## CPC Cooperative Patent Classification

### B Performing Operations; Transporting

#### NOTES

1. The following notes are meant to assist in the use of [classes B01 - B09]; they must not be read as modifying in any way the elaborations.

   1. In this sub-section, the separation of different materials, e.g. of different matter, size, or state, is predominantly found in the following subclasses:

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B01D
B03B, B03C, B03D
B04B, B04C
B07B, B07C
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2. The classifying characteristics of these subclasses are:
   - the physical state of the matter to be separated
   - the principle of the process used
   - particular kinds of apparatus

   The first of these characteristics involves six different aspects, assembled in three groups.
   a. liquid/liquid or liquid/gas and gas/gas
   b. solid/liquid or solid/gas
   c. solid/solid

3. These subclasses are to be used according to the following general rules:
   - **B01D** is the most general class as far as separation other than solids from solids is concerned.
   - Apparatus for separating solids from solids are covered by **B03B** when the process concerned is regarded as the equivalent of "washing" in the sense of the mining art, even if such apparatus is a pneumatic one, especially pneumatic tables or jigs. Screens **PER SE** are not covered by this subclass but are classified in **B07B**, even if they are being used in a wet process. All other apparatus for the separation of solids from solids according to dry methods are classified in **B07B**.
   - If the separation takes place as a result of the detection or measurement of some feature of the material or articles to be sorted it is classified in **B07C**.
   - It should also be noted that the separation of isotopes of the same chemical element is covered by **B01D 59/00**, whatever process or apparatus is employed.

2. The following scheme illustrates the classification according to these rules.

   a. **LIQUID/ LIQUID**

```
LIQUID/GAS
GAS/GAS
```

<table>
<thead>
<tr>
<th>Subclasses dealing with</th>
<th>Method</th>
<th>Apparatus</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td><strong>B01D</strong></td>
<td><strong>B01D</strong></td>
</tr>
<tr>
<td>by centrifugal force, using centrifuges</td>
<td><strong>B01D</strong></td>
<td><strong>B04B, B04C</strong></td>
</tr>
<tr>
<td>or free-vortex apparatus</td>
<td><strong>B01D</strong></td>
<td><strong>B03C</strong></td>
</tr>
<tr>
<td>using magnetic or electrostatic effect</td>
<td><strong>B03C</strong></td>
<td><strong>B03C</strong></td>
</tr>
</tbody>
</table>

b. **SOLID/ LIQUID**

```
SOLID/GAS
```

<table>
<thead>
<tr>
<th>Subclasses dealing with</th>
<th>Method</th>
<th>Apparatus</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td><strong>B01D</strong></td>
<td><strong>B01D</strong></td>
</tr>
<tr>
<td>by centrifugal force</td>
<td><strong>B01D</strong></td>
<td><strong>B01D</strong></td>
</tr>
<tr>
<td>using centrifuges or free-vortex apparatus</td>
<td><strong>B01D</strong></td>
<td><strong>B04B, B04C</strong></td>
</tr>
<tr>
<td>using magnetic or electrostatic effect</td>
<td><strong>B03C</strong></td>
<td><strong>B03C</strong></td>
</tr>
</tbody>
</table>

c. **SOLID/ SOLID**
### Dry Methods

<table>
<thead>
<tr>
<th>Operations</th>
<th>Method</th>
<th>Apparatus</th>
</tr>
</thead>
<tbody>
<tr>
<td>General for material in bulk</td>
<td>B07B</td>
<td>B07B</td>
</tr>
<tr>
<td>Individual sorting</td>
<td>B07C</td>
<td>B07C</td>
</tr>
<tr>
<td>Screening, sifting, pneumatic sorting</td>
<td>B07B</td>
<td>B07B</td>
</tr>
<tr>
<td>using pneumatic tables or jigs</td>
<td>B03B</td>
<td>B03B</td>
</tr>
<tr>
<td>by magnetic or electrostatic effect</td>
<td>B03C</td>
<td>B03C</td>
</tr>
<tr>
<td>by centrifugal force</td>
<td>B07B</td>
<td>B07B</td>
</tr>
<tr>
<td>using centrifuges or free-vortex apparatus</td>
<td>B07B</td>
<td>B04B, B04C</td>
</tr>
</tbody>
</table>

### Wet Methods

<table>
<thead>
<tr>
<th>Operations</th>
<th>Method</th>
<th>Apparatus</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td>B03B</td>
<td>B03B</td>
</tr>
<tr>
<td>flotation, differential sedimentation</td>
<td>B03D</td>
<td>B03D</td>
</tr>
<tr>
<td>screening</td>
<td>B07B</td>
<td>B07B</td>
</tr>
</tbody>
</table>

Combinations = dry methods - wet methods: B03B

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**SEPARATING; MIXING**

### B01 PHYSICAL OR CHEMICAL PROCESSES OR APPARATUS IN GENERAL

#### B01B BOILING; BOILING APPARATUS {; EVAPORATION; EVAPORATION APPARATUS}

#### B01D SEPARATION (separating solids from solids by wet methods B03B, B03D; by pneumatic jigs or tables B03B; by other dry methods B07; magnetic or electrostatic separation of solid materials from solid materials or fluids, separation by high-voltage electric fields B03C; centrifuges, vortex apparatus B04; presses per se for squeezing-out liquid from liquid-containing material B30B 9/02; treatment of water C02F, e.g. softening by ion-exchange C02F 1/42; {arrangements of air intake cleaners in gas turbine plants F02C 7/05 ; arrangements or mounting of filters in air-conditioning, air-humidification or ventilation F24F 13/28)

**NOTES**

1. This subclass covers:
   - evaporation, distillation, crystallisation, filtration, dust precipitation, gas cleaning, absorption, adsorption;
   - similar processes which are not concerned with, or limited to, separation, except in the case of absorption or adsorption.
2. In this subclass the terms or expressions are used with the meaning indicated:
   - “filtration” and analogous terms include straining solids from fluids. Filtration is a process that normally uses a filter medium;
   - “filter medium” is a porous material or porous arrangement of material used to filter solids from fluids;
   - “filtering element” is a section of filter medium in addition to parts to which the medium is demountably or permanently fixed, including other sections of medium, end caps, peripheral frames or edge strips, but excluding housings;
B01D (continued)

• "filter housing" is the fluid-constraining impervious vessel, whether open or closed, which contains, or is adapted to contain, one or more filtering elements or filter media;
• "filter chamber" is the space within a housing, where filtering elements or filter media are located. Partitions may divide a single housing into a plurality of chambers;
• "filtering apparatus" consists of filtering elements combined with housings, cleaning arrangements, motor or the like parts, which are characteristic of the particular type of apparatus. Ancillary devices such as pumps or valves are considered part of a filtering apparatus when inside the apparatus. Ancillary devices performing similar or different unit operation such as comminutors, mixers or non-filtering separators, whether or not inside the apparatus, are not considered part of a filtering apparatus. The term does not extend to apparatus, e.g. washing machines, of which the filter forms only a part.

