

CLASSIFICATION KEY

CONCORDANCE BETWEEN THE UK KEY AND THE IPC

PART 1: Guide to the location of the subject matter of UK Key headings in the IPC

Introduction to Part 1

1. The aim of this Guide is to indicate the **main** places where the subject matter of individual headings in the Classification Key may be found in the International Patent Classification (IPC). **The Guide is not, nor intended to be, exhaustive.** Where there is doubt that a particular topic in a heading is covered by an IPC place referred to in the Guide, users should determine the correct place for the topic from the IPC *per se*, by reference to the "Catchwords Index" and/or the "Survey of Classes and Summary of Main Groups" which accompany the IPC.
2. The Guide is based on Edition W of the Key (operative date 1.1.2004) and Edition 8 of the IPC (operative date 1.1.2006). *IPC entries that are in IPC 8 only, or UK Key entries referring to IPC 8 marks, have been appropriately marked.* Users are reminded that the location of, or provision for, particular topics may differ in earlier Editions of the IPC. Thus, it may be necessary to check whether symbols selected from earlier editions of the IPC are appropriate.
3. IPC places are identified in the Guide in terms of IPC classes, subclasses or parts of the latter.
 - 3.1 Reference to classes are to be interpreted as meaning that all of the subclasses which form the class should be considered. Thus, for example, heading F3C refers to Class F41, indicating that all of the subclasses F41A, F41B, F41C, F41F, F41G and F41J which make up class F41 are for consideration in relation to this heading.
 - 3.2 Part-subclasses are identified in terms of specific IPC groups or ranges thereof.
 - (a) Designations of the form "1/-", "3/-" etc. are to be interpreted as a reference to the relevant main group and any subgroups thereof. For example "A23L 3/-" (*see* heading A2D), means that groups A23L 3/00 to 3/54 inclusive are to be considered.
 - (b) Where ranges of groups are specified they should be read as inclusive, *eg* "A01K 61/- to 97/-" (*see* heading A1A) means that all groups from A01K 61/00 to 97/28

are to be considered.

- (c) In some cases, reference is made to a specific subgroup as the most direct approach to matter pertinent to a heading, *see, eg*, A61K 6/08 (heading C3V). Such references are to be taken to embrace any more indented groups of the subgroup cited, *ie* in the case of A61K 6/08, its subgroups 6/083 to 6/097 are also to be considered. Moreover, users are reminded that groups hierarchically superior to the subgroup cited may also contain the matter in question (*ie* in combination with other features), and therefore should not be overlooked. Thus, in the case of A61K 6/08, groups 6/02 and 6/00 may also need to be considered.
4. IPC places referred to in the Guide are not to be construed as any reflection on the scope of headings, which is determinable only from the headings *per se*. The general aim in identifying IPC places is to avoid the user having to consider extensive areas which are wholly or substantially irrelevant to a heading. The Guide attempts to define places as precisely as necessary to meet this aim, by limiting the places cited to particular groups, *eg* where the subclass involved is long. However, it is not the intention in the Guide to provide exact definition (*eg* subgroup by subgroup) of the IPC area of relevance to a heading. Consequently, IPC places cited are frequently such as to embrace matter within a heading, *ie* it is not necessarily the case that all of the groups in the IPC place will be relevant.
 5. When more than one IPC place is pertinent to a heading, the places involved are generally listed in alpha-numeric order. Word references giving a brief indication of the relevance of places are provided where considered to be of assistance to the user in choosing between places listed for a heading. If no wording appears against a place, it is normally the case that the place represents a major area of subject matter for the heading concerned. It is important to note that the word references are intended only as an aid to use of the Guide. References should be read within the context of the heading concerned, but are not to be interpreted as any reflection on the scope of the heading (or for that matter of the IPC place involved).
 6. Notes are provided where the relationship of a heading to the IPC appears to require additional explanation, *see, eg*, headings A4C and G1N. A number of the Notes concern the fact that subject matter in a heading is scattered in the IPC because the latter provides both functional, *ie* generic and application places for the matter. Thus, for example, in the case of heading F2H (Bolts, rivets, nails &C), subclass F16B provides in general for fastenings of this kind. However, there are other places in the IPC which provide for such fastenings when intended for a particular use or application, as illustrated by the list of examples given after the Note which appears in the entries for heading F2H. Whilst the Guide attempts to draw the attention of users to application places where relevant (with the aid of explanatory Notes as necessary), it is not possible for the Guide to be exhaustive in this respect, and the fact that application places may exist should always be borne in mind when attempting to locate heading subject matter in the IPC.
 7. Users are reminded that, in selecting IPC groups for consideration, attention should be paid to any notes or references which appear in the IPC, whether at subgroup, main group, subclass, class, subsection or section level.

SECTION A: HUMAN NECESSITIES

Division A1: Agriculture; Animal husbandry

A1A Fishing &c

A01K 61/- to 97/-

A1B Soil Working &c

A01B

A01D 7/- to 11/-

certain hand tools, eg forks, rakes

A01G 25/06

irrigation

E02B 11/-, 13/-

drainage; irrigation

A1D Manuring, sowing &c

A01C

A01G 25/-

watering arrangements

A1E Treating plants &c

A01C 1/-

arranging seed on carriers; germinating apparatus

A01G

A01H 1/-, 3/-

hybridisation methods; pollination; light-treatment of plants

A1F Harvesting &c

A01B 73/-

arrangements, eg folding frames, to facilitate transport of harvesting machines

A01D

A01F

A01G 1/12, 3/03

tools for turf cultivation and fruit picking

C13H

sugar cutting machines

A1M Animal husbandry

A01J 1/- to 9/-

milking apparatus

A01K 1/- to 59/-

A01L

shoes for animals

A01M

catching, trapping or destroying animals

A22B

slaughtering

A61D 3/-

fettering animals

B68B,
B68C &
B68F

harness and saddlery

H05C

electric stunning and killing appliances

A1P Coupling agricultural implements to tractors

A01B 59/- to 63/-

Note: In addition, relevant matter may be found in subclass B60D which provides for vehicle connections in general.

A1X Seaweed, marking animals &c

A01G	15/-, 33/-	influencing meteorological conditions; seaweed
A01K	11/-, 35/-	marking animals
B44B	7/-	branding apparatus
E01H	13/-	dispersing fog

Division A2: Food; Tobacco

A2A Bakery apparatus &c

A21B		
A21C		handling dough and baked products
A21D	8/- to 17/-	
A23G	3/20	coating or filling confectionery

A2B Food preparations

A01J	11/- to 27/-	manufacture of dairy products
A22C	5/- to 13/-	meat products
A23C		dairy products
A23F		tea, coffee
A23G		cocoa, chocolate, confectionery, ice-cream
A23J		protein foodstuffs
A23K	1/-	fodder
A23L	1/-, 2/-	miscellaneous foodstuffs
A23P		shaping of foodstuffs
C12H	3/-	obtaining low-alcohol or alcohol-free beverages
C12J		vinegar

A2C Cigarettes, tobacco &c

A24B	
A24C	
A24D	

A2D Preserving food, animal and vegetable substances &c

A23L	3/-
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Note: The above relates to the preservation of food in general. Other subject matter of this heading is distributed in the IPC according to the particular food or other substance preserved, see, eg the following places for the substances indicated:-

A01N	1/-, 3/-	organs; plants
A21D	4/-, 15/-	flour, dough, bakery products
A23B		meat, fish, eggs, fruit, vegetables
A23C	3/-, 13/08, 15/18, 19/097	dairy products
A23D	7/06, 9/06	edible oil and fat compositions
A23K	3/-	animal feedstuffs

A61K 35/12

blood, semen

A2M Smokers' accessories

A24F

A2Q Treating grain, seeds &c

A21D 2/-, 6/-

treating flour

A23F 5/04

coffee roasting processes

A23L 1/-

food products made direct from cereal grain

A23N 5/-, 12/-

husking nuts; roasting machines, eg for coffee

B02B

treating grain

A2U Preparing meat &c

A22B 5/08, 5/16

depilating, skinning

A22C 17/- to 29/-

Division A3: Apparel; footwear; Jewellery

A3B Boots and shoes

A43

B29D 31/50

A3H Dress fastenings, jewellery &c

A44B 1/- to 9/-

A44C

A3V Wearing apparel &c

Part A: A41

A42

headwear

A61F 9/- to 13/-

eye and ear protectors, nappies

A62B 17/-, 35/-

protective clothing, safety belts and body harness

B63C 9/08

life-jackets and the like

B68F 1/-

making articles from leather, canvas and the like

F41H 1/-, 5/-

protective clothing

Part B: B60R 22/-

Division A4: Furniture; Household articles

A4A Portable vessels, table articles &c

A21B 3/13, 3/15

baking tins and the like

A47G 19/- to 23/-

A47J 27/-, 36/-, 37/-,
43/-, 45/-, 47/-

B65F 1/-

refuse receptacles

A4B Cabinets, shelves, runners &c

A47B 43/- to 97/-

A47F

A47H 1/- to 15/-

curtain drawing and suspending means

A4C Cutting foodstuffs &c

A01F 3/-, 29/-

implements and machines for cutting-up hay, straw and the like

A23N

machines for juice extraction, coring, peeling &c in bulk

A47J 9/- to 25/-
43/-, 44/-, 47/-

kitchen equipment for juice extracting, peeling, coring, grating &c

F25C 5/12

ice-shavers

Note: The above places are specific to the cutting or dressing of foodstuffs as indicated. In addition, subject matter relevant to this heading may be found in subclass B26D which provides for cutting in general and for some cutting of food (see B26D 3/24).

A4D Cooking apparatus &c

A21B 5/-

apparatus for baking waffles &c, and for baking in fat or oil, eg making doughnuts

A21C 13/-

dough provers

A47J 27/-, 29/-, 33/-,
37/-, 43/-

A4E Infusing

A47G 19/16

egg-shaped and like tea infusers

A47J 31/-

A4F Cleaning &c

A46B 17/06

devices for cleaning brushes

A47L

B08B

B06S 1/-

vehicle windscreen wipers and washers

B63B 57/-, 59/06

cleaning ship or other vessel tanks and hulls

D60G

non-domestic mechanical or pressure cleaning of carpets, rugs, sacks &c

E01H 12/-

cleaning beaches

A4G Bags, baskets, cases &c

A44B 15/-

key rings

A45C

A45F

A47G 9/08

sleeping bags

A4K Brushes &c

A46

A61C 17/16

power-driven toothbrushes

B05C 1/-

reservoir-fed pads &c

A4L Furniture &c

A45B	5/-, 9/04	seat-sticks; ferrules or tips for sticks
A45F	3/22 to 3/44, 4/06, 4/08	hammocks &c, packs convertible into hammocks
A47B		
A47C	1/- to 20/-, 31/-	
A47D		
A47F		
A47G	25/- to 35/-	hangers and stands for domestic use, eg clothes hangers, Christmas tree stands
A61G	7/-, 13/-, 15/-	beds, tables and chairs for medical use
B60B	33/-	castors
B60N	2/-	vehicle seats
B62B	5/08, 9/28	vehicle seats for children
F16M	11/-, 13/-	stands and supports, eg trestles, for apparatus or articles

A4M Mattresses, upholstery &c

A47C	23/- to 27/-, 31/-	
A47G	9/00	pillows
A61G	7/057	special mattresses for medical use
B68G		

A4N Baths, basins &c

A47K	1/- to 4/-, 11/-, 17/-	
A61G	9/-	bed-pans &c
A61H	33/-, 35/-	spa and sauna baths, bidets
E03C		sinks, basins and fittings therefor
E04H	4/-	swimming pools

A4P Umbrellas &c

A45B

A4S Domestic covers and screens

A47C	21/-	securing bedclothes &c
A47D	13/06, 15/02	childrens' pens; bed-cover holders for children
A47G	5/-, 9/-, 11/-, 27/-	screens, bedding, table covers, carpets &c
A47H	19/- to 23/-	curtains &c

A4V Toiletry &c

A41G	3/-, 5/-	wigs, hairpieces
A45D		
A47K	1/-, 5/-, 7/-, 10/02, 10/48	
A61H	33/12	facial saunas and the like

A4X Miscellaneous household articles

A01G	5/-	wreath mountings, flower holders &c
A41G	1/-	artificial flowers
A45C	13/30	straps and bands
A47G	1/-, 7/-, 33/-	mirror &c frames and mounts; hanging pictures &c; flower vases &c; devotional articles; artificial Christmas trees
A47H	27/-	flower holders
F24B	15/-	coal boxes, fire-irons

Division A5: Medicine; Surgery; Pesticides; Fire-fighting

A5A Fire-fighting &c

A62B	1/- to 5/-	
A62C		
A62D		
B65D	90/-	fireproof containers
B66D		controlled descent devices
H02G	3/-	protecting electrical cables against fire

A5B Pharmaceutical preparations &c

A61J	3/-	bringing pharmaceuticals into particular forms
A61K		
A61L	15/44	transdermal devices &c
A61P		therapeutic activities of compositions
A61Q	(IPC 8)	cosmetic uses of compositions

A5E Pesticides, herbicides, disinfectants &c

A01N	25/- to 65/-	
A61L	2/- to 11/-	methods involving the use of particular compositions
A01P	(IPC 8)	biocidal activities of compositions

A5G Disinfecting, fumigating &c

A61L	2/- to 11/-	
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A5K Physiological measuring &c

A61B	5/-	
A61M	21/-	

A5R Medical, dental and veterinary equipment

A61B	1/-, 5/04, 7/- to 19/-	medical and surgical instruments; electrodes for ECG, EEG &c
A61C		dentistry
A61D		veterinary equipment
A61F		prostheses; deformity and fracture appliances; bandages, dressings, pads &c

A61G	10/- to 15/-	treatment chambers, stands &c
A61H		physical therapy, eg massage, apparatus
A61J	7/-, 13/-, 15/-	devices for administering medicine, feed-tubes &c
A61L	15/- to 33/-	materials for bandages, dressings &c and for surgical articles, eg sutures
A61M	1/- to 9/-, 19/-, 23/- to 39/-	apparatus for introducing or extracting media into or out of the body
A61N	ultrasonic vibration apparatus	electrical, magnetic and radiation therapy appliances;

A5T Respiratory apparatus

A61H	31/-	artificial respiration devices, eg iron-lungs
A61M	11/- to 16/-	inhalers, mouth-to-mouth resuscitation apparatus
A62B	7/-, 9/-, 15/-, 17/-, 18/-, 25/-, 27/-	respiratory and breathing apparatus, eg gas-masks and the like
B63C	11/12	underwater breathing apparatus

A5X Miscellaneous bodily comforts

A01N	1/-	treatment of corpses
A47D	13/02	carry cots
A61F	7/08, 11/08	hot-water bottles and warmers; ear plugs
A61G	1/-	stretchers
A61J	9/-, 17/-	feeding bottles, teething rings

Division A6: Entertainment

A6D Outdoor sports &c

A63B	31/- to 71/-
A63C	
A63D	1/- to 9/-
A63K	

A6H Indoor games &c

A63D	13/-, 15/-	bagatelle, billiards
A63F		

A6M Amusement and exercising apparatus

A63B	1/- to 29/-
A63G	
A63J	

A6S Toys &c

A63B	65/-	darts, throwing-toys
A63H		
F41B	1/-, 3/02, 5/-, 7/08, 9/-	blow guns, catapults, bows, toy guns, water pistols

F41J	3/-	dartboards and archery targets
F42B	6/02	arrows

SECTION B: PERFORMING OPERATIONS

Division B1: Physical and chemical apparatus and processes

B1B Distillation; evaporation; condensation

B01B		
B01D	1/-, 3/-, 5/-	
C12F	1/-	distillation of fermented solutions
C13G		evaporators or boiling pans for sugar solutions

B1C Mixing &c

B01F 3/- to 15/-

Note: In addition, subject matter relevant to this heading may be found in application places, see, eg, the following:-

A21C	1/-, 7/-	mixing dough
A47J	43/-	kitchen mixing equipment
B28C	3/- to 7/-	mixing clay, cement &c
B29B	7/-	mixing plastics

B1D Filtering and settling

B01D 17/-, 21/- to 43/-

B01J	20/-	filter aids
B04B	3/-	centrifugal strainers
B30B	9/02	press-filters

Note: In addition, subject matter relevant to this heading may be found in application places see, eg, the following:-

A01K	63/04	aquarium filters
A47J	31/06, 37/12	coffee or tea filters; frying-machine filters
A61M	5/165	blood &c filters
B29C	47/68	filters used in plastics extrusion
C22B	9/02	filters for molten metal
D21D	5/-	paper-pulp screens
E02B	15/04	oil slick pick-up devices
E04H	4/-	swimming pool filters
E21B	43/08	oil &c well screens
F01M	11/03	engine &c lubricating oil filters
F02M	37/22	engine fuel filters
F16N	39/06	filters in lubricating systems

B1E Catalyst compositions &c

B01J 21/- to 38/-

C08F 4/- &
C08G

polymerisation catalysts

B1F Chemical contact apparatus &c

B01D 11/04, 17/-, 53/36

solvent extraction; catalytic waste gas treatment apparatus

B01J 2/16, 8/- to 19/-

B04C

vortex apparatus

F01N 3/10

catalytic engine exhaust treatment apparatus

F23C 10/00

fluidised-bed combustion apparatus

F23D 14/18,
F23Q 11/- &
F23R 3/40

catalytic burners &c

F27B 15/-

fluidised bed furnaces

B1G Crystallising from a liquid &c

B01D 7/- to 9/-

B1H Chromatography

B01D 15/08

G01N 30/-

B1J Ion-exchange

B01D 15/04

B01J 39/- to 49/-

G01N 30/96

B1L Separating and drying gases

B01D 53/-

B1M De-gassing

B01D 19/-

B1Q Making extracts, solutions &c

B01D 11/-

B01F 1/-

B1R Treating gases with liquids &c

B01D 47/-, 51/-

B01J 19/30, 19/32

packing elements for gas/liquid contact apparatus

F24F 6/-

air humidification

B1S Zone-melting, crystal-pulling &c

C30B

B1T Separating particles from gases

B01D 45/-, 46/-, 49/- to 51/-

Note: In addition, subject matter relevant to this heading may be found in application places, see, eg the following:-

A47L	9/10 to 9/20	vacuum cleaner filters
A62B	23/-	filters for breathing-protection
B60H	3/06	vehicle ventilation system filters
B65G	53/60	gas-conveyer filters
F01N	3/00 to 3/08	engine exhaust filters
F02C	7/052, 7/055	turbine intake filters &c
F02M	35/00 to 35/08	engine air-intake filters

B1V Organic dispersions

B01F 3/-, 17/-
B01J 13/-

B1W Waste gas treatment systems

B01D 53/-
F01N
F23J 15/-

B1X Miscellaneous chemical apparatus &c

B01D	61/- to 71/-	diffusion of liquids, eg reverse osmosis, dialysis &c
B01J	3/-, 7/-, 19/-	chemical and physical processes in general
B01L		laboratory apparatus
C10H		acetylene production

Division B2: Crushing, Coating; Separating; Spraying

B2A Comminuting

A47J	42/-, 43/-	coffee mills, spice mills and grinders for kitchen use
B02C		
D21B		comminuting fibrous paper-making materials
D21D	1/-	pulp refiners &c

B2E Coated products

Part A: B05D
Part B: B32B

Note: The above provides for coated products not characterised by the particular materials used and for some coated products characterised by the substances used. However other specific coated products which are subject matter for this heading are to be found in IPC places appropriate to those products, see, eg, the following:-

B65D	5/56, 5/62, 25/14	coated containers
C09J	7/-	adhesive-coated products
D06N		wall-, floor-, and roof-coverings
D21H	19/-	coated paper

D21J	1/08	coated fibreboard
F16L	9/-, 11/-, 58/-	coated pipes
G02B	1/10	coated optical elements
G11B	5/62	magnetic recording tapes
H01B	3/-, 7/-	coated insulators and conductors

B2F Fluid discharge devices

B05B
B05D

B2H Separating solids

B03B
B03D
B07B

B2J Electrostatic and magnetic separation &c

B03C

B2L Coating-apparatus

B05B
B05C

B2P Centrifuges

B04

Division B3: Working metals &c

B3A Multi-operation metal article manufacture

B23P 13/- to 23/-

Note: The above provides for the making of metal articles where this is not covered by a single other IPC subclass, and should usually be considered. However, there are other IPC places concerned with the making of articles which are pertinent to the subject matter of this heading, and the more important of these are indicated below. For the manufacture of particular articles not covered by the following, the appropriate IPC place for the article concerned should be considered.

