determination based on requested QoS [2022.01]
N	H04L 45/42	• Centralised routing [2022.01]
N	H04L 45/44	• Distributed routing [2022.01]
N	H04L 45/48	• Routing tree calculation [2022.01]
N	H04L 45/484	• • using multiple routing trees [2022.01]
N	H04L 45/488	• • using root node determination [2022.01]
N	H04L 45/50	• using label swapping, e.g. multi-protocol label switch [MPLS] [2022.01]
N	H04L 45/52	• Multiprotocol routers [2022.01]
N	H04L 45/58	• Association of routers [2022.01]
N	H04L 45/586	• • of virtual routers [2022.01]
N	H04L 45/60	• Router architectures [2022.01]
N	H04L 45/64	• using an overlay routing layer [2022.01]
N	H04L 45/645	• Splitting route computation layer and forwarding layer, e.g. routing according to path computational element [PCE] or based on OpenFlow functionality [2022.01]
N	H04L 45/655	• • Interaction between route computation entities and forwarding entities, e.g. for route determination or for flow table update [2022.01]
N	H04L 45/74	• Address processing for routing [2022.01]
N	H04L 45/741	• • Routing in networks with a plurality of addressing schemes, e.g. with both IPv4 and IPv6 [2022.01]
N	H04L 45/745	• • Address table lookup; Address filtering [2022.01]
N	H04L 45/7452	• • • Multiple parallel or consecutive lookup operations (lookup operation involving Bloom filters H04L 45/7459) [2022.01]
N	H04L 45/7453	• • • using hashing [2022.01]
N	H04L 45/7459	• • • • using Bloom filters [2022.01]
N	H04L 45/748	• • • using longest matching prefix [2022.01]
N	H04L 45/76	• Routing in software-defined topologies, e.g. routing between virtual machines [2022.01]
N	H04L 45/80	• Ingress point selection by the source endpoint, e.g. selection of ISP or POP [2022.01]
N	H04L 45/85	• • Selection among different networks [2022.01]
N	H04L 45/851	• • • Dynamic network selection or re-selection, e.g. after degradation of quality [2022.01]
N	H04L 47/00	Traffic control in data switching networks (arrangements for detecting or correcting errors in the information received H04L 1/00) [2022.01]
N	H04L 47/10	• Flow control; Congestion control [2022.01]
N	H04L 47/11	• • Identifying congestion [2022.01]
N	H04L 47/12	• • Avoiding congestion; Recovering from congestion [2022.01]
N	H04L 47/122	• • • by diverting traffic away from congested entities [2022.01]
N	H04L 47/125	• • • by balancing the load, e.g. traffic engineering [2022.01]
N	H04L 47/127	• • • by using congestion prediction [2022.01]
N	H04L 47/129	• • • at the destination endpoint, e.g. reservation of terminal resources or buffer space [2022.01]
N	H04L 47/17	• • Interaction among intermediate nodes, e.g. hop by hop [2022.01]
N	H04L 47/19	• • at layers above the network layer (network arrangements for networked applications for scheduling or organising the servicing of application requests H04L 67/60) [2022.01]
N	H04L 47/193	• • • at the transport layer, e.g. TCP related [2022.01]
N	H04L 47/20	• • Traffic policing [2022.01]
N	H04L 47/21	• • using leaky-bucket [2022.01]
N	H04L 47/215	• • using token-bucket [2022.01]