3. For apparatus used in drying or evaporation, class F26 takes precedence over this subclass.
4. Group B01D 59/00 takes precedence over the other groups of this subclass and over other subclasses in class B01.

WARNINGS

1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:

   B01D 15/04 covered by B01J 39/00 - B01J 49/90
   B01D 17/022 covered by B01D 17/0202
   B01D 17/025 covered by B01D 17/0208
   B01D 17/028 covered by B01D 17/0211
   B01D 17/032 covered by B01D 17/0214
   B01D 17/035 covered by B01D 17/0205
   B01D 17/038 covered by B01D 17/0217
   B01D 17/05 covered by B01D 17/047
   B01D 17/09 covered by B01D 17/005
   B01D 25/133 covered by B01D 25/285
   B01D 25/168 covered by B01D 25/285
   B01D 29/075 covered by B01D 29/001, B01D 29/64
   B01D 29/37 covered by B01D 29/336, B01D 29/356
   B01D 33/052 covered by B01D 33/042, B01D 33/048
   B01D 35/01 covered by B01D 36/001
   B01D 61/26 covered by A61M 1/1656
   B01D 61/34 covered by A61M 1/16

2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B01F

MIXING, e.g. DISSOLVING, EMULSIFYING, DISPERSING (miscellaneous implements for preparing food, e.g. machines for domestic use for mixing, egg-whisks, cream beaters A47J 43/00; mixing paints B44D 3/06; apparatus specially adapted for mixing radioactively contaminated material G21F 9/008)

NOTE

In this subclass, the following term or expression is used with the meaning indicated:
• "mixing" covers stirring of a single material.

WARNINGS

1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:

   B01F 17/02-B01F 17/56 covered by B01F 17/00-B01F 17/0092

2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B01J

CHEMICAL OR PHYSICAL PROCESSES, e.g. CATALYSIS OR COLLOID CHEMISTRY; THEIR RELEVANT APPARATUS

NOTES

1. In this subclass, the following terms or expressions are used with the meanings indicated:
• "solid particles" includes such particles whether catalysts, reactants or inert in solid, semi-solid or pasty state;
• "fluidised particles" means finely divided solid particles lifted and agitated by a stream of fluid;
• "fluidised bed-technique" means fluid-solid contacting technique in which finely divided particles are lifted and agitated by a rising stream of fluid, said stream having such a speed as to form a lower dense phase (the "bed") and an upper dilute fluidised phase of "fluidised particles";
• "processes conducted in the presence of solid particles" does not include processes wherein the only solid particles present are formed during the reaction.
2. In this subclass, tradenames that are often found in scientific and patent literature have been used in order to define precisely the scope of the groups.

**WARNINGS**

1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:

   - **B01J 37/025** covered by **B01J 37/02**
   - **B01J 32/00** covered by **B01J 21/00 - B01J 29/90, B01J 33/00 - B01J 38/74**

2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

**B01L**

**CHEMICAL OR PHYSICAL LABORATORY APPARATUS FOR GENERAL USE**

(apparatus for medical or pharmaceutical purposes **A61**; apparatus for industrial purposes or laboratory apparatus whose construction and performance are comparable to that of similar industrial apparatus, see the relevant classes for industrial apparatus, particularly subclasses of **B01** and **C12**; separating or distilling apparatus **B01D**; mixing or stirring devices **B01F**; atomisers **B05B**; {vibrating devices, e.g. shaking tables,} sieves **B07B**; corks, bungs **B65D**; handling liquids in general **B67**; vacuum pumps **F04**; siphons **F04F 10/00**; taps, stop-cocks **F16K**; tubes, tube joints **F16L**; apparatus specially adapted for investigating or analysing materials **G01**, particularly **G01N**; electrical or optical apparatus, see the relevant classes in Sections **G** and **H**)  

**NOTE**

This subclass covers only laboratory apparatus which is either applicable solely to laboratory purposes or which, by reason of its simple construction and adaptability, is such as would not be suitable for industrial use.

**WARNINGS**

1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:

   - **B01L 3/14** covered by **B01L 3/50**

2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

**B02**

**CRUSHING, PULVERISING, OR DISINTEGRATING; PREPARATORY TREATMENT OF GRAIN FOR MILLING**

**B02B**

**PREPARING GRAIN FOR MILLING; REFINING GRANULAR FRUIT TO COMMERCIAL PRODUCTS BY WORKING THE SURFACE** (making dough from cereals directly **A21C**; preservation or sterilisation of cereals **A23B**; cleaning fruit **A23N**; preparation of malt **C12C**)

**WARNING**

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.
**B02C** CRUSHING, PULVERISING, OR DISINTEGRATING IN GENERAL; MILLING GRAIN ((household tools and machines for pulverising foodstuffs, e.g. coffee and spice mills A47J 42/00; pharmaceutical mortars A61J 3/02; mechanical processing of refuse and garbage B03B 9/06; dressing mould materials by grinding B22C 5/04); obtaining metallic powder by crushing, grinding or milling B22F 9/04; {recovery of plastics by disintegrating B29B 17/00; crushing raw materials in starch making C08B 30/02; beaters for papermaking D21D 1/02; crushing devices specially for transport in mines E21F 13/002; slag crushing devices F23J 1/00; fuel milling devices in combustion apparatus F23K 1/00; household devices for crushing coal F24B 15/02; ice disintegrating devices F25C 5/02})

**WARNING**

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

**B03** SEPARATION OF SOLID MATERIALS USING LIQUIDS OR USING PNEUMATIC TABLES OR JIGS; MAGNETIC OR ELECTROSTATIC SEPARATION OF SOLID MATERIALS FROM SOLID MATERIALS OR FLUIDS; SEPARATION BY HIGH-VOLTAGE ELECTRIC FIELDS