B21C	37/-	making sheets, bars, wires, tubes or the like
B21D	47/- to 53/-	making particular articles from sheets, tubes, or profiles
B21F	25/- to 45/-	making particular articles from wire
B21G		making needles, pins or nails
B21L		making chains
H01R	43/-	making electrical connectors and the like
H01T	21/02	making spark plugs
H02K	15/00	making dynamo-electric machines and parts thereof
H05K	3/30, 13/-	assembling electrical components, eg to printed circuit boards

B3B Machine tool details

B23B 13/-, 15/-, 25/-, 27/-,
31/-, 33/- conveying stock and workpieces; accessories, tools;
rotary tool holders &c

B23Q

B25B 1/-, 11/- vices; work holders

B3C Drilling and boring

B23B 35/- to 51/-

B23D 75/-, 77/- reaming

B25F combination or multi-purpose tools

B27C 3/- wood drilling

B3D Abrading

B23F making gear teeth by honing, lapping or grinding

B24

B25B 11/- vacuum work holders

B3E Bending and breaking metals

B21C 47/- winding-up, coiling

B21D 1/- to 15/-

B21F 1/- to 23/-

B3F Casting metals

B22C 9/- mould constructions

B22D

B3G Foundry moulding

B22C

B3H Power hammers &c

B21J

B21K

B3J Seaming &c metal sheets

B21D 22/14, 39/-

B3K Milling

B23C

B23F making gear teeth by milling

B3L Planing metals &c

B23/D 1/- to 13/-, 37/- to 43/-,
67/- to 73/-

B23F making gear teeth by planing, slotting or
broaching

B3M Rolling metals

B21B

B21H

B3N Screwing and tapping

B23G

thread cutting

B23P 19/06

screw or nut setting or loosening machines

B25B 13/- to 23/-

spanners, wrenches, screwdrivers

B25F

combination or multi-purpose tools

B3P Drawing and extruding metals

B21C 1/- to 35/-

B3Q Stamping and embossing metals

B21D 15/- to 26/-, 31/- to 45/-

B44B

embossing sheet metal

B3R Welding, soldering and brazing

B23K

B3T Turning

B23B 1/- to 11/-, 17/- to 23/-, 29/-

B23G

thread cutting

B27C 7/-

wood turning

B3U Riveting &c

B21J 15/-

B23P 11/-

assembling oversized parts

B3V Miscellaneous working of metals &c

Part A: B23H

Part B: Note: The subject matter of this part of the heading is scattered in the IPC, but the following places at least are of relevance:-

B23K 23/-

thermo-aluminic processes

B23P 6/-, 11/-

reworking worn articles; metal jointing

B30B 9/32

crushing or flattening cans &c

C04B 37/-

jointing ceramics

C21D

mechanical treatment and working of metal

F16B 11/-

jointing metal &c by adhesive

Part C: B23K 26/-

Part D: B23K 7/- to 15/-, 28/- to 37/-

B3W Shearing, punching &c metals

B21D 28/-, 43/-, 45/-

perforating; sheet feeding

B23D 15/- to 36/-

shearing

B3X Burnishing

B23F	19/-	finishing gears
B24B	39/-	

Division B4: Cutting; Hand-tools; Containing radioactive material

B4B Cutting &c

B26

G06K 1/02, 21/06, 21/08 punching and slotting punch-cards and the like

B4C Impelling-tools &c

Part A:	A41H	37/-	setting fastener elements on garments
	A61B	17/068, 17/115	surgical staplers
	B25C & B27F	7/-	nailing and stapling tools and machines
	B65C	7/-	tag-affixing tools

Part B: B25D 9/- to 17/-

Part C:	B23P	19/- &	tools for extracting and removing &c
	B25B	27/-	
	B25D	1/-	hand hammers

B4K Handles &c

B25G

matter Note: The above is concerned with handles for hand implements in general. Other subject-
in this heading is distributed in the IPC according to the application of the handle, see, eg, the
following places for handles for the articles indicated:-

A01B	1/22	soil working tools
A01D	1/14	harvesting tools
A47J	45/06	hollow-ware
B25B	23/16	spanners, wrenches, screwdrivers
B25D	17/04	percussive power tools
B65D	25/28	rigid and semi-rigid containers

B4Q Radioactive-material enclosures &c

B25J	21/02	glove boxes
G21F		

B4W Gripping-tools &c

A61B	17/076, 17/28	surgical staple removers; forceps
B25B	3/- to 11/-, 27/-	
B25C	11/-	nail, spike &c extractors
B25J	1/-	long-arm reachers

B4X Work benches, miscellaneous tools &c

B25D	5/-	centre punches
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Division B5: Working non-metals; Presses**B5A Moulding plastic substances &c**

B01J 2/- granulating

B29

B30B 11/- moulding presses

Note: B29 provides for the moulding of plastics and for the moulding of substances in a plastic state in general. However, other matter pertinent to this heading is distributed in the IPC according to the particular material or article moulded, see, eg, the following places for moulding of the materials and articles indicated:-

A01J 17/- to 25/- dairy products, margarine

A21C dough

A22C 7/- meat

A23G 1/- to 3/- confectionery

A23L 1/317 meat products

A23P other foodstuffs

A43D 35/-, 65/- shoe soles &c

B22F 3/- metallic powder

B28B clay, cementitious materials &c

C10C 3/- pitch, bitumen &c

C10F 7/- peat

C11D 13/- soap

D21J fibre pulp

B5B Making artificial fibres, films &c

B29D 7/- producing films

D01D

D01F

D02J finishing of filaments

B5D Making bags, boxes &c

B31B

B31D

B5E Working stone &c

B23B 27/20 diamond tools

B28D

B5F Presses

A01D 89/-, 90/- & baling-machines and presses &c

A01F 13/- to 21/-

B30B mechanical, hydraulic &c presses

B5K Joining; binding; folding edges

B29C 65/-

B31F

B5L Sawing; woodworking &c

Part A:	A61B	17/14	surgical saws
	A61C	3/12	tooth saws
	A61F	15/02	cast-cutting saws
	B23D	45/- to 63/-	
	B27B		
	B27G	19/-	wood saw safety and auxiliary devices
	B28D	1/02	sawing stone
Part B:	B27C	1/-, 5/-, 9/-	planing and moulding
	B27D	1/-, 5/-	working veneer or plywood
	B27F	1/-, 5/-	dovetailing, tenoning, mortising, slotting
	B27G	1/- to 5/-, 13/-, 21/-, 23/-	machine details and accessories
	B27H	1/-	bending wood
	B27J		working cork
	B27L	1/-, 3/-, 7/- to 11/-	removing bark &c; splitting wood; making wooden sticks and wood shavings
	B27M		other wood working

B5N Laminated products

B32B

Division B6: Stationery; Printing; Writing; Decorating

B6A Stationery, bookbinding &c

B41L 1/- manifolding

B42B

B42C

B42D

B65D 27/- envelopes

B6C Printing &c

A61B 5/117 fingerprinting

B41C

B41D

B41F

B41G

B41K

B41L

B41M

B41N

B44C 1/16 transfers, decalcomania

B65C applying decalcomania

G03F	7/-	photomechanical production of printing surfaces
G03G	11/- to 21/-	electrographic and magnetographic apparatus and processes
G07B	17/-	franking apparatus

B6E Filing papers &c

B42F

B6F Selective printing &c; keyboards

B41J

Note: B41J 5/08 provides for keyboards for typewriters and the like, and G05G 1/04 for keyboard levers (including grip parts) of general applicability. Other keyboard subject-matter in Part C is distributed in the IPC according to the application of the keyboard, see, eg, the following places for keyboards for the apparatus indicated:-

G06C	7/02&	computers
G06F	3/02	
G07F	7/02	vending and like machines
G09B	13/-, 15/-	apparatus for teaching typing and music
G10B	3/12,	musical instruments
G10C	3/12 &	
G10D	11/-	
H04L	15/-	Morse and like code transmitters

B6G Ornamenting &c

Note: The subject matter of this heading is scattered in the IPC, but the following places at least are of relevance:-

A41G	1/04	garlands
A47G	33/08	Christmas tree ornaments
A63H	37/-	streamers
B44		ornamenting in general
B60R	13/02, 13/04	ornamental trims and strips for vehicles
D04D		ornamental articles of textile or like material, eg tassels, fringes, bows

B6J Engraving, etching and embossing

B29C	59/-	embossing plastics
B44B		engraving and embossing apparatus
B44C	1/22	engraving and etching processes
C03C	15/-, 25/06	etching glass
C04B	41/72, 41/91	etching artificial stone and ceramics
C09K	13/-	etching compositions
C23F	1/-	etching metals
H01L	21/302, 21/461	etching in semiconductor manufacture

B6P Writing-appliances &c

Part A: B43K

Part B: B43L

B43M 7/-, 9/- paperknives, paperweights

Part C: B44D 3/-
Part D: B43L 13/-
Part E: B43M 1/-
G09F 3/03

B6W Type-composing

B41B

B6X Pictures, sculpture &c

B44C
B44D
B44F

Division B7: Transport

B7A Ships &c

A63B	31/-	swimming aids
B60F		amphibious vehicles
B63B		
B63C		
B63G		mine laying and sweeping; submarines and torpedo nets and screens; aircraft carriers
submersibles;		mine laying and clearing
F41F	5/- &	
F41H	7/10, 11/-	
F42B	17/-, 19/-, 22/-	sea mines and torpedoes <u>per se</u>

B7B Road vehicle bodies &c

A61G	3/-, 5/-	ambulances; wheelchairs
A63B	55/08	golf trolleys
B60D	5/-	gangways between coupled road vehicles
B60J	5/- to 9/-	access arrangements, eg opening roofs
B60N		
B60P		
B60R	3/- to 7/-, 11/- to 21/-, 27/-	
B62B		hand-propelled vehicles
B62C		animal-drawn vehicles
B62D	1/18, 23/- to 39/-, 65/-	

B7C Vehicle wheels &c

B29C	73/-	tyre repair
B29D	30/-	tyre manufacture, retreading
B60B		
B60C		

B7D Vehicle suspension &c

A61G	5/06	wheelchair suspension &c arrangements for negotiating obstacles, eg stairs
B60B	35/-, 37/-	axles, wheel-axle combinations
B60F	1/-	rail-road vehicles
B60G		
B62B	5/02, 9/02	hand-cart and pushchair suspension &c arrangements for negotiating stairs
B62D	17/- to 21/-	adjusting camber, castor or toe-in; radius rods, chassis and underframes

B7E Cycles &c; human power driving systems

B62J	1/-, 25/-	cycle saddles and foot-rests
B62K		
B62M		

Note: B62M is concerned with human-power driving systems of rider-propelled vehicles. Other subject-matter in Part B of the heading may be found in IPC places relating to particular apparatus driven, eg A61G 5/02 (human-powered invalid chairs) or to particular subsystems or components, eg F16, G05G 1/08 (hand cranks, eg for vehicle window winders)

B7G Controlling and propelling aircraft &c

B64C	3/-, 5/-, 9/-, 13/- to 19/-, 25-	
B64D	17/- to 41/-	
B64F	1/-	
F02K	1/32, 1/54	jet thrust reversal
G01M	9/-	testing, eg wind tunnels

B7H Motor vehicles &c

A61G	5/04	motor-driven invalid carriages
B60F	5/00	convertible vehicles
B60K		
B60L	8/-, 11/-	electrically powered vehicles
B61C		locomotive organisation
B62D	1/- to 15/-, 47/- to 67/-	
B62M	7/-, 27/-	motorcycles, powered sledges
G05G		personally-actuated command apparatus
G09B	9/04	simulators for training drivers

B7J Vehicle accessories &c

A62B	1/20	escape chutes
B60J	1/-, 3/-, 11/-	anti-dazzle &c arrangements; eg sun-visors; vehicle covers
B60N		
B60R		

B60S		vehicle cleaning &c
B62D	25/16, 43/-	mudguards and flaps; spare wheel holders and supports
B62H & B62J		cycle accessories
B63B	27/14	gangways for ships
B64D	25/14	aircraft escape chutes
B64F	1/30	gangways for aircraft

B7K Air-cushion vehicles &c

B60V

B7L Rail vehicles, systems &c

B60L & B60M	5/-, 9/-, 13/- &	supply of power to electrically propelled vehicles
B61B		
B61C	11/-, 13/-	
B61D		
B61F		
B61H	7/-, 9/-	track brakes
B61J		handling vehicles
B61K	5/-, 7/-	placing vehicles on track; railway stops fixed to permanent way
E01B	25/-	tracks for special railways

B7T Vehicle coupling, towing, pushing &c

B60D		
B61G		
B61K	7/18	railway buffers fixed to permanent way
B62C	5/-	draught assemblies for animal-drawn vehicles
B62D	53/08	fifth-wheel couplings

B7V Propelling ships &c

B63B	21/-, 39/-, 43/-	mooring, towing, stabilising, ballasting
B63G	8/-	control and propulsion of submarines
B63H		
F42B	19/-	propelling and steering torpedoes

B7W Aircraft &c

B60F	5/02	land vehicles convertible into aircraft
B64B		lighter-than-air craft
B64C	1/- to 7/-, 23/-, 27/- to 39/-	
B64D	1/- to 15/-, 29/-, 37/-, 43/- to 47/-	
B64F	5/-	manufacture, servicing
B64G		cosmonautics

F41J	9/08	towed air targets
G09B	9/08	aircraft simulators for training

Division B8: Conveying; Packing; Load-handling; Hoisting; Storing

B8A Conveyers &c

B07C		
B65G		
B66B	21/- to 31/-	escalators, moving walkways

B8B Winches, tackles &c; counterbalancing

Part A:	A61G	19/-	hoisting or lowering devices for coffins
	B66D		
Part B:	<u>Note:</u> This subject matter is distributed in the IPC according to application, see, eg, the following for counterbalancing in the context indicated:-		
	B62D	49/08	tractors
	B66B	17/12	mine hoistway equipment
	B66C	23/72	cranes
	E02F	9/18	dredgers or soil-shifting machines
Part C:	B65H		

Note: The above provides for taking-up slack in elongate members in general (see, eg, groups 57/-, 59/-, 75/-, 77/-). Other subject matter relevant to this part may be found in application places see, eg, the following for slack accommodation in the context indicated:-

B66C	13/12	crane power cables &c
F16L	3/01	supports for pipes, cables &c extending between relatively movable points
H02G	11/-	electric cables extending between relatively movable parts

B8C Packaging &c

Part A:	B43M	3/- to 7/-	inserting documents in envelopes
	B65B		
	B65G	57/- to 60/-	stacking and destacking
Part B:	B65D	57/- to 85/-	
Part C:	B01J	13/02	

B8D Portable containers &c

B27H	3/-, 5/-	manufacture of containers formed from staves
B65D	1/-, 3/-, 6/- to 17/-, 21/- to 25/-, 35/-, 37/-	
B67B	7/44, 7/46	can-openers

B8E Loading and unloading

A01D	87/- to 90/-	loading/unloading of harvesters
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B60P		loading/unloading means incorporated in vehicles, in general
B61D	7/-, 9/-, 47/-	loading/unloading means in rail vehicles
B61K	1/-	transferring freight to and from moving trains
B63B	25/-, 27/-	ship-based loading/unloading equipment
B64C	1/20, 1/22 &	freight-handling equipment in aircraft
B64D	9/-	
B64F	1/30, 1/32	ground-installations for handling aircraft freight &c
B65F	3/-, 9/-	refuse vehicles
B65G	65/- to 69/-	loading/unloading in general and of vehicles (other than by vehicle-based means)
B67D	5/-	loading/unloading liquids

B8F Labels and their securing

B31D	1/02	making labels
B65C		labelling processes and apparatus
G09F	3/-	labels &c <u>per se</u>

B8G Covering cores by winding &c

B65H	81/-	
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B8H Load shifting apparatus &c

B25J		manipulators, eg robots
B62B	3/06	low-lift trucks
B65D	19/-	pallets
B65G	47/90	picking-up devices associated with conveyors
B66C		cranes
B66F	7/- to 11/-	manoeuvring loads using lifting equipment
E02F	3/-, 9/-	dredger and excavator buckets

B8J Jacks &c

B66F	1/- to 5/-, 13/- to 19/-	
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B8K Paper and like bags &c

A61J	1/10	bags for medical use
B65D	27/- to 33/-, 77/- to 90/-	

B8L Guided elevated apparatus

B66B	1/- to 19/-	lifts, elevators
B66F	7/-, 9/-	platform lifts, fork-lift trucks &c
E04H	6/-	garage lifts for vehicles

B8M Reels &c

Part A:	B65H	75/00 to 75/32, 75/50
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Part B:	B65H	75/34	
	G01B	3/10	tape-measure reels
Part C:	A47K	10/24	towel dispensers
	G11B	23/04	cassettes