Compilation of amendments between 2021.01 and 2022.01 IPC

N	H04L 47/22	• • Traffic shaping [2022.01]
N	H04L 47/24	• • Traffic characterised by specific attributes, e.g. priority or QoS [2022.01]
N	H04L 47/2408	• • • for supporting different services, e.g. a differentiated services [DiffServ] type of service [2022.01]
N	H04L 47/2416	• • • Real-time traffic [2022.01]
N	H04L 47/2425	• • • for supporting services specification, e.g. SLA [2022.01]
N	H04L 47/2441	• • • relying on flow classification, e.g. using integrated services [IntServ] [2022.01]
N	H04L 47/2466	• • • using signalling traffic [2022.01]
N	H04L 47/2475	• • • for supporting traffic characterised by the type of applications [2022.01]
N	H04L 47/2483	• • • involving identification of individual flows [2022.01]
N	H04L 47/2491	• • • Mapping quality of service [QoS] requirements between different networks [2022.01]
N	H04L 47/25	• • with rate being modified by the source upon detecting a change of network conditions [2022.01]
N	H04L 47/26	• • using explicit feedback to the source, e.g. choke packets [2022.01]
N	H04L 47/263	• • • Rate modification at the source after receiving feedback [2022.01]
N	H04L 47/265	• • • sent by intermediate network nodes [2022.01]
N	H04L 47/267	• • • sent by the destination endpoint (network streaming of media packets with control of the source by the destination H04L 65/613) [2022.01]
N	H04L 47/27	• • Evaluation or update of window size, e.g. using information derived from acknowledged [ACK] packets [2022.01]
N	H04L 47/28	• • in relation to timing considerations [2022.01]
N	H04L 47/283	• • • in response to processing delays, e.g. caused by jitter or round trip time [RTT] [2022.01]
N	H04L 47/30	• • in combination with information about buffer occupancy at either end or at transit nodes [2022.01]
N	H04L 47/31	• • by tagging of packets, e.g. using discard eligibility [DE] bits [2022.01]
N	H04L 47/32	• • by discarding or delaying data units, e.g. packets or frames [2022.01]
N	H04L 47/33	• • using forward notification [2022.01]
N	H04L 47/34	• • ensuring sequence integrity, e.g. using sequence numbers [2022.01]
N	H04L 47/35	• • by embedding flow control information in regular packets, e.g. piggybacking [2022.01]
N	H04L 47/36	• • by determining packet size, e.g. maximum transfer unit [MTU] [2022.01]
N	H04L 47/38	• • by adapting coding or compression rate [2022.01]
N	H04L 47/40	• • using split connections [2022.01]
N	H04L 47/41	• • by acting on aggregated flows or links [2022.01]
N	H04L 47/43	• • Assembling or disassembling of packets, e.g. segmentation and reassembly [SAR] [2022.01]
N	H04L 47/431	• • • using padding or de-padding [2022.01]
N	H04L 47/50	• Queue scheduling [2022.01]
N	H04L 47/52	• • by attributing bandwidth to queues [2022.01]
N	H04L 47/525	• • • by redistribution of residual bandwidth [2022.01]
N	H04L 47/56	• • implementing delay-aware scheduling [2022.01]
N	H04L 47/60	• • implementing hierarchical scheduling [2022.01]
N	H04L 47/62	• • characterised by scheduling criteria [2022.01]
N	H04L 47/625	• • • for service slots or service orders [2022.01]
N	H04L 47/6275	• • • • based on priority [2022.01]
N	H04L 47/628	• • • • based on packet size, e.g. shortest packet first [2022.01]
N	H04L 47/629	• • Ensuring fair share of resources, e.g. weighted fair queuing [WFQ] [2022.01]
N	H04L 47/6295	• • using multiple queues, one for each individual QoS, connection, flow or priority [2022.01]
N	H04L 47/70	• Admission control; Resource allocation [2022.01]
N	H04L 47/72	• • using reservation actions during connection setup [2022.01]
N	H04L 47/722	• • • at the destination endpoint, e.g. reservation of terminal resources or buffer space [2022.01]
N	H04L 47/724	• • • at intermediate nodes, e.g. resource reservation protocol [RSVP] [2022.01]
N	H04L 47/726	• • • Reserving resources in multiple paths to be used simultaneously (by balancing the load H04L 47/125) [2022.01]
N	H04L 47/74	• • measures in reaction to resource unavailability [2022.01]
N	H04L 47/76	• • using dynamic resource allocation, e.g. in-call renegotiation requested by the user or requested by the network in response to changing network conditions [2022.01]
N	H04L 47/762	• • • triggered by the network [2022.01]
N	H04L 47/765	• • • triggered by the end-points [2022.01]
N	H04L 47/78	• • Architectures of resource allocation [2022.01]

Compilation of amendments between 2021.01 and 2022.01 IPC

N	H04L 47/783	• • • Distributed allocation of resources, e.g. bandwidth brokers [2022.01]
N	H04L 47/785	• • • • among multiple network domains, e.g. multilateral agreements [2022.01]
N	H04L 47/80	• • Actions related to the user profile or the type of traffic [2022.01]
N	H04L 47/83	• • based on usage prediction [2022.01]
N	H04L 49/00	Packet switching elements [2022.01]
N	H04L 49/10	• characterised by the switching fabric construction [2022.01]
N	H04L 49/101	• • using crossbar or matrix [2022.01]
N	H04L 49/102	• • using shared medium, e.g. bus or ring [2022.01]
N	H04L 49/103	• • using a shared central buffer; using a shared memory [2022.01]
N	H04L 49/104	• • Asynchronous transfer mode [ATM] switching fabrics [2022.01]
N	H04L 49/109	• • Integrated on microchip, e.g. switch-on-chip [2022.01]
N	H04L 49/111	• • Switch interfaces, e.g. port details [2022.01]
N	H04L 49/112	• • Switch control, e.g. arbitration [2022.01]
N	H04L 49/113	• • Arrangements for redundant switching, e.g. using parallel planes [2022.01]
N	H04L 49/115	• • • Transferring a complete packet or cell through each plane [2022.01]
N	H04L 49/116	• • • Transferring a part of the packet through each plane, e.g. by bit-slicing [2022.01]
N	H04L 49/118	• • • Address processing within a device, e.g. using internal ID or tags for routing within a switch [2022.01]
N	H04L 49/15	• Interconnection of switching modules [2022.01]
N	H04L 49/1515	• • Non-blocking multistage, e.g. Clos [2022.01]
N	H04L 49/1546	• • • using pipelined operation [2022.01]
N	H04L 49/20	• Support for services [2022.01]
N	H04L 49/201	• • Multicast operation; Broadcast operation [2022.01]
N	H04L 49/25	• Routing or path finding in a switch fabric [2022.01]
N	H04L 49/253	• • using establishment or release of connections between ports [2022.01]
N	H04L 49/35	• Switches specially adapted for specific applications [2022.01]
N	H04L 49/351	• • for local area network [LAN], e.g. Ethernet switches [2022.01]
N	H04L 49/354	• • for supporting virtual local area networks [VLAN] [2022.01]
N	H04L 49/356	• • for storage area networks [2022.01]
N	H04L 49/40	• Constructional details, e.g. power supply, mechanical construction or backplane [2022.01]
N	H04L 49/45	• Arrangements for providing or supporting expansion [2022.01]
N	H04L 49/50	• Overload detection or protection within a single switching element [2022.01]
N	H04L 49/505	• • Corrective measures [2022.01]
N	H04L 49/506	• • • Backpressure [2022.01]
N	H04L 49/55	• Prevention, detection or correction of errors [2022.01]
N	H04L 49/552	• • by ensuring the integrity of packets received through redundant connections [2022.01]
N	H04L 49/60	• Software-defined switches [2022.01]
N	H04L 49/65	• Re-configuration of fast packet switches [2022.01]
N	H04L 49/90	• Buffering arrangements [2022.01]
N	H04L 49/9005	• • using dynamic buffer space allocation [2022.01]
N	H04L 49/901	• • using storage descriptor, e.g. read or write pointers [2022.01]
N	H04L 49/9015	• • for supporting a linked list [2022.01]
N	H04L 49/9023	• • for implementing a jitter-buffer [2022.01]
N	H04L 49/9047	• • including multiple buffers, e.g. buffer pools [2022.01]
N	H04L 49/9057	• • Arrangements for supporting packet reassembly or resequencing [2022.01]
N	H04L 51/00	User-to-user messaging in packet-switching networks, transmitted according to store-and-forward or real-time protocols, e.g. e-mail [2022.01]
N	H04L 51/02	• using automatic reactions or user delegation, e.g. automatic replies or chatbot-generated messages [2022.01]
N	H04L 51/04	• Real-time or near real-time messaging, e.g. instant messaging [IM] [2022.01]
N	H04L 51/043	• • using or handling presence information [2022.01]
N	H04L 51/046	• • Interoperability with other network applications or services [2022.01]
N	H04L 51/06	• Message adaptation to terminal or network requirements [2022.01]
N	H04L 51/063	• • Content adaptation, e.g. replacement of unsuitable content [2022.01]
N	H04L 51/066	• • Format adaptation, e.g. format conversion or compression [2022.01]
N	H04L 51/07	• characterised by the inclusion of specific contents [2022.01]
N	H04L 51/08	• • Annexed information, e.g. attachments [2022.01]
N	H04L 51/10	• • Multimedia information [2022.01]
N	H04L 51/18	• • Commands or executable codes [2022.01]
N	H04L 51/21	• Monitoring or handling of messages [2022.01]
N	H04L 51/212	• • using filtering or selective blocking [2022.01]
N	H04L 51/214	• • using selective forwarding [2022.01]