**B03B** SEPARATING SOLID MATERIALS USING LIQUIDS OR USING PNEUMATIC TABLES OR JIGS (removing fluids from solids B01D; magnetic or electrostatic separation of solid materials from solid materials or fluids, separation by high voltage electric fields B03C; flotation differential sedimentation B03D; separating by dry methods B07; screening or sifting B07B; by picking B07C; separating peculiar to particular materials and provided for in other single classes, see the relevant classes)

**WARNING**

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

**B03C** MAGNETIC OR ELECTROSTATIC SEPARATION OF SOLID MATERIALS FROM SOLID MATERIALS OR FLUIDS; SEPARATION BY HIGH-VOLTAGE ELECTRIC FIELDS (filters making use of electricity or magnetism B01D 35/06; separating isotopes B01D 59/00; combinations of magnetic or electrostatic separation with separation of solids by other means B03B, B07B; separating sheets from piles B65H 3/00; magnets or magnet coils per se H01F)

**WARNING**

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

**B03D** FLOTATION; DIFFERENTIAL SEDIMENTATION (sedimentation in general B01D 21/00; in combination with other separation of solids B03B; sink-float separation B03B 5/28; detergents, soaps C11D)

**WARNING**

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

**B04** CENTRIFUGAL APPARATUS OR MACHINES FOR CARRYING-OUT PHYSICAL OR CHEMICAL PROCESSES
B04B   **CENTRIFUGES** (high-speed drum mills B02C 19/11; domestic spin driers D06F; analysing, measuring or monitoring physical or chemical properties of samples during centrifuging, see the relevant subclasses for these procedures, e.g. G01N)

**NOTE**
This subclass covers machines or apparatus for separating, mixing, drying, extracting, purifying, or like treating in which centrifugal effects are generated by rotary bowls or other rotors. Where such machines or apparatus involve pumping effects, such effects must be incidental or subsidiary to the treating.

**WARNING**
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B04C   **APPARATUS USING FREE VORTEX FLOW, e.g. CYCLONES** ([centrifugal separation of water from steam B01D 45/12;] jet mills B02C 19/06; [wind sifters B07B 7/00;] cyclonic type combustion apparatus F23; [vortex burners for cyclone-type combustion apparatus F23D 1/02; cyclonic type combustion apparatus for gas turbines F23R 3/00])

**NOTE**
This subclass covers apparatus for separating, mixing or like treating in which centrifugal effects are generated by free vortex flow, otherwise than by rotary bowls, rotors or curved passages.

**WARNING**
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B05   **SPRAYING OR ATOMISING IN GENERAL; APPLYING LIQUIDS OR OTHER FLUENT MATERIALS TO SURFACES, IN GENERAL**

**NOTE**
In this class, the following terms are used with the meanings indicated:
- "other fluent materials" includes semiliquids, pastes, melts, solutions, dispersions, suspensions, particulate materials, gases or vapours;
- "particulate materials" includes powders, granules, short fibres or chips;
- "coating" means the materials applied. The coating may be a liquid having become solid after drying, e.g. paint.

B05B   **SPRAYING APPARATUS; ATOMISING APPARATUS; NOZZLES** ([sprayers or atomisers specially adapted for therapeutic purposes A61M 11/00;] spray-mixers with nozzles B01F 5/20; processes for applying liquids or other fluent materials to surfaces by spraying B05D; [nozzles specially adapted for injection moulding of plastics or substances in a plastic state B29C 45/1603, B29C 45/20; nozzles specially adapted for windscreen washers B60S 1/52;] means for pumping fluids F04; valves, e.g. water-taps, F16K)

**NOTES**
1. This subclass covers particularly apparatus for the release or projection of drops or droplets into the atmosphere or into a chamber to form a mist or the like. For this purpose, the materials to be projected may be suspended in a stream of gas or vapour.
2. Attention is drawn to the Note following the title of class B05.
3. In this subclass, "means for controlling volume of flow" is used in the most general meaning and includes also means allowing only starting and stopping the flow.
4. In this subclass, the meaning of the expression "apparatus carried on or by a person" includes all apparatus comprising at least one container for the material to be sprayed carried on or by a person during use.
5. In this subclass, the word "container" is to be understood as the innermost enclosure containing the material to be sprayed.

**WARNING**
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.
APPARATUS FOR APPLYING LIQUIDS OR OTHER FLUENT MATERIALS TO SURFACES, IN GENERAL (spraying apparatus, atomising apparatus, nozzles B05B; plant for applying liquids or other fluent materials to objects by electrostatic spraying B05B 5/08; processes for applying liquids or other fluent materials to surfaces B05D; {coating of foodstuffs A23P 20/15, A23P 20/17, A23P 20/18, of shaped or preshaped ceramic articles B28B 11/04})

NOTES
1. This subclass covers apparatus or hand tools, in general, for applying liquids or other fluent materials to a surface or a part thereof, by any mechanical or physical method, in particular apparatus for obtaining a uniform distribution of liquids or other fluent materials on a surface.
2. Attention is drawn to the Note following the title of class B05.

WARNINGS
1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:
   B05C 5/04 covered by B05C 5/001, B05C 11/042
2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

PROCESSES FOR APPLYING LIQUIDS OR OTHER FLUENT MATERIALS TO SURFACES, IN GENERAL (apparatus for applying liquids or other fluent materials to surfaces B05B, B05C; {coating of foodstuffs A23P 20/17, A23P 20/15, A23P 20/18})

NOTES
1. This subclass covers:
   • processes for applying liquids or other fluent materials to a surface or part of a surface, in general, by any mechanical or physical method and particularly processes producing a uniform distribution of liquids or other fluent materials on a surface;
   • pretreatment of surfaces to which liquids or other fluent materials are to be applied;
   • after-treatment of applied coatings.
2. Attention is drawn to the Note following the title of class B05.