B8N Metering fluent material &c

Part A:	G01F	11/- to 19/-	
	G01N	1/02	sampling
Part B:	B67D		

B8P Boxes and cases

B65D 1/-, 5/- to 13/-,
19/-, 21/-, 25/-,
81/- to 91/-

B8Q Container traffic

B60P	1/-, 7/-	container-handling means in vehicles and vehicle load securement, in general
B61D	45/-, 47/-	container-handling means and load securement in rail vehicles
B63B	25/-, 27/-	ship-based container handling equipment &c
B64C B64D	1/20, 1/22 & 19/-	container handling means in aircraft
B64F	1/32	ground installations for aircraft freight
B65D	90/-	container construction to facilitate handling
B65G	63/-, 67/-	transferring, trans-shipping in storage areas, marshalling yards; loading/unloading of vehicles (other than by vehicle-based means)

B8R Handling thin material

B65H 1/- to 47/-

Note: In addition, subject-matter relevant to this heading may be found in application places, see, eg, the following for sheet or web handling &c in the context indicated:-

B41F	1/28, 13/-, 21/-, 33/-	printing presses
B41J	11/- to 17/-	selective printing apparatus
B41K	3/44	stamping or numbering apparatus
B41L	1/- to 7/-, 21/-, 43/-	office and like printing equipment
B42B B42C	9/- & 1/-	bookbinding equipment
B42D	9/04	books (leaf turners)
B65C	9/08	label feeding
B65G	49/06	conveying fragile sheets
G03G	15/-	electrographic copiers

B8S Shoots and hoppers &c

B65D 33/36, 83/06, 88/26,
88/54, 90/54

B65G 3/04, 11/-, 47/18,
47/44, 65/30, 69/-

Note: In addition, subject matter relevant to this heading may be found in application places, see, eg, the following for shoots or hoppers in the context indicated:-

A24C	5/35, 5/39	cigarette manufacture
A47F	1/02, 1/04	dispensing merchandise
B29C	31/02	feeding plastics material for moulding
B60P	1/56, 1/58	hopper-type containers in vehicles in general
B61D	7/-	railway hopper cars
B63B	27/28	ship-based unloading shoots
D01G	23/02	feeding fibres to textile, eg spinning, machines
F23K	3/16	feeding fuel to combustion apparatus

B8T Bottling, stoppers &c

Part A: B65D 39/- to 55/-

Parts B,C: B65B 3/-, 31/-, 37/-, 39/-
B67

B8U Dispensing discrete articles

Note: This subject matter is distributed in the IPC according to application, see, eg, the following:-

A47F	1/- to 7/-	racks and containers for dispensing merchandise in shops
A47J	47/01	kitchen dispensers
A47K	10/24	towel dispensers
B65B	19/04	dispensing and grouping cigarettes in packaging thereof
B65D	83/-	dispensing from containers or packages in general
B65G	47/-, 59/-, 60/-	orienting in association with conveying; dispensing from stacks
G07F	7/- to 11/-, 17/-	dispensing arrangements in coin-freed apparatus

B8W Warehousing systems

B65G	1/-	
E04H	6/-	garaging systems

SECTION C: CHEMISTRY, METALLURGY

Division C1: Inorganic chemistry; Glass; Fertilizers; Explosives

C1A Inorganic substances

C01

Note: The above provides for non-metallic elements and inorganic compounds per se. However, other subject matter relevant to this heading may be found in IPC places relating to (i) specific applications or forms of these substances and (ii) specific operations involving, or for producing, these substances, see, eg, the following:-

B01D& B01J	physical operations on inorganic substances, eg solvent extraction, ion-exchange; chemical purification of exhaust gases
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B28C	1/-	treating clay
C04B		lime, magnesia, dolomite; clay treatment; ceramics based on single inorganic substances
C05B, C05C & C05D		inorganic fertilizers
C09C	1/-	treatment of specific inorganic materials; preparation of carbon black
C12P	3/-	biosynthesis of inorganic substances
C22B		treating ores; obtaining metal compounds from ores and concentrates
C30B		obtaining crystals of specific inorganic substances
D01F	9/08	carbon & like inorganic fibres

C1B Plant growth regulants, fertilizers &c

A01N		growth regulants
C05		fertilizers

C1C Treating water, sewage &c

C02F		
C23F	11/-	corrosion inhibitors

C1D Explosives and pyrotechnics

A24F	27/-, 29/-	match striking-appliances
C06		

C1H Cement, stone &c

C04B	2/- to 32/-, 38/- to 41/-	
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C1J Refractories, ceramics; ferrites

C04B	33/- to 38/-, 41/-	
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C1K Treating slags, dry refuse &c

B09B		
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C1M Glass and vitreous enamels

C03		
C23D		enamelling

C1P Dealing with waste materials

Note: The subject-matter of this heading is scattered in the IPC. The best subclass to consult is B09B, which has a long series of notes identifying where the majority of disposal or recovery subject-matter is located.

B09B

B09C

Division C2: Organic chemistry

C2A Antibiotics

C07G 11/-

C2B Organic compounds containing boron

C07F 5/02

C2C Organic compounds

A61P	therapeutic activity of compounds
C07B	general methods
C07C 17/- to 409/-	acyclic and carbocyclic compounds
C07D	heterocyclic compounds
C07G 1/- to 9/-, 15/-, 17/-	compounds of unknown constitution
C07H 1/-, 5/- to 19/-	sugar derivatives
C11C	fatty acids, modified fats and oils
C12P	enzymatic processes

C2J Organometallic compounds

C07F 1/-, 3/-, 5/06, 7/22 to
7/30, 9/66 to 19/-

C2L Combinatorial chemistry and chemical libraries

C40B (*IPC 8*)

Note: This subclass will take all combinatorial chemistry subject-matter from 2006 onwards. The following entries are the most frequently used in IPC7 for combinatorial chemistry:

B01J 19/00

C12Q 1/68

C07B 61/00

C2P Organic compounds containing phosphorus

C07F 9/02

C07H 1/02, 11/04, 13/- phosphorus-containing sugar derivatives

C2R Organic silicon compounds

C07F 7/02

C2S Saccharides

C07H 3/- sugars per se

C12P 19/00 to 19/24 enzymatic preparation of sugars

C13K hydrolytic preparation of sugars

C2U Steroids

C07J

C12P 33/- enzymatic preparation of steroids

C2V Vitamins

C07G 13/-

Note: The above provides for vitamins of unknown constitution. For vitamins of

known constitution, see the places referred to in C07G 13/00 as appropriate. In addition, enzymatic preparation of vitamins may be found in subclass C12P.

Division C3: Macromolecular compounds

C3A Cellulose derivatives &c

C08B 1/- to 17/-

C3B Epoxy resins

C08G 59/- epoxy resins per se

C08J working-up &c

C08L 63/- compositions

C3C Cellular polymeric materials

C08J 9/-

C3H Proteins, enzymes and nucleic acids

A23J obtaining proteins from foodstuffs

C07H 21/- nucleic acids

C07K peptides, proteins

C08H 1/- macromolecular derivatives of proteins

C08L 89/- compositions of proteins and derivatives thereof

C09H making glue or gelatine

C12N 9/- to 15/- enzymes, genetic engineering

C12P 21/- enzymatic preparation of proteins or peptides

C3J Chemical after-treatment of addition polymers

C08C 19/- chemical modification of rubber

C08F 8/- chemical modification of addition polymers

C08J 3/24, 11/- cross-linking macromolecules, depolymerisation

C3K Polymer &c additives

C08K

C3L Polymer &c working up

C08C 1/- to 4/- working-up rubber

C08F 6/- working-up addition polymers

C08J working-up in general

C3M Polymer &c blends

C08J 5/- polymer blends for shaped articles, eg films

C08L

C3N Plastic compositions &c

B22C 1/-, 9/- foundry mould and core composition

B27N 3/- making particle board

C04B	9/-, 12/04, 14/38, 16/-, 18/-, 26/22 to 26/28, 28/24, 28/30	Sorel and silicate cements; fibrous compositions; artificial stone; Sorel and silicate cement compositions
C08K	7/02	fibrous compositions
C08L	91/- to 99/-	bituminous compositions &c
C09D	5/34	filling pastes, eg putty
C09K	3/10, 3/12	sealing compositions

C3P Addition polymers &c

C08F	2/-, 4/-, 10/- to 299/-	carbon-to-carbon polymerization and products
C08G	2/-, 4/-	poly-aldehydes or -ketones and thio analogues

C3R Condensation polymers &c

C08G	6/- to 18/-, 61/- to 75/-, 79/- to 85/-	
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C3T Organo-silicon polymers

C08G	77/-	organo-silicon polymers <u>per se</u> and their manufacture
C08J		working-up
C08K		additives
C08L		blends and compositions

C3U Polysaccharides &c

C08B	30/- to 37/-	polysaccharides <u>per se</u> and manufacture
C08J		working-up
C08K		additives
C08L		blends and compositions

C3V Miscellaneous polymer compositions, articles and uses

C08J	5/-	compositions for shaped articles
C08L		compositions <u>per se</u>
C09D	101/- to 187/-, 201/-	coating compositions
C09J	101/- to 187/-, 201/-	adhesive compositions
C09K	3/-	compositions for miscellaneous uses

Note: In addition subject matter relevant to this matter may be found in application places, see, eg, the following for compositions in the context indicated :-

A61K	6/08, 6/10, 47/30	dentistry, medicine
B60C	1/-	tyres
D01F		fibres
D06M	15/-	treatment of textile materials
F16L	9/-, 11/-	pipes, hoses
G02B	1/-	optical elements
G03F	7/-	photomechanical production of patterned &c surfaces
G11B	5/62	recording tapes
H01B	3/36 to 3/46	electrical insulation

Division C4: Dyes; Paints; Miscellaneous compositions

C4A Paints, inks &c

C09C

C09D

C4D Natural resins

C09F

C4P Dyes and pigments

C09B

Note: In addition, organic compounds which have a dyestuff structure and become coloured on contact with acids or alkalis (eg for use in heat-or pressure-sensitive papers), may be found in appropriate places in subclasses C07C and C07D.

C4S Luminescent materials &c

C09K 9/-, 11/-

F21K 2/-, 7/-

C4V Abrasive materials

B24D 3/-

abrasive sheets and bodies

C08J 5/14

manufacture of abrasive articles containing macromolecular substances

C09C 1/68

treatment of loose abrasive particles of inorganic material

C09G 1/02

abrasive polishing compositions

C09K 3/14

abrasive materials and compositions

C4X Miscellaneous compositions and materials

C09J 1/- to 105/-
189/- to 201/-

adhesives

C09K 3/- to 8/-, 19/-

Note: In addition, subject matter concerning "overbased" materials may be found in appropriate groups of subclasses C07C and C07D relating to the structure of such materials, and/or in appropriate groups of subclass C10M for lubricating compositions, a principal use of such materials.

Division C5: Fats; Oils; Waxes; Petroleum; Gas manufacture

C5C Animal and vegetable fats and oils &c

A23C &
A23D

edible compositions, eg butter, margarine; and their preparation

C08H

C11B

C11C

C12P 7/64

production of fats &c using enzymes or micro-organisms

C5D Cleansing-materials &c

A61K 7/075, 7/08

hair shampoos and the like

C09D 9/- paint removers
C09K 3/18 anti-misting compositions
C11D

C5E Destructive pyrolysis, gas, hydrocarbons &c

Part A: C01B 3/-
C10J
C10K
C10L 3/-
Part B: C10B 25/-, 27/-, 39/-,
47/- to 57/-
Part C: C07C 1/- to 15/-
Part D: C10B 53/-
C10G
C10L 1/-
Part E: C10C

C5F Lubricants &c

C10M
C10N

C5G Fuels

C10F
C10L

C5W Waxes; melt-coating compositions; polishes

C08K
C08L 1/- to 5/-, 89/- to 101/-
C09G polishing compositions, ski-waxes
C10G 73/- recovery or refining of mineral waxes
C11C 5/- candles

Division C6: Sugar; Skins; Microbiology; Beverages

C6B Sugar

C13C
C13D
C13F
C13J

C6C Leather, furs &c

C14

C6E Alcoholic beverages &c

C12C
C12F

C12G
C12H
C12P 7/06

C6F Microbiology &c

C12M
C12N 1/- to 7/-, 11/-, 13/-
C12P 1/-
C12R

Division C7: Metallurgy; Electrolysis

C7A Alloys &c

C21D 5/- to 9/-, 11/- heat treatment (ferrous alloys and general)
C22C 5/- to 32/-, 35/- to 49/- alloy compositions
C22F heat treatment (non-ferrous alloys)

C7B Electrolysis

C25

Note: In addition, subject matter relevant to this heading may be found in IPC places relating to specific electrochemical operations or applications, see, eg, the following :-

electrodialysis B01D 57/-, 59/38, 61/42 electrochemical separation, eg of isotopes,
electro-osmosis
C02F 1/46 electrochemical treatment of water, waste water &c
C07K 3/14 separation or purification of proteins by electrophoresis
C23C 28/- coating by combined electrochemical and non-
electrochemical operations
C23F 13/-, 17/- cathodic or anodic protection of metal, surface treatment
of metal by combined electrochemical and non-
electrochemical operations
G01N 27/26 electrochemical techniques and apparatus for
investigating or analysing materials
H01L 21/- electrolytic operations in the manufacture of
semiconductors
H05K 3/- electrolytic deposition or removal of conductive material
in the manufacture of printed circuits

C7D Process metallurgy &c

B22F
C21B
C21C
C22B
C22C 1/-, 3/-, 29/-, 33/-

C7E Cleaning metals &c

C23F 3/-, 4/-, 14/- to 17/-
C23G

C7F Coating with metals, inorganic compounds &c

C23C 2/- to 6/-, 10/- to
20/-, 24/- to 30/-

Note: In addition, subject matter relevant to this heading may be found in IPC places relating to the coating of particular substrates or to particular coated products, see, eg, the following :-

C03C	17/-, 25/-	coating glass &c
C30B	23/- to 25/-	epitaxial deposition
G11B	5/62 to 5/85, 7/24, 11/-	record carriers, eg magnetic tapes, optical discs
H01L	21/-	vapour deposition &c in semiconductor manufacture
H05K	3/16	applying conductive material to printed circuits by cathodic sputtering

C7M Fluxes &c

B23K 35/36 to 35/40

C7N Heat-treatment of metals

C21D 1/-, 5/- to 9/-, 11/-

C22F

C7U Modifying metallic surfaces &c

C23C 8/-, 22/-

C7X Miscellaneous metallurgy

B22F 9/-

SECTION D: TEXTILES, PAPER

Division D1: Textiles, Sewing; Ropes

D1A Laundering &c

D06F

D1B Dyeing processes &c

A61K 7/13

hair dyes

B27K 5/- to 9/-

dyeing wood, cane &c

D06B 11/-

partial dyeing of textile materials

D06P

D21H 21/28

dyeing paper

D1C Knitting machines &c

A01D 59/04

knotters for use in binding harvested produce

B65H 69/04

knot-tying devices

D04B

D04C

braiding and lace machines &c

D04G

making nets, carpets &c by knotting

D1D Spinning and twisting machines &c

B65H 49/- to 73/-, 77/-, 79/-
D01H

D1E Looms &c

D03C
D03D 29/- to 51/-
D03J

D1F Spinning processes

B65H	54/-, 67/06, 71/-, 73/-, 75/16	coilers; supplying and removing bobbins &c; waxing &c; stripping waste from bobbins &c; sliver cans
D01C	1/-	obtaining fibres from raw materials
D01G	1/- to 5/-, 13/-, 33/-	stapling; roughening; separating or sorting, mixing fibres; hand tools
D01H	11/-, 13/-, 17/-	cleaning machines; alarms, inspecting &c, counting &c apparatus, waxing &c; hand tools, storing ring travellers
D02G		crimping or curling, spinning processes
D02J		finishing or dressing yarns &c

D1G Sewing

D05

D1J Winding and unwinding

B65H 49/-, 54/-, 55/-, 57/28,
65/-, 67/-, 79/-

D1K Fabrics &c

B21F	27/-, 31/-, 33/-	making wire netting &c
D03D	1/- to 27/-	woven fabrics. methods of weaving
D04B		knitted fabrics, methods of knitting
D04C	1/-, 5/-	braid, lace and methods of producing
D04H	11/-	non-woven pile fabrics
D05C	17/-	tufted fabrics

D1L Apparatus for treating textiles &c

B05C & B05D		apparatus &c for applying fluent materials, in general
D06B		apparatus &c for treating textiles

D1M Warping &c

D02H

D1N Fibre preparation machines &c

D01B
D01G

D1P Treating textiles &c

A61K	7/09, 7/11, 7/135	preparations for waving, fixing or bleaching the hair
B27K	3/-, 5/-	impregnating and bleaching wood
C04B	41/-	impregnating artificial stone &c
D06B	7/-	mercerising
D06L		dry-cleaning, bleaching textiles &c
D06M	11/-, 13/-, 15/-, 23/-	chemical treatment of textiles &c
D21C	9/10	bleaching cellulose pulp
D21H	17/-, 21/-, 25/-	impregnating paper &c
D21J	1.08, 1/10	impregnating fibreboard

D1R Non-woven fibrous materials &c

D04H		fabrics
D21H	11/- to 17/-, 21/- to 23/-, 27/-	paper
D21J	1/-	fibreboard

D1S Finishing fabrics &c

B31F	1/-	corrugating &c paper
D06C		
D06H		
D06J		

D1T Ropes &c

D02J		finishing ropes
D04D	1/-	ornamental ropes
D07B		
F16G	9/-, 11/	ropes for pulleys &c; rope fittings

D1W Yarns, threads and chenille

B65H	69/-	splicing
D02G	3/-	
D03D	41/-	weaving chenille
D04B	19/-	unravelling knitted fabrics

D1X Miscellaneous textiles &c

A41G	9/-, 11/-	feathers
D06G	3/-	turning articles inside out

Division D2: Paper**D2A Paper-making apparatus &c**

D21F

D21G

D2B Carbon paper &c

B41M 5/-

D2W Treating wood-pulp &c

D21C

SECTION E: CIVIL ENGINEERING, BUILDING ACCESSORIES

Division E1: Civil Engineering; Building

E1C Sanitation and sewerage

A47K	4/-, 11/- to 17/-	sanitary closets, closet seats &c
B60R	15/-	sanitary arrangements in vehicles in general
B61D	35/-	sanitary arrangements in rail vehicles
B63B	29/14	sanitary arrangements in ships
B64D	11/02	sanitary arrangements in aircraft
E03C	1/28	odour seals
E03D		water closets &c
E03F		sewerage

E1D Buildings &c

E01C	5/-, 11/02, 13/-, 15/-	paving
E02D	27/-	foundations
E04B		
E04C		
E04D	1/- to 13/-	
E04F	1/- to 17/-	
E04H	1/-, 3/-, 5/-, 6/-, 9/- to 17/-	
F16S		constructional elements in general