Compilation of amendments between 2021.01 and 2022.01 IPC

N	H04L 51/216	• • Handling conversation history, e.g. grouping of messages in sessions or threads [2022.01]
N	H04L 51/222	• • using geographical location information, e.g. messages transmitted or received in proximity of a certain spot or area [2022.01]
N	H04L 51/224	• • providing notification on incoming messages, e.g. pushed notifications of received messages [2022.01]
N	H04L 51/226	• • Delivery according to priorities [2022.01]
N	H04L 51/23	• • Reliability checks, e.g. acknowledgments or fault reporting [2022.01]
N	H04L 51/234	• • for tracking messages [2022.01]
N	H04L 51/42	• Mailbox-related aspects, e.g. synchronisation of mailboxes [2022.01]
N	H04L 51/48	• Message addressing, e.g. address format or anonymous messages, aliases [2022.01]
N	H04L 51/52	• for supporting social networking services [2022.01]
N	H04L 51/56	• Unified messaging, e.g. interactions between e-mail, instant messaging or converged IP messaging [CPM] [2022.01]
N	H04L 51/58	• Message adaptation for wireless communication [2022.01]
N	H04L 61/00	Network arrangements, protocols or services for addressing or naming [2022.01]
N	H04L 61/09	• Mapping addresses [2022.01]
N	H04L 61/10	• • of different types [2022.01]
N	H04L 61/103	• • • across network layers, e.g. resolution of network layer into physical layer addresses or address resolution protocol [ARP] [2022.01]
N	H04L 61/106	• • • across networks, e.g. mapping telephone numbers to data network addresses [2022.01]
N	H04L 61/25	• • of the same type [2022.01]
N	H04L 61/2503	• • • Translation of Internet protocol [IP] addresses [2022.01]
N	H04L 61/251	• • • • between different IP versions [2022.01]
N	H04L 61/2514	• • • • between local and global IP addresses [2022.01]
N	H04L 61/2517	• • • • using port numbers [2022.01]
N	H04L 61/2521	• • • • Translation architectures other than single NAT servers [2022.01]
N	H04L 61/2539	• • • • Hiding addresses; Keeping addresses anonymous [2022.01]
N	H04L 61/2546	• • • • Arrangements for avoiding unnecessary translation [2022.01]
N	H04L 61/255	• • • • Maintenance or indexing of mapping tables [2022.01]
N	H04L 61/2553	• • • • • Binding renewal aspects, e.g. using keep-alive messages [2022.01]
N	H04L 61/2557	• • • • Translation policies or rules [2022.01]
N	H04L 61/256	• • • • NAT traversal [2022.01]
N	H04L 61/2567	• • • • • for reachability, e.g. inquiring the address of a correspondent behind a NAT server [2022.01]
N	H04L 61/2575	• • • • • using address mapping retrieval, e.g. simple traversal of user datagram protocol through session traversal utilities for NAT [STUN] [2022.01]
N	H04L 61/2578	• • • • • without involvement of the NAT server [2022.01]
N	H04L 61/2582	• • • • • through control of the NAT server, e.g. using universal plug and play [UPnP] [2022.01]
N	H04L 61/2585	• • • • • through application level gateway [ALG] [2022.01]
N	H04L 61/2589	• • • • • over a relay server, e.g. traversal using relay for network address translation [TURN] [2022.01]
N	H04L 61/2592	• • • • using tunnelling or encapsulation [2022.01]
N	H04L 61/2596	• • • Translation of addresses of the same type other than IP, e.g. translation from MAC to MAC addresses [2022.01]
N	H04L 61/30	• Managing network names, e.g. use of aliases or nicknames (name-to-address mapping H04L 61/45) [2022.01]
N	H04L 61/301	• • Name conversion [2022.01]
N	H04L 61/3015	• • Name registration, generation or assignment [2022.01]
N	H04L 61/45	• Network directories; Name-to-address mapping [2022.01]
N	H04L 61/4505	• • using standardised directories; using standardised directory access protocols [2022.01]
N	H04L 61/4511	• • • using domain name system [DNS] [2022.01]
N	H04L 61/4517	• • • using open systems interconnection [OSI] directories, e.g. X.500 [2022.01]
N	H04L 61/4523	• • • using lightweight directory access protocol [LDAP] [2022.01]
N	H04L 61/4535	• • using an address exchange platform which sets up a session between two nodes, e.g. rendezvous servers, session initiation protocols [SIP] registrars or H.323 gatekeepers [2022.01]
N	H04L 61/4541	• • Directories for service discovery [2022.01]
N	H04L 61/4552	• • Lookup mechanisms between a plurality of directories; Synchronisation of directories, e.g. metadirectories [2022.01]