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

GENERATING OR TRANSMITTING MECHANICAL VIBRATIONS IN GENERAL

METHODS OR APPARATUS FOR GENERATING OR TRANSMITTING MECHANICAL VIBRATIONS OF INFRASONIC, SONIC, OR ULTRASONIC FREQUENCY, {e.g.} FOR PERFORMING MECHANICAL WORK IN GENERAL (for particular applications, see the relevant subclasses, e.g. B07B 1/40, B23Q 17/12, B24B 31/06; measurement of mechanical vibrations G01H; in direction finding, locating, distance or velocity measuring G01S; {generating seismic energy G01V 1/02}; control of mechanical vibrations in general G05D; sound-producing devices, e.g. bells, sirens, whistles G10K, {e.g. methods or devices for transmitting, conducting, or directing sound in general G10K 11/00}; generation of electrical oscillations H03B; electromechanical resonators in general H03H; electromechanical transducers {for communication techniques, e.g. microphones, speakers} H04R)

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

SEPARATING SOLIDS FROM SOLIDS; SORTING
B07B SEPARATING SOLIDS FROM SOLIDS BY SIEVING, SCREENING, OR SIFTING OR BY USING GAS CURRENTS; OTHER SEPARATING BY DRY METHODS APPLICABLE TO BULK MATERIAL, e.g. LOOSE ARTICLES FIT TO BE HANDLED LIKE BULK MATERIAL (combinations of dry separating apparatus with wet separating apparatus B03B; hand sorting, postal sorting, sorting by switching or other devices actuated in response to detection or measurement of some feature of articles or samples of material B07C)

**NOTE**

In this subclass any sorting or grading of bulk material or loose articles fit to be handled like bulk material results automatically from the construction of the apparatus and properties of the material, e.g. by a trap opening under an object of a certain minimum weight, by an aperture of graduated size. Sorting of articles is included in so far as the same conditions apply, e.g. sorting of timber by passing it over successively longer openings; the articles may or may not be orientated for the purpose of sorting.

**WARNINGS**

1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:
   - B07B 1/32 covered by B07B 1/30

2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B07C POSTAL SORTING; SORTING INDIVIDUAL ARTICLES, OR BULK MATERIAL FIT TO BE SORTED PIECE-MEAL, e.g. BY PICKING (specially adapted for a specific purpose covered by another class, see the relevant place, e.g. A43D 33/06, B23Q 7/12)

**NOTE**

This subclass covers sorting of materials or articles by hand or by devices actuated, manually or automatically, as a result of inspection or of detection or measurement of some feature of the material or articles

**WARNING**

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B08 CLEANING

B08B CLEANING IN GENERAL; PREVENTION OF FOULING IN GENERAL (brushes A46; devices for domestic or like cleaning A47L; { cleaning-golf-clubs or golf accessories A63B 57/60; cleaning grips of bats on rackets A63B 60/36 } ; separation of particles from liquids or gases B01D; separation of solids B03, B07; spraying or applying liquids or other fluent materials to surfaces in general B05; cleaning devices for conveyors B65G 45/10; concurrent cleaning, filling and closing of bottles B67C 7/00; inhibiting corrosion or incrustation in general C23; cleaning streets, permanent ways, beaches or land E01H; parts, details or accessories of swimming or splash baths or pools, specially adapted for cleaning E04H 4/16; preventing or removing electrostatic charges H05F)

**NOTE**

This subclass covers only inventions relating to cleaning which are usually classified according to one (or more) of the aspects mentioned below if they are not fully classifiable in a subclass a subclass providing for any of the following aspects:

- the articles cleaned, e.g. bed-pans, urinal or other sanitary devices for bed-ridden persons A61G 9/02, filters, semi-permeable membranes B01D, castings and moulds B22D 29/00, vehicles B60S, coke ovens C10B 43/00, building forms E04G, boilers F22, combustion apparatus F23, furnaces F27; the general nature of the cleaning, e.g. preparing for sugar manufacture A23N, domestic cleaning A47L, treatment of textiles D06, laundry D06F, air-conditioning F24F;
- the particular operation performed, e.g. filtering B01D, separating of solids B03, B07, sand-blasting B24C;
- the particular apparatus or device, e.g. brushes A46B, mops A47L, centrifuges B04, hand tools B25{ devices for cleaning paint-applying hand tools after use B44D 3/006 };
- the substance cleaned, e.g. metals B21C, C23, water C02, glass C03B, leather C14B, textile fibres D01;
- the substance removed (or prevented from depositing or forming) e.g. { removing paint B44D 3/00, e.g. } implements or apparatus for removing dry paint from surfaces B44D 3/16;
- chemical paint-removers C09D 9/00;
- preventing rust C23F;
• the substance used, e.g. macromolecular compounds or compositions C08, anti-icing materials C09K, detergents C11D; textile fabrication D01G, D01H, D03J, D04B.
• the operation in connection with which cleaning is done, e.g. metal rolling B21B, metal boring B23B, soldering B23K.
• the surroundings of a surface to be cleaned or kept clean, e.g. water in a boiler C02F, air in a room F24F.