E1E Shores &c

E02D		17/-shores for trenches
E04G		25/-shores or struts for building work
E21D	7/-, 11/- to 17/-	mine arches, props &c

E1F Earth and rock working &c

Part A:	C09K	8/-	well drilling compositions
	E02D	3/10, 3/12	sand drains, well points, consolidating by chemical means
	E21B		
Part B:	E02D	3/11, 17/-	stabilising
	E02F		dredging, soil shifting
	E21B	43/28, 43/285, 43/29	dissolving, melting minerals <u>in situ</u>
	E21C	25/- to 50/-	
	E21D	1/- to 13/-, 19/-, 20/-	
	E21F		
	F42D		blasting

E1G Rail and road ways

E01		
E02D	29/12	manhole covers &c

E1H Aqueous structures, piles &c

B63C	11/-	equipment for dwelling and working under water
E02B		
E02C		
E02D	5/- to 37/-	

E1J Windows, doors &c

E06B

Note: In addition, subject matter relevant to this heading may be found in application places, see, eg, the following :-

A01G	9/22	greenhouse blinds
B60J	1/-, 3/-, 10/-	windows, doors and seals therefor, for vehicles in general
B61D	19/-, 25/-	rail vehicle doors and windows
B63B	17/02, 19/-	awnings, doors, windows &c in ships

E1K Miscellaneous metallic materials

Note: The subject matter of this heading is scattered in the IPC according to, eg, the intended use, method of making, particular structure or precise composition of the material concerned, and the following places are given as examples only :-

B21B B21C & B21F		metal foil, wire &c made by particular methods
B22F	1-	metal powder
B32B	5/-, 15/-	metal laminates, certain fibre reinforced materials

E1P Fluid-pressure operated mine roof supports and anchorages &c

E21D 15/- to 19/-, 23/-

E1R Glazing &c

A47F	11/08	non-reflecting shop windows
B44C & B44F	5/08 & 1/06	leaded lights
E01C	17/-	pavement lights
E04D	13/03	skylights
E06B	3/54 to 3/68, 5/-, 7/-	glazing in general

Note: In addition, subject matter relating to vehicle glazing may be found in the following places :-

B60J	1/-, 10/02	glazing in vehicles in general
B60S	1/46, 1/56	preventing condensation by de-icing fluid or air streams
B61D	25/-	rail vehicle glazing
B63B	19/-	glazing in ships
B64C	1/14, 15/04	aircraft glazing, de-icing
H05B	3/84	heated windows

E1S Building-appliances &c

Part A: E04G 1/- to 7/-, 21/24, 21/32

Part B: E04F 11/04 &
E04G 27/- loft ladders and other movable stairways

E06C ladders

Note: In addition, subject matter relevant to this part of the heading may be found in application places, see, eg, the following for ladders &c in the context indicated :-

A47C 12/- step-stools

B60R 3/- vehicles (in general)

B61D 23/- rail vehicles

B63B 27/14, 29/10, 29/20 ships

B64C 1/24 &
B64D 9/- aircraft

B64F 1/315 ground installations for aircraft

Part C: E04G 9/- to 19/-

Part D: E04B 1/35 construction methods

E04D 15/- roofing tools

E04F 21/- plastering, jointing &c tools

E04G 21/-, 23/- constructional operations, structural alteration

E04H 12/- methods of erecting towers, masts &c

E1T Tanks, silos &c

B65D 1/-, 6/-, 8/-, 13/-,
43/-, 85/-, 88/-, 90/- containers per se

E03B 11/- arrangement or adaptation of domestic water tanks

E04H 7/-, 12/30 construction of bulk storage containers by civil engineering methods

F17C 1/-, 3/-, 13/- gas containers

E1X Miscellaneous building and works

A01G 9/12, 17/06 trellis

E03B water supply

E04F 19/- mantelpieces

E04H 5/06, 17/- inspection pits, trellis

E21F 1/-, 7/- destroying, collecting &c of fire-damp and choke-damp

Division E2: Fastenings; Operating doors &c

E2A Releasable fastenings

A44B 11/-, 13/-, 17/-, 21/- buckles, hook or eye fasteners, press-button fasteners &c

A44C 5/18 fasteners for bracelets or watch straps

E04G 7/02 scaffold clamps

E05B locks

E05C bolts &c

F16B 2/-, 21/-, 45/- friction-grip and stud-and-socket fastenings; hooks and eyes

F16G 11/- fastenings for ropes or cables

E2F Hinges &c

Part A:	E05D	
	E05F	1/12
	F16C	11/-
Part B:	F16C	11/06
Part C:	E05C	17/-
	E05D	15/-

spring hinges
pivots
devices with combined hinge and stay action

E2M Window, door, gate operating-appliances

E05F

E2S Strip fastenings

A44B 18/- to 21/-

E2X Miscellaneous door furniture, feters &c

A47G	29/12, 29/16	letterboxes for domestic use
B65D	91/-	mail boxes
E05B	75/-	handcuffs
E05F	5/-	door &c stops
E05G		preventing theft, controlling access
E06B	7/28	fingerplates
G08B	15/-	marking thieves
G10K	3/-	door knockers

SECTION F: MECHANICS, LIGHTING, HEATING**Division F1: Prime movers; pumps****F1B Internal-combustion engines &c**

F01L		valve gear and arrangements
F01M		lubrication
F01N		silencing
F01P		cooling
F02B	1/- to 51/-, 57/- to 79/-	i.c. engines <u>per se</u>
F02D	1/- to 39/-, 43/-, 45/-	control
F02F	1/-, 5/- to 11/-	cylinders, casings &c
F02M	17/-, 21/- to 57/-, 61/- to 71/-	fuel supply, injection
F02P		ignition
F23Q	7/-	glow plugs
H01T	13/-, 21/-	spark plugs

Note: In addition, relevant matter may be found in subclass F01B which provides for engines in general.

F1C Non-positive displacement pumps &c

A61M 1/- pumps for medical use
F04C 7/-, 19/- liquid-ring pumps
F04D

F1D Hydraulic and pneumatic actuators &c

B66F 1/08, 3/24, 5/04 fluid-pressure operated jacks
E21D 15/44, 15/51, 17/05, 23/16 fluid-pressure operated mining props and roof supports
F15B 1/- to 7/-, 15/-, 20/-
F16K 17/14, 17/40 pressure-relief devices of bursting disc type
F16L 55/04 devices for relieving pressure pulsations

F1E Injectors and ejectors

F04F 5/-, 9/-

F1F Rotary positive displacement devices

F01C machines or engines in general
F02B 53/-, 55/- i.c. engines
F03C 2/- to 5/- positive-displacement engines driven by liquids
F04C positive-displacement machines for liquids, pumps
G01F 3/06 meters

F1G Gas turbine engines/plant; turbochargers

F02C

F1H Spray carburettors

F02M 1/- to 19/-, 71/-

F1J Jet propulsion plant

Part A: F02K

Part B: F03H

F1K Starting, stopping, reversing engines &c

F01B 25/22, 27/- stopping/starting steam &c engines
F01L 13/-, 29/- valve gear facilitating starting &c of i.c. engines, reversing gear for steam engines
F02B 71/02 starting free-piston engines
F02N starting combustion engines

F1M Steam engines &c

F01B
F01L 15/- to 35/- valve gear
F02B 75/06 & balancing

F16F 15/-

F1N Miscellaneous compressors, vacuum pumps &c

F04B 37/00 to 37/08

F04F 11/- pressure exchangers

F1P Fluid pressure apparatus

F15B 7/-, 11/-, 13/-,
17/- to 21/-

F15C fluid logic and switching circuits

F1Q Power plant

F01K 7/-, 11/- to 27/- vapour-engine plant

F02B 73/- i.c. engine plant

F02C 6/- gas-turbine plant

F02G hot gas plant

F03B 13/-, 15/- water power plant

F03D 7/-, 9/- wind power plant

F03G 4/-, 6/- geothermal-, solar-power plant

F1R Raising and discharging liquids &c

Part A: B65D 83/14

Part B: A61M 3/-, 5/- syringes &c for medical use

B05C 17/005 hand tools for discharging material under pressure

B65D 83/76 containers dispensing fluent material by piston-action

B65G 53/30 transmitting pulverulent material by liquid pressure

B67D 1/04 gas-pressure beer dispensing apparatus

E04F 21/30 putty guns

F04B 19/08, 19/18 scoop and adhesion apparatus

F04F 1/-, 3/-, 7/-, 10/-, 11/-, pumps, rams, siphons &c

F1S Miscellaneous prime movers

F02G hot gas and combustion product engines

F03B 13/-, 17/- using wave and tide energy, liquid motors

F03G 5/-, 7/- animal-power engines, motors operated by expansion, contraction or atmospheric variation

F1T Turbine devices

F01D elastic-fluid turbines

F03B 1/- to 11/-, 15/- hydraulic turbines

F03D wind motors

F1U Peristaltic devices

A61M 1/- devices for medical use

F01C 5/-, 11/-, 21/- machines or engines in general

F04B 43/12, 45/08 & displacement machines for liquids, pumps
F04C 5/-, 11/-, 23/-, 29/-

F1V Bladed rotors and stators

B63H 1/02, 3/- ship &c propellers
B64C 11/- aircraft propellers
F01D 5/- to 11/-, 25/- gas turbine rotors &c
F03B 1/-, 3/-, 7/-, 11/- hydraulic turbine rotors &c
F03D 1/-, 3/-, 7/-, 11/- wind-motor rotors &c
F04D 29/- pump rotors &c

F1W Fluid-pressure reciprocating machines

F01B machines in general
F01L valve gear
F03C 1/-, 4/-, 5/- positive-displacement engines driven by liquids
F04B positive-displacement machines for liquids, pumps

Note: In addition, subject matter to this heading may be found in application places, see, eg, the following :-

A61M 1/10 blood pumps &c
B65D 47/34 containers with pump discharge
B67D 1/-, 5/- beer, fuel &c dispensing pumps
F02M 39/- to 45/-, 49/- to 53/-, 59/-, 63/-, 69/- fuel-injection pumps

F1X Miscellaneous fluid appliances &c

B01L 1/- vacuum chambers
B05B 17/08 fountains
E03B 9/- hydrants &c, drinking-water fountains

Division F2: Machine elements

F2A Bearings, lubricating &c

F16C 9/-, 13/-, 17/- to 43/- bearings
F16N lubricating

F2B Seals

Parts A & B: F16J 15/-
F01D 11/00 to 11/12
F04D 29/08 to 29/16

Parts C & D: Note: This subject matter is scattered in the IPC according to use or application of the devices concerned, and the following places are given by way of example :-

B62D 25/- closures for blanking holes in vehicle bodywork
B63C 11/- airlocks for divers
E02D 23/06 airlocks for caissons

F2C Clutches

F16D 7/-, 11/- to 31/-,
37/- to 47/-, 69/-

F2D Variable-ratio &c gearing

B60K 41/- conjoint control of gearing and other vehicle drive unit(s)
B62D 11/10 differential gearing for steering endless-tracks &c
B62M 9/- to 23/- cycle gearing
F16H 1/38, 3/-, 9/-, 15/-,
35/04, 37/-, 47/-,
49/-, 55/36, 55/52,
57/- to 63/-

F2E Brakes &c

B60L 7/- electromagnetic brakes
B60T 1/- to 7/-, 11/04, 13/02 brake operating mechanisms
B61H rail vehicle brakes
B61K 7/02 track-brakes for rail vehicles
B62L 1/-, 3/- cycle brakes
F16D 49/- to 71/-

F2F Controlling brakes &c

B60T 7/- to 17/-

F2G Pipe and rod couplings &c

Part A: B21F 15/-, rod,wire &c connections
F16B 7/-, 9/-,
F16D 1/- &
F16G 11/-

F16L 1/26, 5/-, 13/- to 59/-

Part B: Note: This subject matter is scattered in the IPC and the following places are given by way of example only :-

B21F 9/- straining wire in general
B25B 25/- wire and strip tensioning implements
B60P 7/06 tensioning vehicle load securing members
B65B 13/-, 27/- tensioning bundle-ties
E04G 21/12 tensioning concrete reinforcing members &c
F16B 7/06 turnbuckles for rods &c
F16G 11/12 turnbuckles for cables, ropes, wires

F2H Bolts, rivets, nails &c

A47G 3/- removable ornamental heads for nails, screws &c
B25B 29/02 bolt tensioners
F16B 13/- to 43/-

Note: In addition, subject matter relevant to this heading may be found in application places, see, eg, the following :-

A01L 7/10 nails for horseshoes
A43B 23/20 nails &c for footwear

A43C	5/-	eyelets for shoes &c
A61B	17/064, 17/58	surgical staples, bone screws
B42F	3/02	bifurcated paper fasteners
B43M	15/-	drawing pins
E01B	9/06 to 9/18	nails, screws &c for fastening rails to sleepers
E21D	21/-	anchoring bolts for mining and like use

F2J Machinery guards &c

F16P

F2K Linkwork; cams; Bowden mechanisms

F16C 1/-

Bowden mechanisms

F16H 21/- to 25/-, 51/-, 53/-

F2L Controlling clutches &c

B60K 41/24

conjoint clutch and brake control

B62L 5/-

back-peddalling cycle brake hubs

F16D 23/12, 25/08 to 25/14,
27/12 to 27/16, 29/-,
39/-, 47/-, 67/-, 71/-

F2M Structural joints and connections

E04B

structural joints in buildings

E04G

structural joints in scaffolding, formwork &c

F16B 1/- to 12/-, 17/-

F2N Cleaning pipes and tubes

B08B

F23J 3/-

cleaning flues

F28G

cleaning heat-exchange or heat-transfer conduits, eg boiler tubes

H02G 1/08

pull-through rods for electric cables

F2P Pipes and tubes

F16J 13/-

pressure vessels covers &c

F16L 1/- to 11/-, 33/-,
35/-, 39/-, 41/-,
45/-, 51/- to 59/-

F17D 3/08

go-devils

F2Q Gearing elements &c

B62M 9/02, 11/02, 13/-,
21/-, 23/-

cycle gearing

F16G

belts, chains &c

F16H 1/00 to 1/36, 1/46,
1/48, 7/-, 13/-, 19/-,
25/18, 27/- to 37/-,
49/-, 55/-, 57/-

F2R Boundary layer control

B63B	1/34	boundary layer control in ships
B64C	21/-, 23/-	boundary layer control in aircraft
F15D		

F2S Energy absorbing and storing; vibrating

Part A:	B60G	17/-	control of fluid springs and dampers in vehicle suspensions
	F16D	57/-	hydrodynamic brakes
	F16F		
	F16L	3/205	spring assemblies for pipe &c supports
Part B:	B06B		
	B07B	1/28, 1/46	vibration of sieves, screens
	B65G	27/-	vibration of conveyers
	E02D	7/18	vibration of pile-drivers
Part C:	F03G	1/-, 3/-	
Part D:	B23P	19/-	

F2T Pistons, cylinders, flywheels &c

F02F		
F16C	5/-, 7/-	crossheads, connecting rods
F16F	15/30	flywheels
F16J	1/- to 10/-	

F2U Rollers, shafts &c

F16C	1/-, 3/-, 13/-	shafts, rollers
F16D	1/- to 9/-	couplings
F16F	15/-	balancing rotary members

Note: In addition, subject matter relating to rollers may be found in application places, see, eg, the following :-

A01G	1/12	garden rollers
B02C	4/30	rollers for crushing &c
B05C	17/02	paint rollers
B21B	27/-	metal-working rollers
B29C	43/46	rollers for plastics moulding
B41N	7/-	printing rollers
D21G	1/02	calendering rollers for paper-making
E01C	19/23	road rollers

F2V Fluid-pressure control valves &c

A61F	2/24	heart valves
B60C	29/-	mounting tyre-inflation valves
B67D	1/14	beverage dispenser valves

F16K		
F16T		steam traps and the like
G05D	16/-	pressure regulation

F2W Hydraulic transmissions

F16D	31/-, 33/-, 35/-, 39/-	
F16H	39/- to 45/-, 61/38	

F2X Miscellaneous machine parts

B61B	12/-	cable grips, haulage clips &c
F03G	3/-	momentum power storing apparatus, utilizing inertia
F16D	9/-	breaking pieces
F16F	15/02	balancing
F16G	11/-	rope and cable grips
F16H	27/-	escapement mechanism
F16L	59/-	thermal insulation
F16M	1/- to 9/-	machinery beds, frames &c
F17D		gas mains and pipes
G10K	11/-	sound insulation

F2Y Personally-actuated command apparatus

G05G

Note: In addition, subject matter relevant to this heading may be found in application places, see, eg, the following :-

B60T	7/02	vehicle brake pedals
B62D	1/-	vehicle steering wheels, adjustable steering columns
B62K	23/- &	cycle gear and brake levers, twist-grips &c
B62L	3/-	
B63H	25/02	tillers &c for ships and boats
G06F	3/02 &	computer &c input devices, eg joysticks, mice
G06K	11/06	

Division F3: Armaments; projectiles

F3A Ammunition &c

B25C	1/16	cartridges for impact tools
C06C		fuses, eg fuse cords, detonation, igniters &c
C06D	5/-	gas generating cartridges
C06F		manufacture of matches
E21B	43/11	oil-well &c perforators and ignition systems therefor
F02K	7/-, 9/-	solid fuel rocket motors
F42		

F3C Weapons &c

B64D 1/-

airborne apparatus for releasing or ejecting bombs &c

F41

Division F4: Heating; Cooling; Drying; Lighting**F4A Steam generation and liquid heating plant**

F01K 1/-

steam accumulators

F22

steam generators, feedwater heating &c, steam superheating

F24B 1/183 &
F24C 13/-

water heaters associated with domestic stoves or ranges

F24D 3/08, 17/-, 19/-

domestic hot-water supply systems

F24H 1/-, 4/-, 6/-, 8/-, 9/-

water heaters

F4B Furnaces &c

C10B 1/- to 45/-

coke ovens

F23B,
F23C,
F23G,
F23H,
F23J,
F23K,
F23L,
F23M &
F23N

combustion apparatus and components thereof, incinerators

F27

F4F Lighters &c

F23Q

F4G Drying &c

D06F 49/-, 58/-, 59/-

spin-and laundry driers for domestic use

F26B

F4H Refrigeration &c

A47F 3/04

refrigerated cabinets for shops &c

B67D 5/62

cooling dispensed beverages &c

F25B

F25C

F25D

F4J Chimneys &c

B63H 21/32

ship funnels &c

E04F 17/02

flue ducts in buildings

E04H 12/28

chimney stacks

F23J 3/-, 11/-, 13/-

traps, flues, fittings for flues and chimneys, eg, doors

F23L 11/-, 13/-, 17/-

draught-affecting fittings, chimney &c tops

F4K Direct contact heating of fluids

F28C

F28D 17/- to 20/-

regenerators

F28F 25/-, 27/-

trickle cooler components, control of heat-exchange &c apparatus

F4P Gas storing, liquefying &c

Part A: B65G 5/-

inground &c installations

F17C

Part B: F25J

F4R Lamps &c

F21K

F21L

F21S

F21V

F21W

F21Y

Note: In addition, subject matter relevant to this heading may be found in application places, see, eg, the following for lighting in the context indicated :-