Compilation of amendments between 2021.01 and 2022.01 IPC

N	H04L 61/4557	• • Directories for hybrid networks, e.g. including telephone numbers [2022.01]
N	H04L 61/4588	• • containing mobile subscriber information, e.g. home subscriber server [HSS] [2022.01]
N	H04L 61/4594	• • Address books, i.e. directories containing contact information about correspondents (telephone directories in user terminals H04M 1/27453) [2022.01]
N	H04L 61/50	• Address allocation [2022.01]
N	H04L 61/5007	• • Internet protocol [IP] addresses [2022.01]
N	H04L 61/5014	• • • using dynamic host configuration protocol [DHCP] or bootstrap protocol [BOOTP] [2022.01]
N	H04L 61/503	• • • using an authentication, authorisation and accounting [AAA] protocol, e.g. remote authentication dial-in user service [RADIUS] or Diameter [2022.01]
N	H04L 61/5038	• • for local use, e.g. in LAN or USB networks, or in a controller area network [CAN] [2022.01]
N	H04L 61/5046	• • Resolving address allocation conflicts; Testing of addresses (testing when self-assigning an address H04L 61/5092) [2022.01]
N	H04L 61/5053	• • Lease time; Renewal aspects [2022.01]
N	H04L 61/5061	• • Pools of addresses [2022.01]
N	H04L 61/5069	• • for group communication, multicast communication or broadcast communication [2022.01]
N	H04L 61/5076	• • Update or notification mechanisms, e.g. DynDNS [2022.01]
N	H04L 61/5084	• • Providing for device mobility (network addressing or numbering for mobility support in wireless networks H04W 8/26; mobile IP H04W 80/04) [2022.01]
N	H04L 61/5092	• • by self-assignment, e.g. picking addresses at random and testing if they are already in use [2022.01]
N	H04L 61/58	• Caching of addresses or names [2022.01]
N	H04L 61/59	• using proxies for addressing [2022.01]
N	H04L 65/00	Network arrangements, protocols or services for supporting real-time applications in data packet communication (real-time or near real-time messaging, e.g. instant messaging [IM] H04L 51/04; selective video distribution H04N 21/00) [2022.01]
N	H04L 65/10	• Architectures or entities [2022.01]
N	H04L 65/1016	• • IP multimedia subsystem [IMS] [2022.01]
N	H04L 65/102	• • Gateways (arrangements for connecting between networks having differing types of switching systems, e.g. gateways, H04L 12/66) [2022.01]
N	H04L 65/1023	• • • Media gateways [2022.01]
N	H04L 65/1033	• • • Signalling gateways [2022.01]
N	H04L 65/1043	• • • Gateway controllers, e.g. media gateway control protocol [MGCP] controllers [2022.01]
N	H04L 65/1045	• • Proxies, e.g. for session initiation protocol [SIP] [2022.01]
N	H04L 65/1046	• • Call controllers; Call servers [2022.01]
N	H04L 65/1053	• • IP private branch exchange [PBX] functionality entities or arrangements (circuit switched PBXs H04M 3/00) [2022.01]
N	H04L 65/1055	• • • Single-site [2022.01]
N	H04L 65/1056	• • • Multi-site [2022.01]
N	H04L 65/1059	• • End-user terminal functionalities specially adapted for real-time communication [2022.01]
N	H04L 65/1063	• • Application servers providing network services (systems providing special services to telephonic subscribers H04M 3/42) [2022.01]
N	H04L 65/1066	• Session management [2022.01]
N	H04L 65/1069	• • Session establishment or de-establishment [2022.01]
N	H04L 65/1073	• • Registration or de-registration [2022.01]
N	H04L 65/1076	• • Screening of IP real time communications, e.g. spam over Internet telephony [SPIT] [2022.01]
N	H04L 65/1083	• • In-session procedures [2022.01]
N	H04L 65/1089	• • • by adding media; by removing media [2022.01]
N	H04L 65/1093	• • • by adding participants; by removing participants [2022.01]
N	H04L 65/1094	• • • Inter-user-equipment sessions transfer or sharing [2022.01]
N	H04L 65/1095	• • • Inter-network session transfer or sharing [2022.01]
N	H04L 65/1096	• • Supplementary features, e.g. call forwarding or call holding (systems providing special services or facilities to telephony subscribers H04M 3/42) [2022.01]
N	H04L 65/1101	• • Session protocols [2022.01]
N	H04L 65/1104	• • • Session initiation protocol [SIP] [2022.01]
N	H04L 65/1106	• • • Call signalling protocols; H.323 and related [2022.01]
N	H04L 65/1108	• • • Web based protocols, e.g. webRTC [2022.01]
N	H04L 65/40	• Support for services or applications [2022.01]