**WARNING**

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

**B09 DISPOSAL OF SOLID WASTE; RECLAMATION OF CONTAMINATED SOIL**

**B09B DISPOSAL OF SOLID WASTE**

**NOTES**

1. This subclass covers only single or combined, e.g. multistage, operations not fully classifiable in a single other subclass.
2. In this subclass the following terms or expressions are added with the meanings indicated:
   • “disposal” means the discarding, e.g. dumping, or destroying of waste or its transformation into something useful or harmless;
   • “solid waste” includes waste which, although it has liquid content, is for practical purposes handled as solid.
3. Attention is drawn to the following places:
   - A23J 1/16: Obtaining proteins from waste water of starch manufacturing plants of like wastes
   - A23K 10/28: Animal feeding-stuffs from waste products of dairy
   - A23K 10/20: Animal feeding-stuffs from kitchen waste
   - A43B 1/12: Footwear made of rubber waste
   - A61L 11/00: Disinfection or sterilisation methods specially adapted for refuse
   - A62D 3/00: Chemical means for combating harmful chemical agents; processes for making harmful chemical agents harmless
   - B01D 53/34: Chemical purification of smoke or fumes, e.g. flue gas
   - B02C 18/0084: Disintegrating by knives or other cutting or tearing members, which chop material into fragments, specially adapted for disintegrating garbage, waste or sewage
   - B03B 7/00: Combinations of wet processes or apparatus with other processes or apparatus, e.g. for dressing ores or garbage
   - B03B 9/06: General arrangement of separating plant, e.g. flow sheets, specially adapted for refuse
   - B05B 12/16, B05B 12/32: Control of spray area of spraying plant, e.g. masking, side shields; Means for collection or re-use of excess material
   - B08B 15/00: Prevent escape of dirt or fumes from the area where they are produced; Collecting or removing dirt or fumes from that area
   - B23D 25/14: Machines or arrangements for shearing stock while the latter is travelling otherwise than in the direction of the cut without regard to the exact dimensions of the resulting material, e.g. for cutting up scrap
   - B27B 33/20: Edge trimming saw blades or tools combined with means to disintegrate waste
   - B29B 17/00: Recovery of plastics or other constituents of waste material containing plastics
   - B30B 9/32: Presses for consolidating scrap metal or for compacting used cars
   - B63B 17/06: Refuse discharge from vessels, e.g. for ash [B63J 4/006]; Arrangements of installation for treating waste water or sewage on vessels
   - B65F 1/00: Refuse receptacles
   - B65F 3/00: Vehicles particularly adapted for collecting refuse
   - B65F 5/00: Gathering or removal of refuse otherwise than by receptacles or vehicles
   - B65F 7/00: Cleaning or disinfecting devices combined with refuse receptacles or refuse vehicles
   - C03C 1/00: Ingredients generally applicable to manufacture of glasses, glazes or vitreous enamels
   - C04B 7/24: Hydraulic cements from oil shales, residues or waste other than slag
   - C04B 11/26: Calcium sulfate cements from phosphogypsum or from waste, e.g. purification products of smoke
   - C04B 18/04: Waste materials or refuse used as fillers for mortars, concrete, artificial stone or the like
   - C04B 22/0006: Waste inorganic materials used as active ingredients for mortars, concrete, artificial stone or the like
   - C04B 24/001: Waste organic materials used as active ingredients for mortars, concrete, artificial stone or the like
   - C05F 9/00: Fertilisers made from household or town refuse
   - C08J 11/00: Recovery of waste materials of macromolecular substances
   - C08L 17/00: Compositions of reclaimed rubber
   - C10B 53/00: Destructive distillation, specially adapted for particular solid raw materials or solid raw materials in special form
SEPARATING; MIXING

Other processes not covered before; Features of destructive distillation processes in general

C09B 57/00 Production of liquid hydrocarbon mixtures from rubber or rubber waste
C10G 1/10 Solid fuels essentially based on sewage, house or town refuse
C10L 5/46 Solid fuels essentially based on industrial residues and waste materials
C10M 175/02 Working-up used lubricants based on mineral oils
C11B 13/00 Recovery of fats, fatty oils, or fatty acids from waste materials
C11D 19/00 Recovery of glycerol from a saponification liquor
C12E 3/00 Recovery of by-products
C12E 3/08 Recovery of alcohol from press residues or other waste material
C12P 7/08 Biochemical production of ethanol from waste
C22B 7/00 Working-up raw materials other than ores, e.g., scrap, to produce non-ferrous metals or compounds thereof
C22B 19/28 Obtaining zinc or zinc oxide from muffle furnace residues
C22B 19/30 Obtaining zinc or zinc oxide from metallic residues or scrap
C22B 25/06 Obtaining tin from scrap
D01B Mechanical treatment of natural fibrous or filamentary material to obtain fibres or filaments, e.g., for spinning
D01C 5/00 Carbonising rags to recover animal fibres
D01F 13/00 Recovery of starting material, waste material or solvents during the manufacture of artificial filaments or the like
D01G 11/00 Disintegrating fibre-containing articles to obtain fibres for re-use
D01H 11/00 Arrangements for confining or removing dust, fly, or the like
D06L 1/10 Regeneration of used chemical baths used for dry-cleaning or washing fibres, fabrics or the like
D21B 1/08 Dry treatment of waste paper or rags for making paper or for the production of cellulose
D21B 1/32 Defibrating waste paper
D21C 5/02 Processes for obtaining cellulose by working-up waste paper
D23C 11/14 Regeneration of pulp liquors by wet combustion
D21F 1/66 Re-use of pulp-water in wet end machines for making continuous webs of paper
D21H 17/01 Waste products added to the pulp or used in paper-impregnating material
E03F 1/10 Sewers, Cesspools
E04F 17/10 Arrangements in building for the disposal of refuse
F23B 5/00 Combustion apparatus arrangements for burning uncombusted material from primary combustion
F23G Consuming waste products by combustion
F23J Removal or treatment of combustion products or combustion residues
G03C 11/24 Removing emulsion from waste photographic material
H01B 15/00 Apparatus or processes for salvaging material from electric cables
H01M 6/52 Reclaiming serviceable parts of waste cells or batteries
H01M 10/54 Reclaiming serviceable parts of waste accumulators

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B09C RECLAMATION OF CONTAMINATED SOIL (gatherers for removing stone or the like from the soil A01B 43/00; sterilising soil by steam A01G 11/00; removing undesirable matter, e.g. rubbish, from the land E01H 15/00)

NOTE
In this subclass, the following term is used with the meaning indicated:
• “reclamation” means the partial or total elimination or the fixing of contaminants in soil.

WARNING
The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:
B09C 1/04 covered by B09C 1/02
SHAPING

B21 MECHANICAL METAL-WORKING WITHOUT ESSENTIALLY REMOVING MATERIAL; PUNCHING METAL

NOTES
1. This class covers:
   • working of metallic materials;
   • working of non-metallic materials, provided that the methods applied are similar to those used in metal-working and not provided for elsewhere.
2. This class does not cover:
   • combinations of operations covered by different subclasses of class B21, which are covered by subclass B23P;
   • combinations of operations covered by any particular subclass of class B21 with operations covered by other classes, e.g. with operations involving removal of material, which are also covered by subclass B23P, except that if the operations covered by the other classes are subsidiary to the operations properly covered by a single subclass of B21 the combination is classified in that subclass.

B21B ROLLING OF METAL (auxiliary operations used in connection with metal-working operations covered in B21, see B21C; bending by rolling B21D; manufacture of particular objects, e.g. screws, wheels, rings, barrels, balls, by rolling B21H; pressure welding by means of a rolling mill B23K 20/04)

NOTE
In this subclass, the following terms or expressions are used with the meanings indicated:
• “rolling” means rolling operations in which plastic deformations occur;
• “continuous process” means a process employing a mill train designed to have the workpiece enter one pair of rolls before leaving the preceding pair.