A47F 11/10

shop windows &c

A47G 33/16

Christmas trees

B60Q

vehicles in general

B61D 29/-

rail vehicles

B62J 6/-

cycles

B63B 45/-

ships

B64D 47/02

aircraft

B64F 1/18

runways

G03B 15/-

photographic studios

F4S Indirect heating and cooling

F24H 3/- to 6/-, 8/-, 9/-

air heaters

F28B

condensers

F28D 1/- to 13/-, 21/-, &

indirect heat-exchangers

F28F

F4T Burners &c

F21H

mantles

F23C

F23D

F23L 1/- to 9/-, 15/-

F23N

F23Q 9/-

F23R

F4U Heating and cooling systems &c

Note: This subject matter is scattered in the IPC and the following places are given as more pertinent examples only :-

A47J 41/-

thermally insulated vessels, eg flasks, jugs

B60H		heating or cooling systems for vehicles in general
B61D	27/-	heating or cooling systems for rail vehicles
B63J	2/12	heating or cooling systems for ships
B65D	81/38	thermally insulated containers
F01P		cooling systems for machines or engines in general
F24D		heating systems
F24H	7/-	storage heaters
F24J	2/-, 3/-	utilising solar or natural heat
F28D	15/02	heat pipes

F4V Ventilation and air conditioning

A62B	11/-, 13/-, 31/-	air conditioning and ventilation of protective shelters
B60H		ventilation &c of vehicles in general
B61D	27/-	ventilation &c of rail vehicles
B63J	2/-	ventilation &c in ships
B64D	13/06	air conditioning in aircraft
F24F		

F4W Stoves and fireplaces

F23H	1/-, 3/-, 7/-, 9/-, 13/-	grates
F23L & F23N	3/-	air supply
F24B		
F24C		

F4X Gas distribution, liquid heating vessels &c

B08B	15/-	confining dust &c
F17B		gasholders
F17D	1/04	gas distribution systems
F24J	1/-	exothermic heating

Note: Subject matter relating to vessels for heating liquids is scattered in the IPC and the following places are given by way of example :-

A47J	27/21, 31/54	water-boiling vessels for domestic use
E01C	19/45	tar and like boilers
F24H	1/06	portable and like water boilers

SECTION G: INSTRUMENTATION

Division G1: Measuring; Testing

G1A Radiation and radiation-utilising measurement &c

G01D	3/-, 5/-, 18/-, 21/-	certain apparatus features not specific to particular parameters measured
G01J		measurement of light, radiation pyrometry

G01T measurement of X- and particle-radiation

Note: Other subject matter of this heading concerned with radiation-utilising measurement is scattered in the IPC according to particular parameters measured or to particular applications involving such measurement, see, eg, the following for disclosure in the context indicated :-

A61B 5/- medical diagnosis
G01B 9/-, 11/-, 15/- measuring linear dimensions
G01C 9/-, 19/- measuring inclination, gyroscopes
G01F 1/-, 17/- measuring flow, volume
G01K measuring temperature, heat
G01L measuring force &c
G01N 9/-, 11/-, 15/-, 21/-, 23/-, 25/-, 30/- measuring physical and chemical properties of materials
G01P 3/-, 5/-, 15/- measuring speed, acceleration
G01R 15/07 certain electrical measurements
G01V geophysics
G01W meteorology
G06K 9/- image data recognition
G08B 13/-, 17/-, 19/- burglar, fire &c alarms

G1B Chemical analysis, testing &c

C12Q testing involving enzymes or micro-organisms &c
G01N

G1C Gyroscopes

G01C 19/-

G1D Heat and temperature measurements; temperature-responsive actuators

G01K
G01N 25/- investigating materials by use of thermal means

G1F Surveying and navigating apparatus &c

G01C 1/- to 17/-, 21/- to 25/-

G1G Acoustic measuring

G01D certain apparatus features not specific to particular parameters measured
G01H measurement of sonic waves and vibrations

Note: The subject matter of this heading concerned with measurement using sound energy is scattered in the IPC according to particular parameters measured or to particular applications involving such measurement, see, eg, the following for disclosure in the context indicated :-

A61B 8/- medical diagnosis
G01B 17/- measuring linear dimensions
G01C 19/56 turn-sensitive devices
G01F 1/32, 1/66, 1/84 flowmeters

G01K	11/22	acoustic thermometers
G01M	7/-	vibration or shock testing of structures
G01N	29/-	investigating or analysing materials
G01P	9/04	measuring speed
G01S	3/80, 5/18, 7/52, 11/14, 15/-	direction, position or velocity finding
G01V	1/-	seismology, prospecting

G1H Liquid level control and indication &c

G01F	23/-, 25/-	level indicators
G05D	9/-	level control
G08B	3/- to 7/-	level signalling

G1J Expressing measurement &c

G01D		
G01H		detecting &c vibrations
G12B		

G1K Speedometers; movement indicators

G01C	22/-, 23/-	measuring distance traversed; combined measurement of two or more movement variables
G01F	9/-	measuring fuel &c consumption
G01P		

G1L Pressure gauges; engine indicators

G01L	7/- to 27/-	
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G1M Determining dimensions and shapes

G01B		
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G1N Electrophysical and electrochemical measurement &c

Parts A and C: Note This subject matter is scattered in the IPC. Measurement in which a non-electric variable is converted to an electric variable (Part A), and measurement of the properties of materials or objects using their magnetic or electric characteristics (Part C), is distributed in the subclasses of class G01 according to the nature of the non-electric variable or property measured, and elsewhere in the IPC if the measurement is specially adapted to a particular application, G01D provides for converting-elements, processing circuitry and certain other features of general applicability. Arrangements for transmitting or signalling measurements (Part A) may be found in subclasses G08B and G08C.

Part B:	B01D	57/-	electrophoresis
	G01N	17/-, 27/-, 33/00, 33/18, 33/20, 33/48 - 33/50, 33/543	
	G01R	27/22	
Part C:	G01V	3/-	locating bodies
	H03K	17/94	proximity and touch-responsive switches

Note: In addition, subject matter relevant to this part of the heading may be found in application places, see, eg, the following :-

G06F	touch-sensitive keyboards
G08B	burglar alarms
G08G	traffic control

Part E: A61B 5/-
Part G: G01N 24/-
G01R 33/-

G1R Measuring fluid flow

G01F 1/- to 7/-
G01P 5/-, 13/-

G1S Measuring and testing physical properties

E21B 47/-, 49/- in situ measurement of borehole parameters
G01B measuring deformation
G01M
G01N

G1U Measuring or testing electric or magnetic variables

F02P 17/- ignition testing
G01R

G1W Weighing; dynamometers

G01G
G01L 1/- to 5/-

G1X Miscellaneous measurement

A43D 1/- measuring for shoes &c
B43L 13/- drawing instruments
G01B 1/- to 5/- measuring instruments
G01F 17/- to 22/- measuring volume
G01M 1/- testing balance &c
G01W meteorological instruments

Division G2: Optics; Photography

G2A Exposing radiation-sensitive material

G03B
G03G 15/04 exposure apparatus in copying machines

G2C Photographic radiation-sensitive materials and their processing

B41M 5/- heat-sensitive materials
G03C 1/-, 5/- to 8/-
G03F 7/-
G03G 5/- to 9/-, 13/-

G2E Cinematography &c

G03B 1/-, 19/-, 21/-, 25/-,
31/- to 41/-

G2F Controlling light

G02B 26/-

G02F

G11C 13/04

digital stores using optical elements

G2J Optical apparatus &c

G02B

G02C

G03H

Note: The above provides for optics per se. For certain optical apparatus, eg microscopes, telescopes and spectacles, and for holography (G03H). Other subject matter relevant to this heading may be found in places relating to particular applications of optical apparatus or techniques, see, eg, the following :-

A45C 11/04

spectacle cases

A61B 1/-, 3/-

optical aspects of endoscopes, apparatus for testing and examining the eyes

A61F 2/14

lenses for implantation into the eye

A61F 9/00

contact lens handling and fitting devices

A63B 33/00

swimming goggles

G01B 9/-, 11/-

dimension &c measurement using optical means

G01C

optical aspects of surveying and navigational instruments

G01J 3/-, 4/-

spectrometry, measuring polarisation

G01M 11/-

testing optical apparatus

G01N 21/15, 21/17

investigation or analysis of materials using optical means

G03B 9/02, 13/02, 21/-, 23/-

diaphragms, viewfinders, projectors

G2L Flashbulbs &c

F21K 5/-

G2X Miscellaneous photographic processes and apparatus

G03B 11/- to 17/-, 21/-, 27/-, 43/-

G03C 3/-, 9/-, 11/-

G03D

G03F

G03G 13/- to 17/-

developing latent images &c

G03H 1/-

holograms

Division G3: Controlling; Timing**G3B Speed governors**

F02D 1/04, 31/-

use of governors in combustion engines, eg to control fuel-injection engines

G05D 13/-

G3H Modifying fluid flow

F15B 21/12
F15C
F15D

G3N Automatic electric control systems

G05B control in general
G05D control of specific variables

Note: In addition, subject matter relevant to this heading may be found in application places, see, eg, the following for control of the apparatus indicated :-

B23Q 15/-, 35/- machine tools
B25J 9/- manipulators
B66B 1/- lifts &c
D05B 19/-, 21/- sewing machines
F02D combustion engines

G3P Fluid-pressure servomotor systems

F15B 5/-, 9/- to 13/-,
17/- to 21/-
F16K 17/-, 31/-
G05D 7/-, 16/-

G3R Electric retroactive control

G05B 11/-
G05D
H02P 5/- speed regulation of electric motors

G3T Timing; date indicating

G04
G09D 3/- perpetual calendars

G3U Automatic control of electric variables

G05F
H02J 7/- regulating battery chargers
H02M regulating output of converters, switching regulators
H02P 9/- regulating generator output
H03L 1/-, 5/- regulating oscillator output

Division G4: Calculating; Counting; Checking; Signalling; Data handling

G4A Electric digital data processing

Parts A-F: G06F
G06N

	G06J	
	G11C 7/-, 8/-, 15/-, 29/-	memory addressing and management
	H03M 13/-	error detection and correction
Part U:	G06F 17/60	business methods
	G06Q (IPC 8)	business methods
	<u>Note:</u> Business methods subject-matter will be transferred from G06F 17/60 to G06Q when IPC 8 comes into force.	

G4B Mechanical calculating apparatus

G06C
G06G 1/-, 3/-

Note: This subject matter is largely of historic interest, and most modern activity occurs in the areas denoted by G06C 1/-, 3/- and G06G 1/-,

G4C Static storage of electric information

G11C

G4D Counting apparatus

G06M
G07C 15/- random numbers generating apparatus using counters
H03K 21/- to 29/- counting electric pulses

G4F Signalling systems

B63B 45/-, 51/- & marine and aerial signalling
B64F 1/18
G08B 1/- to 9/-

G4G Electric analogue calculating; optical signal processing

G06E
G06G 7/-

G4H Electric selective signalling

Note: This subject matter is scattered in the IPC and the following places are given as more pertinent examples only :-

B41J selecting characters in printing &c
G06F 3/-
G06F 15/38 translating natural languages
G06K 1/- to 5/-, 15/-, sensing data on items to be identified or sorted;
17/-, 19/ data recording
G07F 7/- access systems
G08B 25/- to 31/- alarm systems involving signal transfer between stations
G08C signal generators and receivers
G09G 3/-, 5/- controlling displays
H03J 9/- signal generators and receivers
H03K 19/- performing Boolean operations

H03M	7/- to 11/-	code converting, keyboard encoding
H04H	9/-	audience surveying
H04L	9/32	access systems
H04Q	9/-	selection of stations for signal transfer

G4M Reading or sorting data-bearing numbers

B07C	3/10 to 3/18	sorting mail
G06F	3/06	input to computers from record readers
G06K	5/-, 7/-, 11/-, 13/-, 17/- to 21/-	

G4N Supervisory, alarm and safety systems

G08B 13/- to 25/-,
27/- to 31/-

Note: The above provides for alarm systems in general and includes burglar and fire alarms. Other systems dealt with in this heading may be found in application places, see, eg, the following :-

A61B		responding to vehicle driver condition
A62B	3/00	exit guidance systems
B60C	23/02	tyre under-or over-inflation alarms
B60K	28/-	land vehicle safety systems
B60R	21/32, 22/48	
B60R	25/10 & B62H 5/20	vehicle theft alarms
F23N	5/24	burner safety systems
G21C	17/-	nuclear power plant alarm and safety systems

G4P Fluid digital systems

F15C
G06D

G4Q Road, rail and like traffic control

B61L
G08G

G4R Recognising character forms &c

A61B	5/117	identification of persons
G06K	9/-	recognising printed or written characters &c
G06N	3/-	computer systems based on biological models; neural networks used for character recognition
G10L		speech recognition

G4T Checking cash, attendances &c

G07B
G07C
G07G

G4V Coin and token freed apparatus

G07D 5/-, 11/- testing coins; coin &c accepting devices
G07F

G4X Coins &c

A44C 3/-, 21/- medals and coins per se
G07D

Division G5: Advertising, Education; Music; Recording

G5C Signs, indicators, displays and advertising &c

G09D
G09F
G09G 3/- control of displays

G5G Educational appliances &c

G09B 1/- to 7/-, 11/-,
17/- to 29/-

G5J Sound-producing instruments &c

G10B
G10C
G10D
G10F
G10G
G10H
G10K 1/- to 9/-

G5R Recording and playback

G11B

G5X Ciphering, flags, music &c

E04B 1/99 modifying room acoustics
G09B 15/- teaching music
G09C ciphering
G09F 17/- flags and banners
G10G representing and recording music; music accessories
G10K 11/- modifying acoustics

Division G6: Nucleonics

G6C Nuclear fission reactors &c

G21C
G21D

G6P Nucleonics

B01D 59/- separation of isotopes
G01T 3/-, 5/- measuring neutron radiation, recording particle tracks

G21B

G21G

G21H

G21J

G21K

H05H 3/-, 6/-

production of particle beams, targets

G6R Radioactive materials and processing

G21F

G21G

SECTION H: ELECTRICITY

Division H1: Electric circuit elements; Magnets

H1A Electric cables and conductors

H01B 5/- to 13/-

H1B Electric cells of the electrochemical type

H01M

H1C Stimulated-emission devices

H01S

H1D Electric discharge tubes &c

H01J

H05H

H1E Piezo-electric elements &c

B06B 1/06, 1/08

sonic frequency vibration generators using piezo-electric &c effect

H01L 41/-

piezo-electric elements per se

H02N 2/-

piezo-electric motors and generators

H03H 9/15, 9/22

piezo-electric resonator constructions

H1F Electric incandescent lamps

H01K

H1J Turret machines for lamps &c

H01J 9/46

machines for discharge tubes and lamps

H01K 3/28

machines for incandescent lamps

H1K Electric solid-state devices &c

B64G 1/44

support and deployment of solar panels in cosmonautic vehicles

B81B, B81C & B82B		micro-structural technology; nanotechnology
G09F	13/-	displays using electroluminescent devices
G11C	11/-	semiconductor integrated circuit stores
H01C	7/-	thermistors, varistors
H01L		
H01S	5/-	semiconductor lasers
H05B	33/-	electroluminescent devices

H1M Capacitors and electrets &c

H01G

H1N Electric switches &c

H01H

H02B

H1P Electromagnets, permanent magnets &c

B23B 31/28,
B23Q 3/15 &
B25B 11/-

magnetic chucks and work holders

B66C 1/04

lifting magnets

H01F 3/- to 7/-, 13/-, 41/-

magnets per se

H02N 13/-

electrostatic holding devices

H1Q Aerials &c

H01P 5/-

coupling devices for antennae

H01Q

H1R Printed circuits; electrical component assemblies

H05K

H1S Ohmic resistors &c

H01C

H1T Electric transformers &c

H01F 15/- to 41/-

H1W Electromagnetic waveguides &c

H01P

H1X Miscellaneous discharge apparatus

H01T

H05B 31/-

electric arc lamps

H05F

Division H2: Electric Power

H2A Dynamo-electric machines &c

F02P	1/02	magnetos
H01R	39/-	commutation brush gear
H02K		
H02N		

H2C Electric and optic cable installations &c

F16L	3/- to 7/-	cable supports
H01B	15/- to 19/-	
H02G	1/- to 9/-	

H2E Electric couplings &c

E05D	11/00	
G01R	1/06	temporary contact devices, eg for use in testing
H01B	17/-	insulating electric connectors or connections
H01R		
H02G	3/08 to 3/22, 15/-	junction &c boxes; lead-throughs; cable fittings
H04Q	1/24	
H05K	7/10	printed-circuit board connectors and the like

H2F Electric converting systems

H02M		
H03K	17/-	arrangements for operating thyristors or like devices

H2G Electric cut-outs

H01H	69/02, 85/-	
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H2H Electricity supply systems &c

H02H	7/-, 9/-	protective arrangements
H02J		supply arrangements for general or unspecified use; battery charging arrangements

Note: Operating circuit arrangements for particular electrical loads, which are also subject matter for this heading, are distributed in the IPC according to the load involved. For example, see the following for operating circuits for the loads indicated :-

B03C	3/-	electrostatic precipitators
B23K	9/- to 15/-	electric welding apparatus
B60Q	1/-, 3/- &	vehicle lighting and signalling apparatus
B62J	6/-	
F02N	11/08	engine starting systems
H05B	1/- to 11/-, 33/-, 43/-	electric heating and lighting apparatus
H05G	1/-	X-ray apparatus

H2J Electric motor operating arrangements

B60L	15/-, (3/-?)	arrangements for operating traction motors of electrically-propelled vehicles
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H02P 1/-, 3/-, 6/- to 8/-, 19/-

H2K Electric protective systems

G01R 31/- fault detecting and indicating
H02H

Division H3: Electronic circuits; Radio receivers

H3A Automatic control of frequency and phase

H03J 7/-
H03L 7/-
H04L 7/- synchronization of digital signals

H3B Static, magnetic and dielectric storage systems and devices

G11C

H3F Oscillators

H03B
H03L 3/- starting oscillators

H3G Control of amplification

H03G

H3H Electric analogue-digital conversion

G01R 23/-, 25/- frequency and phase to digital conversion
G04F 10/- time-interval to digital conversion
H03M 1/-, 3/-