Compilation of amendments between 2021.01 and 2022.01 IPC

N	H04L 65/401	• • wherein the services involve a main real-time session and one or more additional parallel real-time or time sensitive sessions, e.g. white board sharing or spawning of a subconference [2022.01]
N	H04L 65/402	• • wherein the services involve a main real-time session and one or more additional parallel non-real time sessions, e.g. downloading a file in a parallel FTP session, initiating an email or combinational services [2022.01]
N	H04L 65/403	• • Arrangements for multi-party communication, e.g. for conferences (arrangements for connecting several subscribers to a common circuit, i.e. affording conference facilities H04M 3/56; television conferencing systems H04N 7/15; data switching systems for conference H04L 12/18) [2022.01]
N	H04L 65/4038	• • • with floor control [2022.01]
N	H04L 65/4053	• • • without floor control [2022.01]
N	H04L 65/4061	• • Push-to services, e.g. push-to-talk or push-to-video [2022.01]
N	H04L 65/60	• Network streaming of media packets [2022.01]
N	H04L 65/61	• • for supporting one-way streaming services, e.g. Internet radio [2022.01]
N	H04L 65/611	• • • for multicast or broadcast (arrangements for broadcast or distribution combined with broadcast H04H 20/00; arrangements for broadcast applications with a direct linkage to broadcast information or to broadcast space-time H04H 60/00; systems for broadcast or conference H04L 12/18; selective distribution of broadcast services, e.g. multimedia broadcast multicast service [MBMS], H04W 4/06) [2022.01]
N	H04L 65/612	• • • for unicast [2022.01]
N	H04L 65/613	• • • for the control of the source by the destination (control signals issued by the client directed to the server or network components specially adapted for selective content distribution H04N 21/637) [2022.01]
N	H04L 65/65	• • Network streaming protocols, e.g. real-time transport protocol [RTP] or real-time control protocol [RTCP] [2022.01]
N	H04L 65/70	• • Media network packetisation [2022.01]
N	H04L 65/75	• • Media network packet handling [2022.01]
N	H04L 65/752	• • • adapting media to network capabilities [2022.01]
N	H04L 65/756	• • • adapting media to device capabilities [2022.01]
N	H04L 65/80	• Responding to QoS [2022.01]
N	H04L 67/00	Network arrangements or protocols for supporting network services or applications (user-to-user messaging H04L 51/00; network arrangements, protocols or services for supporting real-time applications in data packet communications networks H04L 65/00) [2022.01]
N	H04L 67/01	• Protocols [2022.01]
N	H04L 67/02	• • based on web technology, e.g. hypertext transfer protocol [HTTP] [2022.01]
N	H04L 67/025	• • • for remote control or remote monitoring of applications [2022.01]
N	H04L 67/04	• • specially adapted for terminals or networks with limited capabilities; specially adapted for terminal portability [2022.01]
N	H04L 67/06	• • specially adapted for file transfer, e.g. file transfer protocol [FTP] [2022.01]
N	H04L 67/08	• • specially adapted for terminal emulation, e.g. Telnet [2022.01]
N	H04L 67/10	• • in which an application is distributed across nodes in the network (multiprogramming arrangements G06F 9/46; software deployment G06F 8/60) [2022.01]
N	H04L 67/1001	• • • for accessing one among a plurality of replicated servers [2022.01]
N	H04L 67/1004	• • • • Server selection for load balancing [2022.01]
N	H04L 67/1006	• • • • • with static server selection, e.g. the same server being selected for a specific client [2022.01]
N	H04L 67/1008	• • • • • based on parameters of servers, e.g. available memory or workload (monitoring of computer activity G06F 11/30) [2022.01]
N	H04L 67/101	• • • • • based on network conditions [2022.01]
N	H04L 67/1012	• • • • • based on compliance of requirements or conditions with available server resources [2022.01]
N	H04L 67/1014	• • • • • based on the content of a request [2022.01]
N	H04L 67/1017	• • • • • based on a round robin mechanism [2022.01]
N	H04L 67/1019	• • • • • Random or heuristic server selection [2022.01]
N	H04L 67/1021	• • • • • based on client or server locations [2022.01]
N	H04L 67/1023	• • • • • based on a hash applied to IP addresses or costs [2022.01]
N	H04L 67/1025	• • • • • Dynamic adaptation of the criteria on which the server selection is based [2022.01]
N	H04L 67/1027	• • • • Persistence of sessions during load balancing [2022.01]
N	H04L 67/1029	• • • • using data related to the state of servers by a load balancer [2022.01]