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B21C MANUFACTURE OF METAL SHEETS, WIRE, RODS, TUBES OR PROFILES, OTHERWISE THAN BY ROLLING; AUXILIARY OPERATIONS USED IN CONNECTION WITH METAL-WORKING WITHOUT ESSENTIALLY REMOVING MATERIAL

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B21D WORKING OR PROCESSING OF SHEET METAL OR METAL TUBES, RODS OR PROFILES WITHOUT ESSENTIALLY REMOVING MATERIAL; PUNCHING METAL (working or processing of wire B21F)

NOTES
1. This subclass covers cutting or perforating of sheet metal or other stock material
2. This subclass does not cover the working of metal foils in a manner analogous to the working of paper, which is covered by classes B26, B31

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.
**B21F** WORKING OR PROCESSING OF METAL WIRE (reducing diameter by rolling of metal B21B; by drawing, auxiliary operations used in connection with metal-working without essentially removing material B21C; bundling articles B65B 13/00)

**WARNING**

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

**B21G** MAKING NEEDLES, PINS OR NAILS OF METAL

**WARNING**

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

**B21H** MAKING PARTICULAR METAL OBJECTS BY ROLLING, e.g. SCREWS, WHEELS, RINGS, BARRELS, BALLS (essentially from sheet metal B21D)

**NOTE**

This subclass covers rolling operations which are specially adapted for use in the manufacture of particular objects and which are not essentially combined with any different metal-working operation unless the latter is a subsidiary operation performed in the same machine.

**WARNING**

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

**B21J** FORGING; HAMMERING; PRESSING METAL; RIVETING; FORGE FURNACES (rolling of metal B21B; making particular products by forging or pressing B21K; cladding or plating B23K; finishing surfaces by hammering B23P 9/04; compacting surfaces by blasting with particulate material B24C 1/10; general features of presses, presses for consolidating scrap B30B; furnaces in general F27)

**WARNING**

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

**B21K** MAKING FORGED OR PRESSED METAL PRODUCTS, e.g. HORSE-SHOES, RIVETS, BOLTS OR WHEELS (making particular articles by working sheet metal without essentially removing material B21D; processing wire B21F; making pins, needles or nails B21G; making particular articles by rolling B21H; forging machines, pressing machines, hammering machines, in general B21J; making chains B21L; plating B23K)

**NOTE**

This subclass includes only forging, pressing, or hammering operations which are specially adapted for use in the manufacture of particular objects and which, so far as the invention is concerned, are not combined with any different metal-working operation unless the latter is a subsidiary operation performed in the same machine.

**WARNING**

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

**B21L** MAKING METAL CHAINS (making chains or chain links by casting B22D 25/02; chains in general F16G)

**WARNING**

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

**B22** CASTING; POWDER METALLURGY
B22C  FOUNDRY MOULDING (moulding refractory materials in general B28B)

NOTE
This subclass covers:
• the making of moulds for casting metals or of other refractory moulds;
• selection or preparation of materials therefor;
• the necessary patterns, processes, machines, accessory devices or tools.

WARNINGS
1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:
   - B22C 3/02 covered by B22C 3/00
   - B22C 5/13 covered by B22C 5/12
   - B22C 7/05 covered by B22C 7/04
   - B22C 9/11 covered by B22C 9/10
   - B22C 9/14 covered by B22C 9/12
   - B22C 9/16 covered by B22C 9/12
   - B22C 15/264 - B22C 15/276 covered by B22C 15/23
   - B22C 19/01 covered by B22C 19/00

2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B22D  CASTING OF METALS; CASTING OF OTHER SUBSTANCES BY THE SAME PROCESSES OR DEVICES (shaping of plastics or substances in a plastic state B29C; metallurgical processing, selection of substances to be added to metal C21, C22)

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B22F  WORKING METALLIC POWDER; MANUFACTURE OF ARTICLES FROM METALLIC POWDER; MAKING METALLIC POWDER (processes or devices for granulating materials in general B01J 2/00; making ceramics by compacting or sintering C04B, e.g. C04B 35/64; for the production of metals as such, see class C22; reduction or decomposition of metal compounds in general C22B; making alloys by powder metallurgy C22C; electrolytic production of metal powder C25C 5/00)

NOTES
1. This subclass covers the making of metallic powder only insofar as powder with specific physical characteristics is made;
2. In this subclass, the following terms or expressions are used with the meanings indicated:
   • “metallic powder” covers powders containing a substantial proportion of non-metallic material;
   • “powder” includes somewhat larger particles which are worked, obtained or behave in a manner similar to powder, e.g. fibres.

WARNINGS
1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:
   - B22F 3/035 covered by B22F 3/03

2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B23  MACHINE TOOLS; METAL-WORKING NOT OTHERWISE PROVIDED FOR

NOTES
1. This class covers:
   • working of metallic materials;
   • working of non-metallic materials, provided that the methods applied are similar to those used in metal-working and not provided for elsewhere;
   • features, specific to machine tools, which relate to a requirement or problem of a nature which is not peculiar to a particular kind of machine tool, e.g. feeding work, which are covered by subclass B23Q, although the realisation of these features may differ according to the kind of machine tool concerned. The said subclass covers such features, in general,
even if the feature or a specific function, in any particular case, is to some extent peculiar to, or is claimed only for, machine tools designed for one particular operation; only in exceptional cases are such features classified in the subclass for the machine tool concerned. Certain features of this general nature are, however, referred to subclasses relating to particular metal-working operations, especially B23B, in which case the subclasses in question are not restricted, in respect of those features, to the kind of machine tool with which they are primarily concerned.

2. In this class, the following terms or expressions are used with the meanings indicated:
   • “kind of operations” and similar expressions relate to such metal-working operations as boring, drilling, milling and grinding;
   • “kind of machine” means a machine designed for a particular kind of metal-working operation (e.g. a lathe);
   • “form of machine” means a machine of a particular kind adapted or arranged for a particular way of working or for particular work, e.g. face-plate lathe, tailstock lathe, turret lathe;
   • “different machines” covers different forms of machines for performing the same type of metal-working operation, e.g. vertical and horizontal boring machines.