H3P Pulse, logic and switching circuits

G11C 27/02 sample-and-hold circuits
H03K 3/- to 6/-, 12/- to 19/-
H03L 3/- starting pulse generators

H3Q Radio receivers &c

H03J tuning
H04B 1/-, 15/- receivers; interference suppression
H04N television receiver circuitry
H05K constructional details; eg casings

H3R Modulating; demodulating; frequency changing

H03C
H03D
H03K 7/-, 9/-

H3U Impedance networks &c

G10K 15/- handling acoustic signals
H03H

H3W Linear amplifiers; limiters

Part A: G05F 1/56 current-mirror type sources
H03F

Part B: H03G 11/-

H3X Miscellaneous circuits &c

H01L 39/- superconductor devices
H03B 11/- to 29/- producing oscillations
H03F 7/-, 9/- parametric and magnetic amplifiers
H03K 3/-, 5/- pulse producing and handling

Division H4: Telecommunications

H4B Optical communication

H04B 10/- transmission systems
H04J 14/- optical multiplexing
H04Q 3/52 selectors

H4D Wave-energy position finding &c

GO1C 21/- to 25/- navigation systems &c
G01S
G02B 7/28 & optical focussing
G03B 13/-
G06T 7/- image analysis or processing

H4F Pictorial communication

H04N

H4J Audio transducers, local circuits &c

B06B generating vibrations
G10K 7/-
H04M 1/- telephone handsets
H04R

H4K Telecommunication exchanges &c

H04L 12/- data switching networks
H04M
H04Q

H4L Electromagnetic and inductive field communication

G01S 13/74 to 13/84 transponders

G01V	15/00	tags attached to an object to enable detection thereof
G08C	17/-	transmitting measurements; telemetry
H04B	1/-, 5/-, 7/-, 13/-	
H04H	3/00	common wave (simulcast) broadcasting
H04K		secret communication
H04L	12/28, 12/56	radio LANs; radio packet-switching
H04M	1/72	cordless telephones
H04Q	7/-	

H4M Electric multiplexing techniques; distributors

H04J

H4P Electric digital data transfer; telegraphy

H03M	5/-, 7/-, 13/-	coding
H04K		secret communication
H04L		

H4R Line transmission systems; signal processing

G10L		vocoders
H04B	3/-	line transmission systems
H04H		cable distribution systems
H04K		secret communication
H04R & H04S		stereo

H4T Cathode-ray tube circuits &c; image signal synthesis &c

A63F	9/-	video games
G01R	13/20	oscilloscopes
G06F	3/-	cathode-ray tube input from, or output to, computers
G06K	9/-	character synthesis
G09G		control of cathode-ray tubes
H04N	3/-, 5/-, 9/-, 13/- to 17/-	cathode-ray tube aspects of television

H4X Sound magnifiers &c

B06B		
G10K	11/-	

Division H5: Miscellaneous electric techniques

H5H Electric heating; microwave heating &c

F24C	7/02	microwave ovens
H05B	1/- to 11/-	

H5R Radiology; radiography; irradiation

A61B	6/-	radiation diagnosis
A61N	5/-	radiation therapy
C02F	1/30	irradiation treatment of water &c
G01N	23/-	X-ray testing of materials
G01T	1/-	measuring radiation
G03B	42/02	X-ray photography
G21K		
H04N	5/32	electronic X-ray imaging
H05G		

PART 2: Guide to the relationships between IPC Subclasses and UK Key headings in the IPC

Introduction to Part 2

1. This part of the Concordance is derived from Part 1 with a small number of additions to cover parts of the IPC missing from Part 1 which concentrates on the main IPC places of relevance to headings..
2. Where more than one heading is relevant to an IPC subclass, the individual headings involved are, as far as possible, listed in order of the IPC groups to which they relate, together with an indication i brackets of the pertinent groups. In addition, where appropriate, double spacing is used to separate more important entries for a particular subclass from those of lesser significance.

A01B

A1B
 B4K [1/22]
 A1P [59/- to 63/-]
 A1F [73/-]

A01C

A1D
 A1E [1/-]

A01D

A1F
 B4K [1/14]
 A1B [7/- to 11/-]
 D1C [59/04]
 B8E [87/- to 90/-]
 B5F [89/-, 90/-]

A01F

A1F
 A4C [3/-, 29/-]
 B5F [13/- to 21/-]

A01G

A1E
 A1F [1/12, 3/02]
 F2U [1/12]
 A4X [5/-]
 E1X [9/12, 17/06]
 E1J [9/22]
 A1X [15/-, 33/-]
 A1B [25/06]
 A1D [25/-]

A01H

C6F
 A1E [1/-, 3/-]

A01J

A1M [1/- to 9/-]
 A2B [11/- to 27/-]
 B5A [17/- to 25/-]

A01K

A1M [1/- to 59/-]
 A1A [61/- to 97/-]
 A1X [11/-, 35/-]
 B1D [63/04]

A01L

A1M
 F2H [7/10]

A01M

A1M

A01N

A2D [1/-, 3/-]
 A5X [1/-]
 A5E [25/- to 65/-]
 C1B [25/- to 65/-]

A01P (*IPC8*)

A5E
 C1B

A21B

A2A
 A4A [3/13, 3/15]
 A4D [5/-]

A21C

A2A
 B5A
 B1C [1/-, 7/-]
 A4D [13/-]

A21D

A2Q [2/-, 6/-]
 A2D [4/-, 15/-]
 A2A [8/- to 17/-]

A22B

A1M
 A2U [5/08, 5/16]

A22C

A2B [5/- to 13/-]
 A2U [17/- to 29/-]
 B5A [7/-]

A23B

A2D

A23C

A2B
 C5C
 A2D [3/-, 13/08,
 15/18, 19/097]

A23D

C5C
 A2D [7/06, 9/06]

A23F

A2B
 A2Q [5/04]

A23G

A2B
B5A [1/- to 3/-]
A2A [3/20]

A23J
A2B
C3H

A23K
A2B [1/-]
A2D [3/-]

A23L
A2B [1/-, 2/-]
A2D [3/-]
A2Q [1/-]
B5A [1/317]

A23N
A4C
A2Q [5/-, 12/-]

A23P
A2B
B5A

A24B
A2C

A24C
A2C
B8S [5/35, 5/39]

A24D
A2C

A24F
A2M
C1D [27/-, 29/-]

A41B
A3V

A41C
A3V

A41D
A3V

A41F
A3V

A41G
A3V

A4X [1/-]
B6G [1/04]
A4V [3/-, 5/-]
D1X [9/-, 11/-]

A41H
A3V
B4C [37/-]

A42B
A3V

A42C
A3V

A43B
A3B
B5A [9/18]
F2H [23/20]

A43C
A3B
F2H [5/-]

A43D
A3B
G1X [1/-]
B5A [35/-, 86/-]

A44B
A3H [1/- to 9/-]
E2A [11/-, 13/-,
17/-, 21/-]
A4G [15/-]
E2S [18/- to 21/-]

A44C
A3H
G4X [3/-, 21/-]
E2A [5/18]

A45B
A4P
A4L [5/-, 9/04]

A45C
A4G
A4X [13/30]
G2J [11/04]

A45D
A4V

A45F

A4G
A4L [3/22 to 3/44, 4/06, 4/08]

A46B
A4K
A4F [17/06]

A46D
A4K

A47B
A4L
A4B [43/- to 97/-]

A47C
A4L [1/- to 20/-,
29/-, 31/-]
A4S [21/-, 29/-]
A4M [23/- to 27/-, 31/-]
E1S [12/-]

A47D
A4L
A5X [13/02]
A4S [13/06, 15/02]

A47F
A4B
A4L
B8S [1/02, 1/04]
B8U [1/- to 7/-]
F4H [3/04]
E1R [11/08]
F4R [11/10]

A47G
A4X [1/-, 7/-, 33/-]
F2H [3/-]
A4S [5/-, 9/-, 11/-, 27/-]
A4M [9/-]
A4A [19/- to 23/-]
A4L [25/- to 35/-]
A4G [9/08]
A4E [19/16]
E2X [29/12, 29/16]
B6G [33/08]
F4R [33/16]

A47H
A4B [1/- to 15/-]
A4S [19/- to 23/-]
A4X [27/-]
E1D [33/-]
E2X [33/-]

A47J
A4C [9/- to 25/-, 43/-,
44/-, 47/-]
A4D [27/-, 29/-, 33/-,
37/-, 39/-, 43/-]
A4A [27/-, 36/- to 39/-,
43/-, 45/-, 47/-]
A4E [31/-]
F4U [39/-, 41/-]
B2A [42/-, 43/-]
B1C [43/-]
F4X [27/21, 31/54]
B1D [31/06, 37/12]
F4W [39/-]
B4K [45/06]
B8U [47/01]

A47K
A4N [1/- to 4/-, 11/-, 17/-]
A4V [1/-, 5/-, 7/-,
10/02, 10/48]
E1C [4/-, 11/- to 17/-]
B8M [10/24]
B8U [10/24]

A47L
A4F
B1T [9/10 to 9/20]

A61B
A5R [1/-, 5/04,
7/- to 19/-]
G2J [1/-, 3/-]
A5K [5/-]
G1A [5/-]
G1N [5/-]
H5R [6/-]
G1G [8/-]
B6C [5/117]
G4R [5/117]
F2H [17/064, 17/58]
B4C [17/068, 17/115]
B4W [17/076, 17/28]
B5L [17/14]
H1C [17/22, 17/36]

A61C
A5R
B5L [3/12]
A4K [17/16]

A61D
A5R
A1M [3/-]

A61F

A5R
G2J [2/14, 9/00]
F2V [2/24]
A5X [7/08, 11/08]
A3V [9/- to 13/-]
B5L [15/02]
B1D [2/00, 2/01]
D1R [13/15]

A61G

A5X [1/-]
B7B [3/-, 5/-, 21/-]
A4L [7/-, 13/-, 15/-]
A4N [9/-]
A5R [10/- to 15/-]
B8D [17/-]
B8K [17/-]
B8P [17/-]
B8B [19/-]
B7H [5/04]
B7D [5/06]
A4M [7/057]

A61H

A5R
A5T [31/-]
A4N [33/-, 35/-]
A4V [33/12]

A61J

A5R [1/-, 7/-, 13/-, 15/-]
A5B [3/-]
A5X [9/-, 17/-]
B8T [11/-]
A4N [19/-]
B8C [1/-]
B8K [1/10]

A61K

A5B
C3V [6/08, 6/10, 47/30]
C5D [7/075, 7/08]
D1P [7/09, 7/11, 7/135]
D1B [7/13]
A2D [35/12]

A61L

A5E [2/- to 11/-]
A5G [2/- to 11/-]
A5R [15/- to 33/-]
A5B [15/44]
D1R [15/-]

A61M

A5R [1/- to 9/-, 19/-,
23/- to 39/-]
A5T [11/- to 16/-]
A5K [21/-]
F1C [1/-]
F1U [1/-]
F1W [1/10]
B1D [1/34, 5/165]
F1R [3/-, 5/-]

A61N

A5R
H5R [5/-]
H4J [7/-]

A61P

A5B
C2C

A61Q (*IPC8*)

A5B

A62B

A5A [1/- to 5/-]
A5T [7/-, 9/-, 15/-, 17/- to
21/-, 25/-, 27/-, 37/-]
F4V [11/-, 13/-, 31/-]
A3V [17/-, 35/-, 37/-]
B1T [19/-, 23/-]
B7J [1/20]
G4N [3/00]

A62C

A5A

A62D

A5A
C1P [3/-]

A63B

A6M [1/- to 29/-]
A6D [31/- to 71/-]
B7A [31/-]
B7B [55/08]
A6S [65/-]
G2J [33/00]

A63C

A6D

A63D

A6D [1/- to 9/-]
A6H [13/-, 15/-]

A63FA6H
H4T [9/-]**A63G**

A6M

A63HA6S
B6G [37/-]**A63J**

A6M

A63K

A6D

B01B

B1B

B01DB1B [1/- to 5/-]
B1G [7/- to 9/-]
B1Q [11/-]
B1H [15/08]
B1J [15/-]
B1D [17/-, 21/- to 43/-]
B1M [19/-]
B1T [45/-, 46/-,
49/- to 51/-]
B1L [53/-]
B1W [53/-]
G6P [59/-]
B1X [61/- to 71/-]
C1A
B1F [11/04, 17/-, 53/36]
B1R [47/-, 51/-]
G1N [57/-]
C7B [57/-, 59/38, 61/42]**B01F**B1Q [1/-]
B1C [3/- to 15/-]
B1V [3/-, 17/-]**B01J**B5A [2/-]
B1F [2/16, 8/- to 19/-]
B1X [3/-, 7/-, 19/-]
B1V [13/-]
B1D [20/-]
B1E [21/- to 38/-]
B1J [39/- to 49/-]
C1AB8C [13/02]
B1R [19/30, 19/32]
C2L [19/00]**B01L**B1X
F1X [1/-]**B02B**

A2Q

B02CB2A
F2U [4/30]**B03B**

B2H

B03CB2J
H2H [3/-]**B03D**

B2H

B04BB2P
B1D [3/-]**B04C**B2P
B1F**B05B**B2F
B2L
F1X [17/08]**B05C**B2L
D1L
A4K [1/-]
F1R [17/005]
F2U [17/02]**B05D**B2E
B2F
D1L**B06B**F2S
H4J
H4X

H1E [1/06, 1/08]

B07B
 B2H
 F2S [1/28, 1/46]

B07C
 B8A
 G1A [5/-]
 G4M [3/10 to 3/18]

B08B
 A4F
 F2N
 F4X [15/-]

B09B
 C1K
 C1P

B09C
 C1P

B21B
 B3M
 F2U [27/-]

B21C
 B3P [1/- to 35/-]
 B3A [37/-]
 B3E [47/-]

B21D
 B3E [1/- to 15/-]
 B3Q [15/- to 26/-, 31/- to 45/-]
 B3W [28/-, 43/-, 45/-]
 B3A [47/- to 53/-]
 B3J [22/14, 39/-]

B21F
 B3E [1/- to 23/-]
 B3A [25/- to 45/-]
 F2G [9/-, 15/-]
 D1K [27/-, 31/-, 33/-]

B21G
 B3A

B21H
 B3M

B21J
 B3H
 B3U [15/-]

B21K
 B3H

B21L
 B3A

B22C
 B3G
 C3N [1/-, 9/-]
 B3F [9/-]

B22D
 B3F

B22F
 C7D
 B5A [3/00, 3/02, 3/17- to 3/22,
 3/24, 5/-]
 C7X [9/-]
 B3V [8/-]

B23B
 B3T [1/- to 11/-, 17/- to 23/-, 29/-]
 B3B [13/-, 15/-, 25/-, 27/-,
 31/-, 33/-]
 B3C [35/- to 51/-]
 B5E [27/20]
 H1P [31/28]

B23C
 B3K

B23D
 B3L [1/- to 13/-, 37/- to 43/-,
 67/- to 73/-]
 B3W [15/- to 36/-]
 B5L [45/- to 63/-]
 B3C [75/-, 77/-]

B23F
 B3D
 B3K
 B3L
 B3X [19/-]

B23G
 B3N
 B3T

B23H
 B3V

B23K
 B3R

B3V [7/- to 15/-, 23/-
26/-, 28/- to 37/-]
H2H [9/- to 15/-]
C7M [35/36 to 35/40]

B23P

B3V [6/-, 9/-, 11/-]
B3U [11/-]
B3A [13/- to 23/-]
B3N [19/06]
B4C [19/-]
F2S [19/-]

B23Q

B3B
H1P [3/15]
G3N [15/-, 35/-]

B24B

B3D
B3X [39/-]

B24C

B3D

B24D

B3D
C4V [3/-]

B25B

B3B [1/-, 11/-]
B4W [3/- to 11/-, 27/-, 33/-]
B3N [13/- to 23/-, 28/-]
F2G [25/-]
B4C [27/-, 31/-, 33/-]
F2H [29/-]
B3D [11/-]
H1P [11/-]
B4K [23/16]

B25C

B4C
F3A [1/16]
B4W [11/-]

B25D

B4C [1/-, 9/- to 17/-]
B4B [3/-, 7/-]
B4X [5/-]
B4K [17/04]

B25F

B3C
B3N

B25G

B4K

B25H

B4X

B25J

B8H
B4W [1/-]
G3N [9/-]
B4Q [21/02]

B26B

B4B

B26D

A4C
B4B

B26F

B4B

B27B

B5L

B27C

B5L [1/-, 5/-, 9/-]
B3C [3/-]
B3T [7/-]

B27D

B5L

B27F

B5L [1/-, 5/-]
B4C [7/-]

B27G

B5L [1/- to 13/-, 19/-, 21/-, 23/-]
B3C [15/-]
B4B [17/-]

B27H

B5L [1/-, 7/-]
B8D [3/-, 5/-]
B7C [7/-]

B27J

B5L

B27K

D1P [3/-, 5/-]
D1B [5/- to 9/-]

B27L

B5L

B27M

B5L

B27N

B5A [1/- to 5/-]
C3N [3/-, 7/-, 9/-]

B28B

B5A

B28C

C1A [1/-]
B1C [3/- to 9/-]

B28D

B5E
B5L [1/02]

B29B

B5A
B1C [7/-]
C3L [17/-]

B29C

B5A
C3L [7/-]
B8S [31/02]
F2U [43/46]
B1D [47/68]
B6J [59/-]
B5K [65/-]
D1R [70/06 to 70/24]
B7C [73/-]

B29D

B5A
B5B [7/-]
B7C [30/-]
A3B [31/50]

B30B

B5F
B1D [9/02]
B3V [9/32]
B5A [11/-]

B31B

B5D

B31C

B5D

F2P

B31D

B5D
B8F [1/02]

B31F

B5K
D1S [1/-]

B32B

B2E
B5N

B41B

B6W

B41C

B6C

B41D

B6C

B41F

B6C
B8R [1/28, 13/-, 21/-, 33/-]

B41G

B6C

B41J

B6F
G4H
B8R [11/- to 17/-]

B41K

B6C
B8R [3/44]

B41L

B6C
B6A [1/-]
B8R [1/- to 7/-,
21/-, 43/-]

B41M

B6C
D2B [5/-]
G2C [5/-]

B41N

B6C
F2U [7/-]

B42B

B6A
B8R [9/-]

B42C

B6A
B8R [1/-]

B42D

B6A
B8R [9/04]

B42F

B6E
F2H [3/02]

B43K

B6P

B43L

B6P
G1X [13/-]

B43M

B6P [1/-, 7/-, 9/-,
11/-, 17/-]
B8C [3/- to 7/-]
B8R [13/-]
F2H [15/-]