Compilation of amendments between 2021.01 and 2022.01 IPC

N	H04L 67/1031	•••• Controlling of the operation of servers by a load balancer, e.g. adding or removing servers that serve requests [2022.01]
N	H04L 67/1034	•••• Reaction to server failures by a load balancer [2022.01]
N	H04L 67/1036	•••• Load balancing of requests to servers for services different from user content provisioning, e.g. load balancing across domain name servers [2022.01]
N	H04L 67/1038	•••• Load balancing arrangements to avoid a single path through a load balancer [2022.01]
N	H04L 67/104	•••• Peer-to-peer [P2P] networks [2022.01]
N	H04L 67/1042	•••• using topology management mechanisms [2022.01]
N	H04L 67/1061	•••• using node-based peer discovery mechanisms (static access to replicated servers H04L 67/1006; service discovery H04L 67/51) [2022.01]
N	H04L 67/1074	•••• for supporting data block transmission mechanisms (file transfer H04L 67/06) [2022.01]
N	H04L 67/1087	•••• using cross-functional networking aspects [2022.01]
N	H04L 67/1095	••• Replication or mirroring of data, e.g. scheduling or transport for data synchronisation between network nodes [2022.01]
N	H04L 67/1097	••• for distributed storage of data in networks, e.g. transport arrangements for network file system [NFS], storage area networks [SAN] or network attached storage [NAS] [2022.01]
N	H04L 67/12	•• specially adapted for proprietary or special-purpose networking environments, e.g. medical networks, sensor networks, networks in vehicles or remote metering networks [2022.01]
N	H04L 67/125	••• involving control of end-device applications over a network [2022.01]
N	H04L 67/131	•• Protocols for games, networked simulations or virtual reality [2022.01]
N	H04L 67/133	•• Protocols for remote procedure calls [RPC] [2022.01]
N	H04L 67/1396	•• specially adapted for monitoring users' activity [2022.01]
N	H04L 67/14	• Session management (for real-time applications in data packet communications networks H04L 65/1066) [2022.01]
N	H04L 67/141	•• Setup of application sessions (admission control or resource allocation in data switching networks H04L 47/70) [2022.01]
N	H04L 67/142	•• Managing session states for stateless protocols; Signalling session states; State transitions; Keeping-state mechanisms [2022.01]
N	H04L 67/143	•• Termination or inactivation of sessions, e.g. event-controlled end of session [2022.01]
N	H04L 67/145	••• avoiding end of session, e.g. keep-alive, heartbeats, resumption message or wake-up for inactive or interrupted session [2022.01]
N	H04L 67/146	•• Markers for unambiguous identification of a particular session, e.g. session cookie or URL-encoding [2022.01]
N	H04L 67/147	•• Signalling methods or messages providing extensions to protocols defined by standardisation [2022.01]
N	H04L 67/148	•• Migration or transfer of sessions [2022.01]
N	H04L 67/2866	• Architectures; Arrangements [2022.01]
N	H04L 67/2869	•• Terminals specially adapted for communication [2022.01]
N	H04L 67/2871	•• Implementation details of single intermediate entities [2022.01]
N	H04L 67/2876	•• Pairs of inter-processing entities at each side of the network, e.g. split proxies [2022.01]
N	H04L 67/288	•• Distributed intermediate devices, i.e. intermediate devices for interaction with other intermediate devices on the same level [2022.01]
N	H04L 67/2885	•• Hierarchically arranged intermediate devices, e.g. for hierarchical caching [2022.01]
N	H04L 67/289	•• Intermediate processing functionally located close to the data consumer application, e.g. in same machine, in same home or in same sub-network [2022.01]
N	H04L 67/2895	•• Intermediate processing functionally located close to the data provider application, e.g. reverse proxies [2022.01]
N	H04L 67/30	•• Profiles [2022.01]
N	H04L 67/303	••• Terminal profiles [2022.01]
N	H04L 67/306	••• User profiles [2022.01]
N	H04L 67/50	• Network services [2022.01]
N	H04L 67/51	•• Discovery or management thereof, e.g. service location protocol [SLP] or web services [2022.01]
N	H04L 67/52	•• specially adapted for the location of the user terminal [2022.01]
N	H04L 67/53	•• using third party service providers [2022.01]
N	H04L 67/54	•• Presence management, e.g. monitoring or registration for receipt of user log-on information, or the connection status of the users [2022.01]
N	H04L 67/55	•• Push-based network services [2022.01]