3. If details, components, or accessories have no essential feature specific to machine tools, the more general class, e.g. F16, takes precedence.

B23B TURNING; BORING (arrangements for copying or controlling B23Q)

WARNINGS

1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:

<table>
<thead>
<tr>
<th>IPC Group</th>
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<tr>
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<td>B23Q 35/00</td>
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2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B23C MILLING (broaching B23D; broach-milling in making gears B23F; arrangement for copying or controlling B23Q)

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B23D PLANING; SLOTTING; SHEARING; BROACHING; SAWING; FILING; SCRAPING; LIKE OPERATIONS FOR WORKING METAL BY REMOVING MATERIAL, NOT OTHERWISE PROVIDED FOR (making toothed gears or the like B23F; cutting metal by applying heat locally B23K; arrangements for copying or controlling B23Q)

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B23F MAKING GEARS OR TOOTHED RACKS (by stamping B21D; by rolling B21H; by forging or pressing B21K; by casting B22; arrangements for copying or controlling B23Q; machines or devices for grinding or polishing, in general B24B)

NOTES
1. This subclass covers:
   - the use of methods or apparatus specially designed to produce accurately the shapes of gear teeth which are essential for proper intermeshing of toothed gearing elements to ensure the required relative motions;
   - the use of similar methods or apparatus in the production of other articles of toothed or like form, e.g. dog clutches, splined shafts, milling cutters.
2. This subclass does not cover the production of such other articles of toothed or like form using methods or apparatus other than those mentioned under Note (1) above.
3. In this subclass, the following terms or expressions are used with the meanings indicated:
   - "gear teeth" covers the teeth or lobes of other accurately-intermeshing members having relative movement of a similar kind, such as rotors of rotary pumps and blowers;
   - "profile" may include the outline of both faces or only one face of a tooth, or the opposing faces of adjacent teeth;
   - "straight" means that a tooth as a whole (ignoring any curvature of the tooth-face alone, e.g. crowning) is straight in the direction of its length, for example as seen in the direction of a radius of a spur wheel. It accordingly includes the teeth of helical gears and of the normal type of bevel gear;
   - "broach-milling" means milling with a rotary cutter having a number of teeth of progressively increasing depth or width.

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B23G THREAD CUTTING; WORKING OF SCREWS, BOLT HEADS, OR NUTS, IN CONJUNCTION THEREWITH (making helical grooves by turning B23B 5/48, by milling B23C 3/32, by forging, pressing, or hammering B21K 1/56, by grinding B24B 19/02; arrangements for copying or controlling B23Q; thread-forming by corrugating tubes B21D 15/04, by rolling B21H 3/02)

NOTE
The term "thread cutting" is to be understood as including the use of tools similar both in form and in manner of use to thread-cutting tools, but without removing any material

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.
WORKING OF METAL BY THE ACTION OF A HIGH CONCENTRATION OF ELECTRIC CURRENT ON A WORKPIECE USING AN ELECTRODE WHICH TAKES THE PLACE OF A TOOL; SUCH WORKING COMBINED WITH OTHER FORMS OF WORKING OF METAL (processes for the electrolytic or electrophoretic production of coatings, electroforming, or apparatus therefor C25D; processes for the electrolytic removal of material from objects C25F; manufacturing printed circuits using precipitation techniques to apply the conductive material to form the desired conductive pattern H05K 3/18)

NOTE
This subclass covers the working of metal described as "electroerosion"

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

SOLDERING OR UNSOLDERING; WELDING; CLADDING OR PLATING BY SOLDERING OR WELDING; CUTTING BY APPLYING HEAT LOCALLY, e.g. FLAME CUTTING; WORKING BY LASER BEAM (making metal-coated products by extruding metal B21C 23/22; building up linings or coverings by casting B22D 19/08; casting by dipping B22D 23/04; manufacture of composite layers by sintering metal powder B22F 7/00; arrangements on machine tools for copying or controlling B23Q; covering metals or covering materials with metals, not otherwise provided for C23C; burners F23D)

NOTES
1. This subclass covers also electric circuits specially adapted for the purposes covered by the title of the subclass.
2. In this subclass, the following term is used with the meaning indicated:
   • "soldering" means uniting metals using solder and applying heat without melting either of the parts to be united

WARNING
1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:
   B23K 35/04 - B23K 35/20 covered by B23K 35/0205 - B23K 35/0294
   B23K 35/363 covered by B23K 35/3601 - B23K 35/3618

2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

OTHER WORKING OF METAL; COMBINED OPERATIONS; UNIVERSAL MACHINE TOOLS (arrangements for copying or controlling B23Q)

NOTES
1. This subclass covers:
   • combinations of work-modifying operations covered by different subclasses of classes B21 - B24;
   • combinations of metal-working operations with non-mechanical treatments of metal not provided for elsewhere, for example in C21D, C22C, C22F or C23.

2. This subclass does not cover
   • non-mechanical operations on non-metallic materials unless such operations are specially mentioned in this subclass;
   • subsidiary operations performed in conjunction with main operations covered by a single subclass, e.g. assembling of parts as an essential feature of a following metal-working operation, since they are not regarded as operations per se.

3. Attention is drawn to the Notes following the title of class B23.

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.
SHAPING

B23Q DETAILS, COMPONENTS, OR ACCESSORIES FOR MACHINE TOOLS, e.g. ARRANGEMENTS FOR COPYING OR CONTROLLING (tools of the kind used in lathes or boring machines B23B 27/00); MACHINE TOOLS IN GENERAL CHARACTERISED BY THE CONSTRUCTION OF PARTICULAR DETAILS OR COMPONENTS; COMBINATIONS OR ASSOCIATIONS OF METAL-WORKING MACHINES, NOT DIRECTED TO A PARTICULAR RESULT

NOTES
1. In this subclass, groups designating parts of machine tools cover machine tools characterised by constructional features of such parts.
2. In this subclass, the following terms or expressions are used with the meanings indicated:
   • "controlling" means influencing a variable in any way, e.g. changing its direction or its value (including changing it to or from zero), maintaining it constant, limiting its range of variation;
   • "regulation" means maintaining a variable automatically at a desired value or within a desired range of values. The desired value or range may be fixed, or manually varied, or may vary with time according to a predetermined "programme" or according to variation of another variable. Regulation is a form of control;
   • "automatic control" is often used in the art as a synonym for regulation.
   • “Machine tool” means a mechanical working machine that removes material from a workpiece with a mechanical cutting edge to perform a shaping operation, essentially through drilling, milling, turning or cutting, e.g. sawing. The workpiece is generally made of metal, wood or plastic and is not a human body, food or clothes.
3. Attention is drawn to the Notes following the title of class B23.