B44B

B6G
B6J
B3Q
A1X [7/-]

B44C

B6G
B6X
B6C [1/16]
B6J [1/22]
E1R [5/08]

B44D

B6G
B6X
B6P [3/-]

B44F

B6G
B6X
E1R [1/06]

B60B

B7C
A4L [33/-]
B7D [35/-, 37/-]

B60C

B7C
C3V [1/-]
G4N [23/02]
F2V [29/-]

B60D

B7T
A1P
B7B [5/-]

B60F

B7A
B7D [1/-]
B7H [5/-]
B7W [5/02]

B60G

B7D
E2F [9/-]
F2S [17/-]

B60H

F4U
F4V

B1T [3/06]

B60J

B7J [1/-, 3/-, 11/-]
B7B [5/- to 9/-]

E1J [1/-, 3/-, 10/-]
E1R [1/-, 10/02]
E2F [7/-]
E2M [1/12 to 1/17, 7/-]

B60K

B7H
F2D [41/-]
F2L [41/24]
G4N [28/-]

B60L

H2H [1/-]
H2J [3/-, 15/-]
B7L [5/-, 9/-, 13/-]
F2E [7/-]
B7H [8/-, 11/-]

B60M

B7L

B60N

B7B
B7J
A4L [2/-]
E2F [2/-]

B60P

B7B
B8E
B8Q [1,-, 7/-]
B8S [1/56, 1/58]
F2G [7/06]

B60Q

F4R
H2H [1/-, 3/-]

B60R

B7J
B7B [3/- to 7/-, 11/- to
21/-, 27/-]
A3V [22/-]
E1S [3/-]
B6G [13/02, 13/04]
E1C [15/-]
G4N [21/-, 22/-, 25/-]
E2M [25/10]

B60S

B7J
A4F [1/-]
E1R [1/46, 1/56]

E2F [1/32 to 1/44]

B60T

F2E [1/- to 7/-, 11/04, 13/02]
F2F [7/- to 17/-]
F2Y [7/02]

B60V

B7K

B61B

B7L
F2X [12/-]

B61C

B7H
B7L [11/-, 13/-]

B61D

B7L
B8E [7/-, 9/-, 47/-]
B8S [7/-]
E1J [19/-, 25/-]
E1S [23/-]
E1R [25/-]
F4U [27/-]
F4V [27/-]
F4R [29/-]
E1C [35/-]
B8Q [45/-, 47/-]

B61F

B7L

B61G

B7T

B61H

F2E
B7L [7/-, 9/-]

B61J

B7L

B61K

B8E [1/-]
E1G [3/-, 9/-]
B7L [5/-, 7/-, 13/-]
B7H [11/-]

F2E [7/02]
B7T [7/18]

B61L

G4Q

B62B

B7B
 B8H [3/04]
 B7D [5/02, 9/02]
 A4L [5/08, 9/28]

B62C

B7B
 B7T [5/-]

B62D

B7H [1/- to 15/-,
 47/- to 65/-]
 B7B [1/18, 23/- to 41/-, 65/-]
 B7D [17/- to 21/-]
 B7H [67/-]
 B7J [25/26, 43/-]
 F2Y [1/-]
 F2D [11/10]
 F2B [25/-]
 B8B [49/08]
 B7T [53/08]

B62H

B7J
 G4N [5/20]

B62J

B7J
 B7E [1/-, 25/-]
 F4R [6/-]
 H2H [6/-]

B62K

B7E
 F2Y [23/-]

B62L

F2E [1/-, 3/-]
 F2Y [3/-]
 F2L [5/-]

B62M

B7E
 B7H [7/-, 27/-]
 F2D [9/- to 23/-]
 F2Q [9/02, 11/02, 13/-, 21/-, 23/-]

B63B

B7A
 B7V [21/-, 39/-, 43/-]
 F2R [1/34]

E1J [17/02, 19/-]
 E1R [19/-]
 B8E [25/-, 27/-]
 B8Q [25/-, 27/-]
 B7J [27/14]
 E1S [27/14, 29/10, 29/20]
 B8S [27/28]
 E1C [29/14]
 F4R [45/-]
 G4F [45/-, 51/-]
 A4F [57/-, 59/06]

B63C

B7A
 A3V [9/08]
 E1H [11/-]
 F2B [11/-]
 A5T [11/12]

B63G

B7A
 B7V [8/-]

B63H

B7V
 F1V [1/02, 3/-]
 F4J [21/32]
 F2Y [25/02]

B63J

F4V [2/-]
 F4U [2/12]
 B7A [3/-]
 B7V [3/-]

B64B

B7W

B64C

B7W [1/- to 7/-, 23/-,
 27/- to 39/-]
 B7G [3/-, 5/-, 9/-,
 13/- to 19/-, 25/-]
 E1R [1/14, 15/04]
 B8E [1/20, 1/22]
 B8Q [1/20, 1/22]
 E1S [1/24]
 F1V [11/-]
 F2R [21/-, 23/-]

B64D

F3C [1/-]
 B7W [1/- to 15/-, 29/-, 37/-,
 43/- to 47/-]

B7G [17/- to 41/-]
B8E [9/-]
E1S [9/-]
E1C [11/02]
F4V [13/06]
B8Q [19/-]
B7J [25/14]
F4R [47/02]

B64F

B7G [1/-, 3/-]
B7W [3/-, 5/-]
F4R [1/18]
G4F [1/18]
B7J [1/30]
B8E [1/30, 1/32]
E1S [1/315]
B8Q [1/32]

B64G

B7W
H1K [1/44]

B65B

B8C
B8T [3/-, 31/-,
37/-, 39/-]
F2G [13/-, 27/-]
B8U [19/04]

B65C

B8F
B6C
B4C [7/-]
B8R [9/08]

B65D

B8D [1/-, 3/-, 6/- to
17/-, 21/- to 25/-,
35/-, 37/-]
B8P [1/-, 5/- to 13/-,
19/-, 21/-, 25/-,
81/- to 91/-]
B8H [19/-]
B8K [27/- to 33/-,
77/- to 90/-]
B6A [27/-]
B8T [39/- to 55/-]
B8C [57/- to 85/-]
E1T [1/-, 6/-, 8/-, 13/-,
43/-, 85/-, 88/-, 90/-]
B2E [5/56, 5/62, 25/14]
B4K [25/28]
B8S [33/36, 83/06, 83/26,

88/54, 90/54]

F1W [47/34]
F4U [81/38]
B8U [83/-]
F1R [83/14, 83/76]
A5A [90/-]
B8Q [90/-]
E2X [91/-]

B65F

A4A [1/-, 5/-, 7/-]
B8E [3/-, 9/-]

B65G

B8A
B8W [1/-]
B8S [3/04, 11/-, 47/18,
47/44, 65/30, 69/-]
F4P [5/-]
F2S [27/-]
B8U [47/-, 59/-, 60/-]
B8H [47/90]
B8R [49/06]
F1R [53/30]
B1T [53/60]
B8C [57/- to 60/-]
B8Q [63/-, 67-]
B8E [65/- to 69/-]

B65H

B8R [1/- to 47/-,
83/-, 85/-]
D1D [49/- to 73/-,
77/-, 79/-]
B8M [75/00 to
75/34, 75/50]
D1J [49/-, 54/-, 55/-,
57/28, 65/-, 67/-, 79/-]
D1F [54/-, 67/06, 71/-, 73/-,
75/16]
D1W [69/-]
D1C [69/04]
B8G [81/-]

B66B

B8L [1/- to 19/-]
B8A [21/- to 31/-]
G3N [1/-]
B8B [17/12]

B66C

B8H
H1P [1/04]
B8B [13/12, 23/72]

B66DB8B
A5A**B66F**B8J [1/- to 5/-,
13/- to 19/-]
B8H [7/- to 11/-]
B8L 7/-, 9/-]
F1D [1/08, 3/24, 5/04]**B67B**B8T
B8D [7/44, 7/46]**B67C**

B8T

B67DB8N
B8T
F1W [1/-, 5/-]
F1R [1/04]
F2V [1/14]
B8E [5/-]
F4H [5/62]**B68B**

A1M

B68C

A1M

B68FA1M
A3V [1/-]**B68G**

A4M

B81B, B81C, B82B

There is no specific provision in UK Key for micro-structural technology or for nano-technology, which are covered by the places for the type of device disclosed. Many of the disclosures are in the following headings:

C7F
F2V
G2F
G2J
H1K

H1R

C01BC1A
C5E [3/-]**C01C**

C1A

C01D

C1A

C01F

C1A

C01G

C1A

C02FC1C
H5R [1/30]
C7B [1/46]**C03B**

C1M

C03CC1M
B6J [15/-, 25/06]
C7F [17/-, 25/-]
B5N [27/12]**C04B**C1H [2/- to 32/-,
38/- to 41/-]
C1J [33/- to 38/-, 41/-]
C1A
C3N [9/-, 12/04, 14/38, 16/-,
18/-, 26/22 to 26/28,
28/24, 28/30]
B3V [37/-]
D1P [41/-]
B6J [41/72, 41/91]
C3V [24/24, 26/-, 41/48,
41/63, 41/83]
B2E [41/45, 41/61, 41/81]**C05B**C1B
C1A**C05C**C1B
C1A

C05DC1B
C1A**C05F**

C1B

C05G

C1B

C06B

C1D

C06CC1D
F3A**C06D**C1D
F3A [5/-]**C06F**C1D
F3A**C07B**C2C
C2L [61/00]**C07C**C5E [1/- to 15/-]
C2C [17/- to 409/-]**C07D**

C2C

C07FC2J [1/-, 3/-, 5/00, 5/06,
7/22 to 7/30, 9/00,
9/66 to 19/-]
C2B [5/02 to 5/05]
C2R [7/02 to 7/21]
C2P [9/02 to 9/6595]**C07G**C2C [1/- to 9/-, 15/-, 17/-]
C2A [11/-]
C2V [13/-]**C07H**C2C [1/-, 5/- to 19/-]
C2S [3/-]
C3H [21/-]
C2B [23/-]C2J [23/-]
C2R [23/-]
C2V [23/-]
C2P [1/02, 11/04, 13/-]**C07J**

C2U

C07KC3H
C7B [1/24]**C08B**C3A [1/- to 17/-]
C3U [30/- to 37/-]**C08C**C3L [1/- to 4/-]
C3J [19/-]**C08F**C3P [2/-, 4/-, 10/- to 299/-]
B1E [4/-]
C3L [6/-]
C3J [8/-]**C08G**C3P [2/-, 4/-]
C3R [6/- to 18/-, 61/-
to 75/-, 79/- to 85/-]
C3B [59/-]
C3T [77/-]
B1E**C08H**C5C
C3H [1/-]**C08J**C3B
C3L
C3T
C3U
C3J [3/24, 7/12, 11/-]
C3M [5/-]
C3V [5/-]
C3K [5/10]
C4V [5/14]
B2E [7/04]
C3C [9/-]**C08K**C3K
C3T

C3U
C5W
C3N [7/02]
C3C [7/22]

C08L

C3M
C3T
C3U
C3V
C5W [1/- to 5/-,
89/- to 101/-]
C3B [63/-]
C3H [89/-]
C3N [91/- to 99/-]

C09B

C4P

C09C

C4A
C1A [1/-]
C4V [1/68]

C09D

C4A
C3V
C3N [5/34]
C5D [9/-]

C09F

C4D

C09G

C5W
C4V [1/02]

C09H

C3H

C09J

C4X [1/- to 105/-,
189/- to 201/-]
C3V [101/- to 187/-,
201/-]
B2E [7/-]

C09K

C3V [3/-]
C4X [3/- to 8/-, 19-]
E1F [8/-, 17/-]
C4S [9/-, 11/-]
B6J [13/-]
A2D [15/-]

C3K [15/-, 21/-]
C5C [15/-]
C5F [15/-]
C1B [17/-]
D1P [21/-]
C3N [3/10, 3/12]
C4V [3/14]
C5D [3/18, 15/-]
C3P [19/38]
C3R [19/38]

C10B

F4B [1/- to 45/-]
C5E [25/-, 27/-,
39/-, 47/- to 57/-]

C10C

C5E
B5A [3/-]

C10F

C5G
B5A [7/-]

C10G

C5E
C5F [50/02]
C5W [73/-]

C10H

B1X

C10J

C5E

C10K

C5E

C10L

C5G
C5E [1/-, 3/-]

C10M

C5F

C11B

C5C

C11C

C5C
C2C
C5W [5/-]

C11D

C5D
B5A [13/-]

C12C
C6E

C12F
C6E

C12G
C6E

C12H
C6E

C12J
A2B

C12L
B8D
B8T

C12M
C6F

C12N
C6F [1/- to 7/-,
11/-, 13/-]
C3H [9/- to 15/-]

C12P
C6F [1/-]
C1A [3/-]
C5E [5/-]
C6E [7/06]
C5C [7/64]
C2S [19/00 to 19/24]
C3H [21/-]
C2U [33/-]
C2C
C2V

C12Q
G1B
G1N [1/-]
C2L [1/68]

C12S
C5E [1/-]
C6C [7/-]
C5D [9/-, 11/-]
C6F [3/-, 5/-]

C13C

C6B

C13D
C6B

C13F
C6B

C13G
B1B

C13H
A1F

C13J
C6B

C13K
C2S

C14B
C6C

C14C
C6C

C21B
C7D

C21C
C7D

C21D
C7N
C7A [3/-, 5/-, 9/-, 11/-]
C7D [3/-]

C22B
C7D
C1A
B1D [9/02]

C22C
C7D [1/-, 3/-,
29/-, 33/-]
C7A [5/- to 32/-,
35/- to 49/-]

C22F
C7A
C7N

C23C
C7F [2/- to 6/-,

10/- to 20/-, 24/- to 30/-]
C7U [8/- to 22/-]
C7B [28/-]
C23D
C1M
C23F
B6J [1/-]
C7E [3/-, 4/-, 14/- to 17/-]
C1C [11/-]
C7B [13/-, 17/-]
C23G
C7E
C25B
C7B
C25C
C7B
C25D
C7B
C25F
C7B
C30B
B1S
C1A
C7F [23/- to 25/-]
C40B (IPC8)
C2L
D01B
D1N
D01C
D1F
D01D
B5B
D01F
B5B
C3V
C1A [9/08]
D01G
D1N
D1F [1/- to 5/-,
13/-, 33/-]

B8S [23/02]
D01H
D1D
D1F [11/-, 13/-, 17/-]
D02G
D1F
D1W [3/-]
D02H
D1M
D02J
D1F
D1T
B5B
D03C
D1E
D03D
D1K [1/- to 27/-]
D1E [29/- to 51/-]
D1W [41/-]
D03J
D1E
D04B
D1C
D1K
D1W [19/-]
D04C
D1C
D1K [1/-, 5/-]
D04D
B6G
D1T [1/-]
D04G
D1C
D04H
D1R
D1K [11/-]
D05B
D1G
G3N [19/-, 21/-]
D05C

D1G
D1K [17/-]

D06B
D1L
D1P [7/-]
D1B [11/-]

D06C
D1S

D06F
D1A
F4G [49/-, 58/-, 59/-]

D06G
A4F
D1X [3/-]

D06H
D1S

D06J
D1S

D06L
D1P

D06M
D1P
D1F [10/-]
D1R [10/-, 17/-]
D1S [10/-]
C3J [14/-]
C3V [15/-]
C5D [16/-]
B5N [17/-]

D06N
B2E

D06P
D1B

D06Q
D1P
D1B
D1S
C7F [1/04]

D07B
D1T

D21B

B2A

D21C
D2W
D1P [9/10]

D21D
B2A [1/-]
B1D [5/-]

D21F
D2A

D21G
D2A
F2U [1/02]

D21H
D1R [11/- to 17/-,
21/- to 23/-, 27/-]
D1P [17/-, 21/-, 25/-]
B2E [19/-]
D1B [21/28]

D21J
B5A
D1R [1/-]
B2E [1/08]
D1P [1/08, 1/10]

E01B
E1G
F2H [9/06 to 9/18]
B7L [25/-]

E01C
E1G
E1D [5/-, 11/02, 13/-, 15/-]
E1R [17/-]
F2U [19/23]
F4X [19/45]

E01D
E1G

E01F
E1G

E01H
E1G
A1X [13/-]

E02B

E1H
A1B [11/-, 13/-]
B1D [15/04]

E02C

E1H

E02D

E1F [1/-, 3/-, 17/-, 29/-]
E1H [3/- to 37/-]
G1S [1/-]
B7H [3/026]
F2U [3/026]
F2S [3/046, 7/18]
E1E [17/-]
F2B [23/06]
E1D [27/-]
E1G [29/12]

E02F

E1F

B8H [3/-, 9/-]
B8B [9/18]

E03B

E1X
F1X [9/-]
E1T [11/-]

E03C

A4N
E1C [1/28]

E03D

E1C

E03F

E1C

E04B

E1D
F2M
E1S [1/35]
G5X [1/99]

E04C

E1D

E04D

E1D [1/- to 13/-]
E1S [15/-]
E1R [13/03]
F4U [13/18]

E04F

E1D [1/- to 17/-]
E1S [11/04, 21/-]
E1X [19/-]
F4J [17/02]
F1R [21/30]

E04G

E1S [1/- to 23/-, 27/-]
E1E [25/-]
F2M
E2A [7/02]
F2G [21/12]

E04H

E1D [1/-, 3/-, 5/-, 6/-,
9/- to 17/-]
A4N [4/-]
E1T [7/-, 12/30]
B1D [4/-]
E1X [5/06, 17/-]
B8L [6/-]
B8W [6/-]
E1S [12/-]
F4J [12/28]

E05B

E2A
E2X [75/-]

E05C

E2A
E2F [17/-]

E05D

E2F
H2E [11/00]

E05F

E2M
E2F [1/12]
E2X [5/-]

E05G

E2X

E06B

E1J
E1R [3/54 to 3/68,
5/-, 7/-]
E2X [7/28]

E06C

E1S

E21B

E1F
 B1D [43/08]
 F3A [43/11]
 G1S [47/-, 49/-]

E21C

E1F

E21D

E1F [1/- to 13/-,
 19/-, 20/-]
 E1E [7/-, 11/- to 17/-]
 E1P [15/- to 19/-, 23/-]
 F2H [21/-]
 F1D [15/44, 15/51,
 17/05, 23/16]

E21F

E1F
 E1X [1/-, 7/-]

F01B

F1M
 F1W
 F1B
 F1K [25/22, 27/-]

F01C

F1F
 F1U [5/-, 11/-, 12/-]

F01D

F1T
 F1V [5/- to 11/-, 25/-]
 F2B [11/00 to 11/12]

F01K

F4A [1/-, 3/-, 9/-]
 F1Q [7/-, 11/- to 27/-]
 B1B [9/-]