Compilation of amendments between 2021.01 and 2022.01 IPC

N	H04L 67/56	• Provisioning of proxy services (store-and-forward switching systems in data switching networks H04L 12/54) [2022.01]
N	H04L 67/561	• Adding application-functional data or data for application control, e.g. adding metadata [2022.01]
N	H04L 67/562	• Brokering proxy services [2022.01]
N	H04L 67/563	• Data redirection of data network streams [2022.01]
N	H04L 67/564	• Enhancement of application control based on intercepted application data [2022.01]
N	H04L 67/565	• Conversion or adaptation of application format or content (adding application control or application functional data H04L 67/561) [2022.01]
N	H04L 67/5651	• Reducing the amount or size of exchanged application data [2022.01]
N	H04L 67/566	• Grouping or aggregating service requests, e.g. for unified processing [2022.01]
N	H04L 67/567	• Integrating service provisioning from a plurality of service providers [2022.01]
N	H04L 67/568	• Storing data temporarily at an intermediate stage, e.g. caching [2022.01]
N	H04L 67/5681	• Pre-fetching or pre-delivering data based on network characteristics [2022.01]
N	H04L 67/5682	• Policies or rules for updating, deleting or replacing the stored data [2022.01]
N	H04L 67/5683	• Storage of data provided by user terminals, i.e. reverse caching [2022.01]
N	H04L 67/59	• Providing operational support to end devices by off-loading in the network or by emulation, e.g. when they are unavailable [2022.01]
N	H04L 67/60	• Scheduling or organising the servicing of application requests, e.g. requests for application data transmissions using the analysis and optimisation of the required network resources (admission control or resource allocation H04L 47/70) [2022.01]
N	H04L 67/61	• taking into account QoS or priority requirements [2022.01]
N	H04L 67/62	• Establishing a time schedule for servicing the requests [2022.01]
N	H04L 67/63	• Routing a service request depending on the request content or context [2022.01]
N	H04L 67/75	• Indicating network or usage conditions on the user display [2022.01]
N	H04L 69/00	Network arrangements, protocols or services independent of the application payload and not provided for in the other groups of this subclass (networks security protocols H04L 9/40; wireless communication networks H04W) [2022.01]
N	H04L 69/04	• Protocols for data compression, e.g. ROHC [2022.01]
N	H04L 69/06	• Notations for structuring of protocol data, e.g. abstract syntax notation one [ASN.1] [2022.01]
N	H04L 69/08	• Protocols for interworking; Protocol conversion [2022.01]
N	H04L 69/085	• specially adapted for interworking of IP-based networks with other networks [2022.01]
N	H04L 69/10	• Streamlined, light-weight or high-speed protocols, e.g. express transfer protocol [XTP] or byte stream [2022.01]
N	H04L 69/12	• Protocol engines [2022.01]
N	H04L 69/14	• Multichannel or multilink protocols [2022.01]
N	H04L 69/16	• Implementation or adaptation of Internet protocol [IP], of transmission control protocol [TCP] or of user datagram protocol [UDP] [2022.01]
N	H04L 69/163	• In-band adaptation of TCP data exchange; In-band control procedures [2022.01]
N	H04L 69/164	• Adaptation or special uses of UDP protocol [2022.01]
N	H04L 69/165	• Combined use of TCP and UDP protocols; selection criteria therefor [2022.01]
N	H04L 69/166	• IP fragmentation; TCP segmentation [2022.01]
N	H04L 69/167	• Adaptation for transition between two IP versions, e.g. between IPv4 and IPv6 (translation of Internet protocol [IP] addresses H04L 61/2503) [2022.01]
N	H04L 69/168	• specially adapted for link layer protocols, e.g. asynchronous transfer mode [ATM], synchronous optical network [SONET] or point-to-point protocol [PPP] [2022.01]
N	H04L 69/18	• Multiprotocol handlers, e.g. single devices capable of handling multiple protocols [2022.01]
N	H04L 69/22	• Parsing or analysis of headers [2022.01]
N	H04L 69/24	• Negotiation of communication capabilities [2022.01]
N	H04L 69/28	• Timers or timing mechanisms used in protocols [2022.01]
N	H04L 69/30	• Definitions, standards or architectural aspects of layered protocol stacks [2022.01]
N	H04L 69/32	• Architecture of open systems interconnection [OSI] 7-layer type protocol stacks, e.g. the interfaces between the data link level and the physical level [2022.01]
N	H04L 69/321	• Interlayer communication protocols or service data unit [SDU] definitions; Interfaces between layers [2022.01]
N	H04L 69/322	• Intralayer communication protocols among peer entities or protocol data unit [PDU] definitions [2022.01]
N	H04L 69/323	• in the physical layer [OSI layer 1] [2022.01]
N	H04L 69/324	• in the data link layer [OSI layer 2], e.g. HDLC [2022.01]
N	H04L 69/325	• in the network layer [OSI layer 3], e.g. X.25 (H04L 69/16 takes precedence) [2022.01]

Compilation of amendments between 2021.01 and 2022.01 IPC

N	H04L 69/326	•••• in the transport layer [OSI layer 4] (H04L 69/16 takes precedence) [2022.01]
N	H04L 69/327	•••• in the session layer [OSI layer 5] [2022.01]
N	H04L 69/328	•••• in the presentation layer [OSI layer 6] [2022.01]
N	H04L 69/329	•••• in the application layer [OSI layer 7] [2022.01]
N	H04L 69/40	• for recovering from a failure of a protocol instance or entity, e.g. service redundancy protocols, protocol state redundancy or protocol service redirection (management of faults, events, alarms or notifications in data switching networks H04L 41/06) [2022.01]
N	H04L 101/00	Indexing scheme associated with group H04L 61/00 [2022.01]
N	H04L 101/00	Indexing scheme associated with group H04L 61/00 [2022.01]
N	H04L 101/30	• Types of network names [2022.01]
N	H04L 101/32	•• containing non-Latin characters, e.g. Chinese domain names [2022.01]
N	H04L 101/33	•• containing protocol addresses or telephone numbers [2022.01]
N	H04L 101/345	•• containing wildcard characters [2022.01]
N	H04L 101/35	•• containing special prefixes [2022.01]
N	H04L 101/355	•• containing special suffixes [2022.01]
N	H04L 101/365	•• Application layer names, e.g. buddy names, unstructured names chosen by a user or home appliance name [2022.01]
N	H04L 101/37	•• E-mail addresses [2022.01]
N	H04L 101/375	•• Access point names [APN] [2022.01]
N	H04L 101/38	•• Telephone uniform resource identifier [URI] [2022.01]
N	H04L 101/385	•• Uniform resource identifier for session initiation protocol [SIP URI] [2022.01]
N	H04L 101/39	•• Globally routable user-agent uniform resource identifier [GRUU] for the session initiation protocol [SIP] [2022.01]
N	H04L 101/395	•• Internet protocol multimedia private identity [IMPI]; Internet protocol multimedia public identity [IMPU] [2022.01]
N	H04L 101/60	• Types of network addresses [2022.01]
N	H04L 101/604	•• Address structures or formats [2022.01]
N	H04L 101/618	•• Details of network addresses [2022.01]
N	H04L 101/622	••• Layer-2 addresses, e.g. medium access control [MAC] addresses [2022.01]
N	H04L 101/627	••• Controller area network [CAN] identifiers [2022.01]
N	H04L 101/631	••• Small computer system interface [SCSI] addresses [2022.01]
N	H04L 101/636	••• IEEE1394 identification numbers [2022.01]
N	H04L 101/64	••• Asynchronous transfer mode [ATM] addresses [2022.01]
N	H04L 101/645	••• Fibre channel identifiers [2022.01]
N	H04L 101/65	••• Telephone numbers [2022.01]
N	H04L 101/654	••• International mobile subscriber identity [IMSI] numbers [2022.01]
N	H04L 101/659	••• Internet protocol version 6 [IPv6] addresses [2022.01]
N	H04L 101/663	••• Transport layer addresses, e.g. aspects of transmission control protocol [TCP] or user datagram protocol [UDP] ports [2022.01]
N	H04L 101/668	•• Internet protocol [IP] address subnets [2022.01]
N	H04L 101/672	•• Short addresses [2022.01]
N	H04L 101/677	•• Multiple interfaces, e.g. multihomed nodes [2022.01]
N	H04L 101/681	•• using addresses for wireless personal area networks or wireless sensor networks, e.g. Zigbee addresses [2022.01]
N	H04L 101/686	•• using dual-stack hosts, e.g. in Internet protocol version 4 [IPv4]/Internet protocol version 6 [IPv6] networks [2022.01]
N	H04L 101/69	•• using geographic information, e.g. room number [2022.01]
N	H04L 101/695	•• using masks or ranges of addresses [2022.01]
H04N		
L	H04N 21/234	••• Processing of video elementary streams, e.g. splicing of video streams or manipulating MPEG-4 scene graphs [2011.01]
L	H04N 21/472	••• End-user interface for requesting content, additional data or services; End-user interface for interacting with content, e.g. for content reservation or setting reminders, for requesting event notification or for manipulating displayed content [2011.01]
H04Q		
L	H04Q 1/30	•• Signalling arrangements; Manipulation of signalling currents (multiplex systems providing for calling or supervisory signals H04J 1/14, H04J 3/12) [1,2006.01]
L	H04Q 5/00	Selecting arrangements wherein two or more subscriber stations are connected by the same line to the exchange [1,2006.01]
H04R		

Compilation of amendments between 2021.01 and 2022.01 IPC

L	H04R 1/24	• • • Structural combinations of separate transducers or of parts of the same transducer and responsive respectively to two or more frequency ranges [1,2006.01]
H04W		
L	H04W 36/22	• • for handling the traffic [2009.01]
L	H04W 76/20	• Manipulation of established connections [2018.01]
L	H04W 76/22	• • Manipulation of transport tunnels [2018.01]
L	H04W 76/23	• • Manipulation of direct-mode connections [2018.01]
M	H05B	ELECTRIC HEATING; ELECTRIC LIGHTING-LIGHT SOURCES NOT OTHERWISE PROVIDED FOR; <i>CIRCUIT ARRANGEMENTS FOR ELECTRIC LIGHT SOURCES, IN GENERAL</i>
D	H05B	Note(s) [3] (deleted)
M	H05B	Subclass indexes <i>ELECTRIC HEATING</i> Produced by: resistance; electric, magnetic or or electromagnetic fields; discharge Combined types Details <i>ELECTRIC LIGHT SOURCES</i> <i>Arc</i> <i>Electroluminescent</i> Combined types Circuit arrangements: for operating incandescent light sources for <i>operating or igniting</i> discharge lamps for operating <i>electroluminescent</i> light sources for <i>operating light</i> emitting diodes [LED LEDs] for <i>operating</i> light sources using a charge of combustible material for operating light sources in general
		H05B 3/00; H05B 6/00; H05B 7/00 H05B 11/00 H05B 1/00 <i>H05B 31/00</i> <i>H05B 33/00</i> <i>H05B 35/00</i> <i>H05B 39/00</i> <i>H05B 41/00</i> <i>H05B 44/00</i> <i>H05B 45/00</i> <i>H05B 46/00</i> <i>H05B 47/00</i>
M	<u>H05B 1/00</u>	Heating <i>Electric heating</i>
L	H05B 1/00	Details of electric heating devices [1,2006.01]
M	H05B 6/00	Heating by electric, magnetic or or electromagnetic fields (radiation therapy using microwaves A61N 5/02) [3,2006.01]
M	<u>H05B 31/00</u>	Lighting <i>Electric light sources</i>
D	H05B 33/08	(transferred to H05B 44/00)
N	<u>H05B 39/00</u>	<i>Circuit arrangements [2022.01]</i>
M	H05B 39/00	Circuit arrangements or apparatus for operating incandescent light sources (<i>structurally associated with the incandescent lamps H01K 1/62</i>) [1,2006.01]
M	H05B 41/00	Circuit arrangements or apparatus for igniting or operating discharge lamps (<i>structurally associated with the discharge lamps H01J 61/54 , H01J 61/56</i>) [1,2006.01]
N	<u>H05B 44/00</u>	<i>Circuit arrangements for operating electroluminescent light sources (for operating light emitting diodes H05B 45/00) [2022.01]</i>
C	<u>H05B 45/00</u>	<i>Circuit arrangements for operating light emitting diodes [LED LEDs] [2020.01,2022.01,</i>
M	H05B 45/36	• • Circuits for reducing <i>or suppressing</i> harmonics, ripples or electromagnetic interferences [EMI] [2020.01]
C	H05B 45/50	• responsive to malfunctions <i>or undesirable behaviour</i> of LEDs; responsive to LED life; Protective circuits [2020.01,2022.01]
N	H05B 45/59	• • for reducing or suppressing flicker or glow effects [2022.01]
N	H05B 45/60	• Circuit arrangements for operating LEDs comprising organic material, e.g. for operating organic light-emitting diodes [OLEDs] or polymer light-emitting diodes [PLEDs] [2022.01]
M	H05B 46/00	Circuit arrangements for <i>operating</i> light sources using a charge of combustible material [2020.01]
M	H05B 47/00	Circuit arrangements for operating light sources in general, i.e. where the type of the light source is not relevant [2020.01]