F01L

F1B
 F1W
 F1K [13/-, 29/-]
 F1M [15/- to 35/-]

F01M

F1B
 B1D [11/03]

F01N

B1W
 F1B
 B1T [3/00 to 3/08]
 B1F [3/10]

F01P

F1B
 F4U

F02B

F1B [1/- to 51/-,
 57/- to 79/-]
 F1F [53/-, 55/-]
 F1K [71/02]
 F1Q [73/-]
 F1M [75/06]

F02C

F1G
 F1Q [6/-]
 B1T [7/052, 7/055]

F02D

F1B [1/- to 39/-,
 43/-, 45/-]
 G1N [14/14]
 G3N
 G3B [1/04, 31/-]

F02F

F2T
 F1B [1/-, 5/- to 11/-]

F02G

F1Q
 F1S

F02K

F1J
 B7G [1/32, 1/54]
 F3A [7/-, 9/-]

F02M

F1H [1/- to 19/-, 71/-]
 F1B [17/-, 21/- to 57/-, 61/-
 to 71/-]
 F1W [39/- to 45/-, 49/- to
 53/-, 59/-, 63/-, 69/-]
 B1T [35/00 to 35/08]
 B1D [37/22]

F02N

F1K

H2H [11/08]

F02P

F1B
H2A [1/02]
G1U [17/-]

F03B

F1T [1/- to 11/-, 15/-]
F1V [1/-, 3/-, 7/-, 11/-]
F1Q [13/-, 15/-]
F1S [13/-, 17/-]

F03C

F1W [1/-, 4/-, 5/-]
F1F [2/- to 5/-]

F03D

F1T
F1V [1/-, 3/-, 7/-, 11/-]
F1Q [7/-, 9/-]

F03G

F2S [1/-, 3/-]
F1Q [4/-, 6/-]
F1S [5/-, 7/-]
F2X [3/-]

F03H

F1J

F04B

F1W
F1R [19/08, 19/18]
F1N [37/00 to 37/08]
F1U [43/12, 45/08]
F2V [53/10, 53/12]

F04C

F1F
F1U [5/-, 11/-, 23/-, 29/-]
F1C [7/-, 9/-]

F04D

F1C
F1V [29/-]
F2B [29/08 to 29/16]

F04F

F1R [1/-, 3/-, 7/-, 10/-, 11/-]
F1E [5/-, 9/-]
F1N [11/-]

F15B

F1D [1/- to 7/-, 15/-, 20/-]
G3P [5/-, 9/- to 13/-, 17/- to 21/-]
F1P [7/-, 11/-, 13/-, 17/- to 21/-]
G3H [21/12]

F15C

F1P
G3H
G4P

F15D

F2R
G3H

F16B

F2M [1/- to 12/-, 17/-]
E2A [2/-, 21/-, 45/-, 47/-]
F2H [13/- to 43/-]
F2G [7/-, 9/-]
B3V [11/-]

F16C

F2K [1/-]
F2U [1/-, 3/-, 13/-]
F2T [5/-, 7/-]
F2A [9/-, 13/-, 17/- to 43/-]
E2F [11/-]

F16D

F2U [1/- to 9/-]
F2C [7/-, 11/- to 31/-, 37/- to 47/-, 69/-]
F2L [23/12, 25/08 to 25/12, 27/12 to 27/14, 28/-, 29/-, 39/-, 47/-, 48/-, 67/-, 71/-]
F2W [31/-, 33/-, 35/-, 39/-]
F2E [49/- to 71/-]
F2G [1/-]
F2X [9/-]
F2S [57/-]

F16F

F2S
E2M [9/-]
F1M [15/-]
F2U [15/-]
F2X [15/02]
F2T [15/30]

F16G

F2Q

D1T [9/-, 11/-]
 E2A [11/-]
 F2G [11/-]
 F2X [11/-]

F16H

F2Q [1/00 to 1/36, 1/46, 1/48,
 7/-, 13/-, 19/-, 25/18,
 27/- to 37/-, 49/-, 55/-,
 57/-]
 F2D [3/-, 9/-, 15/-, 37/-,
 47/- to 49/-, 55/36,
 55/52, 57/- to 63/-]
 F2K [21/- to 25/-, 51/-, 53/-]
 F2W [39/- to 45/-, 61/38]
 F2X [27/-]

F16J

F2T [1/- to 10/-]
 B1X [12/-]
 F4P [12/-]
 F2P [13/-]
 F2B [15/-]

F16K

F2V
 G3P [17/-, 31/-]
 F1D [17/14, 17/40]

F16L

F2P [1/- to 11/-, 33/-, 35/-, 39/-,
 41/-, 45/-, 51/- to 59/-]
 F2G [1/26, 5/-, 13/- to 59/-]
 H2C [3/- to 7/-]
 B8B [3/01]
 F2S [3/205]
 B2E [9/-, 11/-, 58/-]
 C3V [9/-, 11/-]
 F1D [55/04]
 F2X [59/-]
 H2E [3/08, 5/-]

F16M

F2X [1/- to 9/-]
 A4L [1/-, 13/-]

F16N

F2A
 B1D [39/06]

F16P

F2J

F16S

E1D

F16T

F2V

F17B

F4X

F17C

F4P
 E1T [1/-, 3/-, 13/-]

F17D

F2X
 F4X [1/04]
 F2P [3/08]

F21H

F4T

F21K

C4S [2/-, 7/-]
 G2L [5/-]

F21L

F4R

F21S

F4R

F21V

F4R

F21W

F4R

F21Y

F4R

F22B

F4A

F22D

F4A

F22G

F4A

F23B

F4B

F23C

F4B

F4T
B1F [10/00]

F23D

F4T
B1F [14/18]

F23G

F4B
C1P [7/-]

F23H

F4B
F4W [1/-, 3/-, 7/-, 9/-, 13/-]

F23J

F4B
F4J [3/-, 11/-, 13/-]
F2N [3/-]
B1W [15/-]

F23K

F4B
B8S [3/16]

F23L

F4B
F4W
F4T [1/- to 9/-, 15/-]
F4J [11/-, 13/-, 17/-]

F23M

F4B

F23N

F4B
F4T
F4W [3/-]
G4N [5/24]

F23Q

F4F
F1B [7/-]
F4T [9/-]
B1F [11/-]

F23R

F4T

B1F [3/40]

F24B

F4W
F4A [1/183]
A4X [15/-]

F24C

F4W
H5H [7/02]
F4A [13/-]

F24D

F4U
F4A [3/08, 17/-, 19/-]

F24E

F4V
B1R [6/-]

F24H

F4A [1/-, 4/-, 6/-, 8/-, 9/-]
F4S [3/- to 6/-, 8/-, 9/-]
F4U [7/-]
F4X [1/06]

F24J

F4X [1/-]
F4U [2/-, 3/-]

F25B

F4H

F25C

F4H
A4C [5/12]

F25D

F4H

F25J

F4P

F26B

F4G

F27B

F4B
B1F [15/-]

F27D

F4B

F28B

F4S

F28C

F4K

F28D

F4S [1/- to 13/-, 15/00, 21/-]

F4U [15/-]
 F4K [17/- to 20/-]

F28F
 F4S
 F4K [25/-, 27/-]

F28G
 F2N

F41A
 F3C

F41B
 F3C
 A6S [1/-, 3/02, 5/- 7/08, 9/-]

F41C
 F3C

F41F
 F3C
 B7A [5/-]

F41G
 F3C

F41H
 F3C
 A3V [1/-, 5/-]
 B7A [7/10, 11/-]

F41J
 F3C
 A6S [3/-]
 B7W [9/08]

F42B
 F3A
 A6S [6/02]
 B7A [17/-, 19/-, 22/-]
 B7V [19/-]

F42C
 F3A

F42D
 F3A
 E1F

G01B
 G1M
 G1S
 G1X [1/- to 5/-]

B8M [3/10]
 G1A [9/-, 11/-, 15/-]
 G2J [9/-, 11/-]
 G1G [17/-]

G01C
 G1F [1/- to 17/-, 21/- to 25/-]
 G1C [19/-]
 H4D [21/- to 25/-]
 G1K [22/-, 23/-]
 G2J
 G1A [9/-, 19/-]
 G1G [19/56]

G01D
 G1G
 G1J
 G1A [3/-, 5/-, 18/-, 21/-]
 G1N

G01E
 G1R [1/- to 7/-]
 G1K [9/-]
 B8N [11/- to 19/-]
 G1X [17/- to 22/-]
 G1H [23/-, 25/-]
 G1A [1/-, 17/-]
 G1G [1/32, 1/66, 1/84]
 F1F [3/06]

G01G
 G1W

G01H
 G1G
 G1J

G01J
 G1A
 G2J [3/-, 4/-]

G01K
 G1D
 G1A
 G1G [11/22]

G01L
 G1W [1/- to 5/-]
 G1L [7/- to 27/-]
 G1A [1/24, 1/25]
 G1N

G01M
 G1S

G1X [1/-]
G1G [7/-]
B7G [9/-]
G2J [11/-]
B7C [17/013, 17/02, 17/10]
B7D [17/04, 17/10]
B7H [17/-]

G01N

G1B
G1S
B8N [1/02]
G1A [9/-, 11/-, 15/-, 21/-, 23/-,
25/-, 30/-]
G1N [17/-, 24/-, 27/-, 33/-]
G2J [21/15, 21/17]
H5R [23/-]
G1D [25/-]
C7B [27/26]
G1G [29/-]
B1H [30/-]
B1J [30/96]

G01P

G1K
G1R [5/-, 13/-]
G1A [3/-, 5/-, 15/-]
G1G [9/04]

G01R

G1U
H2E [1/06]
H4T [13/20]
G1A [15/24, 15/26]
H3H [23/-, 25/-]
G1N [27/22, 33/-]
H2K [31/-]

G01S

H4D
G1G [3/80, 5/18, 7/52, 11/14, 15/-]
H4L [13/74 to 13/84]

G01T

G1A
H5R [1/-]
G6P [3/-, 5/-]

G01V

G1A
G1G [1/-]
G1N [3/-]
G4A [1/46, 1/48]
H5R [5/00]

H4L [15/-]

G01W

G1A
G1X

G02B

G2J
C3V [1/-]
B2E [1/10]
H2C [6/46]
H4D [7/28 to 7/38]
G2F [26/-]

G02C

G2J

G02F

G2F
G5C [1/13]

G03B

G2A
G2E [1/-, 19/-, 21/-,
25/-, 31/- to 41/-]
G2X [11/- to 17/-, 21/-
27/-, 43/-]
G2J [9/02, 13/02,
21/-, 23/-]
F4R [15/-]
H5R [42/02]

G03C

G2C [1/-, 5/- to 8/-]
G2X [3/-, 9/-, 11/-]

G03D

G2X

G03F

G2X
G2C [7/-]
B6C [7/-]
C3V [7/-]

G03G

G2C [5/- to 9/-, 13/-]
B6C [11/- to 21/-]
G2X [13/- to 17/-, 21/10, 21/16]
B8R [15/-]
G2A [15/04]

G03H

G2J

G2X [1/-]
G04B
G3T
G04C
G3T
G04D
G3T
G04F
G3T
H3H [1/10]
G04G
G3T
G05B
G3N
G3R [1/- to 11/-]
G05D
G3N
G3R
G3P [7/-, 16/-]
G1H [9/-]
G3B [13/-]
F2V [16/-]
G05F
G3U
H3W [1/56]
G05G
B7H
F2Y
B6F [1/04]
B7E [1/08]
G06C
G4B
B6F [7/02]
G06D
G4P
G06E
G4G
G06F
G4A
G1N
H3H [1/02 to 1/035]

G4H [3/-]
H4T [3/-]
B6F [3/02]
F2Y [3/02]
G4M [3/06, 3/08]
G4D [7/58]
G06G
G4B [1/-, 3/-]
G4G [7/-]
G06J
G4A
G06K
G1A [9/-]
G4H [1/- to 5/-, 15/-,
17/-, 19/-]
G4M [5/-, 7/-, 11/-, 13/-,
17/- to 21/-]
G4R [9/-]
B4B [1/02, 21/06, 21/08]
H4T [9/-]
F2Y [11/06]
G06M
G4D
G06N
G4A (Parts A-F)
G4R [3/00]
G06Q (IPC8)
G4A(Part U)
G06T
G1A [7/-]
G4A
H4D [7/-]
H4F
H4T
G07B
G4T
B6C [17/-]
G07C
G4T
G4D [15/-]
G07D
G4X
G4V [5/-, 11/-]
G1A [7/-]

G07F

G4V
 B8U [7/- to 11/-, 17/-]
 G4H [7/-]
 B6F [7/02]

G07G

G4T

G08B

G4F [1/- to 9/-]
 G4N [13/- to 25/-, 27/- to 31/-]
 E2X [15/-]
 G4H [1/- to 9/-, 25/- to 31/-]
 G1N
 G1H [3/- to 7/-]
 G1A [13/-, 17/-, 19/-]

G08C

G4H
 G1N
 H4L [17/-]

G08G

G4Q
 G1N

G09B

G5G [1/- to 7/-, 9/00, 9/02,
 11/-, 17/- to 29/-]
 B7H [9/04]
 B7V [9/06]
 B7W [9/08, 9/52]
 H4D [9/54]
 G1G [9/56]
 B6F [13/-, 15/-]
 G5X [15/-]

G09C

G5X

G09D

G5C
 G3T [3/-]

G09F

G5C
 B8F [3/-]
 B6P [3/03]
 H1K [13/-]
 G5X [17/-]

G09G

H4T

G5C [3/-]
 G4H [3/-, 5/-]

G10B

G5J
 B6F [3/12]

G10C

G5J
 B6F [3/12]

G10D

G5J
 B6F [11/-]

G10F

G5J

G10G

G5J
 G5X

G10H

G5J

G10K

G5J [1/- to 9/-]
 E2X [3/-]
 H4J [7/-, 13/-]
 F2X [11/-]
 G5X [11/-]
 H4X [11/-]
 B5N [11/162]
 C3V [11/162]
 H3U [15/-]

G10L

G4R
 H4R

G11B

G5R
 C7F [5/62 to 5/85, 7/24, 11/-]
 B2E [5/62]
 C3V [5/62]
 H4D [7/09]
 B8M [23/04]

G11C

G4C
 H3B
 G4A [7/-, 8/-, 15/-, 29/-]
 H1K [11/-]
 G2F [13/04]

H3P [27/02]

G12B
G1J

G21B
G6P

G21C
G6C
G4N [17/-]

G21D
G6C

G21F
B4Q
G6R

G21G
G6P
G6R

G21H
G6P

G21J
G6P

G21K
G6P
H5R

H01B
H1A [5/- to 13/-]
H2C [15/- to 19/-]
H2E [17/-]
(See materials headings as appropriate
for H01B 1/-, 3/-)

H01C
H1S
H1K [7/-]

H01F
C1A [1/-]
C3V [1/42, 1/44]
C7A [1/04, 1/14]
C1J [1/10, 1/34]
H1P [3/- to 7/-,
13/-, 41/-]
C7F [10/-]
H1T [17/- to 41/-]

H01G
H1M

H01H
H1N
H2G [69/02, 85/-]

H01J
H1D
H1J [9/46]

H01K
H1F
H1J [3/28]

H01L
H1K
H3X [39/-]
H2E [23/32]
H1E [41/-]
B6J [21/302, 21/461]
H4J [41/-]

H01M
H1B

H01P
H1W
H1Q [5/-]

H01Q
H1Q

H01R
H2E
H2A [39/-]
B3A [43/-]

H01S
H1C
H1K [3/19, 5/-]

H01T
H1X
F1B [13/-, 21/-]
B3A [21/02]
H2E [13/04]

H02B
H1N
H2E [1/21]

H02G
H2C [1/- to 9/-]

H2E [3/08 to 3/22,
13/-, 15/-]
B8B [11/-]
F2N [1/08]
A5A [3/-]

H02H

H2K
H2H [7/-, 9/-]

H02J

H2H
G3U [7/-]

H02K

H2A
B3A [15/-]

H02M

G3U
H2F

H02N

H2A
H1E [2/-]
H4J [2/-]
H1P [13/-]

H02P

H2J [1/-, 3/-, 6/- to 8/-,
17/- to 21/-]
G3R [5/-, 11/-]
G3U [9/-, 11/-]
H2F [11/-]
H2H [11/-, 13/-]
F2E [15/-]
F2L [15/-]

H03B

H3F
H3X [11/- to 29/-]

H03C

H3R

H03D

H3R

H03F

H3W
H3X [7/-, 9/-]

H03G

H3G
H3W [11/-]

H03H

H3U
H1E [9/15, 9/22]

H03J

H3Q
H3A [7/-]
G4H [9/-]

H03K

H3P [3/- to 6/-, 12/- to 19/-]
H3R [7/-, 9/-, 11/-]
G4D [21/- to 29/-]
H3X [3/-, 5/-]
H3H [11/-]
H4P [11/-]
H2F [17/-]
G1N [17/94]
G4H [19/-]

H03L

G3U [1/-, 5/-]
H3F [3/-]
H3P [3/-]
H3A [7/-]

H03M

H3H [1/-, 3/-]
H4P [5/-, 7/-, 13/-]
G4H [7/- to 11/-]
G4A [13/-]

H04B

H4L [1/-, 5/-, 7/-, 13/-]
H3Q [1/06, 1/08, 1/16 to 1/28]
H4R [3/-]
H4B [10/-]
H1C [10/-]
H4L [15/10]

H04H

H4R
G4H [9/-]
H4L [3/00]

H04J

H4M
H4B [14/-]

H04K

H4L

H4P
H4R

H04L

H4K [12/-]
H4P
H3A [7/-]
G4H [9/32]
B6F [15/-]
H4L [12/28, 12/56]

H04M

H4K
H4J [1/-]
H2E [1/02, 1/15]
H4L [1/72]

H04N

H4F
H3Q [5/44, 5/46, 5/50, 5/63, 5/76,
5/765, 5/775 to 5/782]
H4T [3/-, 5/-, 9/-, 13/- to 17/-]
H5R [5/32]

H04Q

H2E [1/24]
H4K
H4B [3/52]
H4L [7/-]
G4H [9/-]

H04R

H4J
H4R

H04S

H4R

H05B

H2H [1/- to 11/-,
33/- to 43/-]
H5H [1/- to 11/-]
H1X [31/-]
H1K [33/-]
E1R [3/84]
H2E [3/06]

H05C

A1M

H05F

H1X
H2E [3/00, 3/02]

H05G

H5R
H2H [1/-]

H05H

H1D
G6P [3/-, 6/-]

H05K

H1R
H3Q
C7B [3/-]
C7F [3/16]
H1K [3/30, 13/-]
H2E [7/10]