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B24 GRINDING; POLISHING

NOTE
In this class, the following term is used with the meaning indicated:
   • “grinding” is used in the most general sense to mean machining and covers, in particular, "corrective” operations.

B24B MACHINES, DEVICES, OR PROCESSES FOR GRINDING OR POLISHING (grinding of gear teeth B23F, of screw-threads B23G 1/36; by electro-erosion B23H; abrasive or related blasting B24C; tools for grinding, buffing or sharpening B24D; polishing compositions C09G 1/00; abrasives C09K 3/14; electrolytic etching or polishing C25F 3/00; dressing or conditioning of abrading surfaces; feeding of grinding, polishing, or lapping agents

NOTES
1. In this subclass, the following term is used with the meaning indicated:
   "polishing" means the smoothing of a surface, i.e. a surface improvement but no improvement of the dimensional accuracy as would occur in a “grinding” operation.
2. Attention is drawn to Notes (1) and (2) following the title of subclass B23F.
3. In groups B24B 1/00 - B24B 27/00, in connection with glass the terms ”grinding “ and "polishing" are treated as being equivalent.

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B24C ABRASIVE OR RELATED BLASTING WITH PARTICULATE MATERIAL

NOTES
1. This subclass covers:
   • the use of a blast of any particles or pellets dispersed in air, gas, or liquid for the treatment of surfaces or cutting of materials, the particles usually being of abrasive material;
   • the equivalent use of a jet of particles or pellets projected or energised by means other than a stream of air
   • [the equivalent use of material without particles or pellets for deburring, removal of extended surface areas or jet milling of local recessions, e.g. grooves]
In this subclass, the following terms are used with the meanings indicated:
- "abrasive" covers any material used in the manner mentioned in Note (1) above;
- "blast" covers any equivalent jet of material mentioned in Note (1) above.

**WARNING**

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

**B24D**

**TOOLS FOR GRINDING, BUFFING, OR SHARPENING** (tools for grinding or polishing optical surfaces on lenses or surfaces of similar shape **B24B 13/01**; grinding heads **B24B 41/00**; manufacture of abrasive or friction articles or shaped materials containing macromolecular substances **C08J5/14**; polishing compositions **C09G 1/00**; abrasives **C09K 3/14**)

**NOTES**

1. This subclass covers grinding tools for working on any material
2. Tools for grinding, buffing or sharpening, specially designed for a particular purpose, which purpose is provided for in a single other place, are classified in that place, e.g. **B23F 21/02**.

**WARNING**

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

**B25**

**HAND TOOLS; PORTABLE POWER-DRIVEN TOOLS; MANIPULATORS**

**NOTE**

The work "portable" is to be understood as including suspension for easy manual handling, e.g. in connection with spring-suspended portable apparatus for use along assembly lines.

**B25B**

**TOOLS OR BENCH DEVICES NOT OTHERWISE PROVIDED FOR, FOR FASTENING, CONNECTING, DISENGAGING OR HOLDING**

**NOTE**

This subclass is to be understood as covering those hand tools for fastening, connecting, disengaging, or holding which are not provided for in another subclass such as **B25C** (nailing or stapling tools) or in an application class such as **B65B** (packaging) or **B21F** (working of wire).

**WARNINGS**

1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:
   - **B25B 23/143** covered by **B25B 23/1422**
   - **B25B 23/144** covered by **B25B 23/1425**
   - **B25B 23/155** covered by **B25B 23/141**
   - **B25B 23/157** covered by **B25B 23/14**
   - **B25B 23/159** covered by **B25B 23/14**
   - **B25B 27/067** covered by **B25B 27/06**
   - **B25B 27/073** covered by **B25B 27/062**

2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

**B25C**

**HAND-HELD NAILING OR STAPLING TOOLS; MANUALLY OPERATED PORTABLE STAPLING TOOLS** (for shoemaking **A43D**)

**NOTE**

For the purposes of this subclass, the term "nail" is to be understood as including pin, bolt, and plug.

**WARNING**

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.
B25D  **PERCUSSIVE TOOLS** { (percussive machines for forging B21J; hand-held drilling machines, in general B23B 45/00, for wood B27C 3/08; drilling machines, used for mining or quarrying, with reciprocating tool which is turned intermittently when out of contact with the working face E21B 1/00) }

**WARNINGS**

1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:
   
<table>
<thead>
<tr>
<th>IPC Group</th>
<th>CPC Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>B25D 13/00</td>
<td>covered by B25D 11/064</td>
</tr>
<tr>
<td>B25D 15/00</td>
<td>covered by B25D 11/066</td>
</tr>
<tr>
<td>B25D 15/02</td>
<td>covered by B25D 11/068</td>
</tr>
<tr>
<td>B25D 17/10</td>
<td>covered by B25D 17/00</td>
</tr>
<tr>
<td>B25D 17/14</td>
<td>covered by B23Q 11/0042</td>
</tr>
<tr>
<td>B25D 17/16</td>
<td>covered by B23Q 11/0042</td>
</tr>
<tr>
<td>B25D 17/18</td>
<td>covered by B23Q 11/0042</td>
</tr>
</tbody>
</table>

2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B25F  **COMBINATION OR MULTI-PURPOSE TOOLS NOT OTHERWISE PROVIDED FOR; DETAILS OR COMPONENTS OF PORTABLE POWER-DRIVEN TOOLS NOT PARTICULARLY RELATED TO THE OPERATIONS PERFORMED AND NOT OTHERWISE PROVIDED FOR** { (machines or arrangements of machines for performing specified combinations of different metal-working operations not covered by a single other subclass B23P 23/00 and subgroups) }

**NOTE**

This subclass does not cover tools having a clear primary function as well as one or more secondary functions. Those tools are covered by the relevant subclass for tools having such primary function and are, thus, not classified in group B25F 1/00 or B25F 3/00 of this subclass.

B25G  **HANDLES FOR HAND IMPLEMENTS** (attaching the blades or the like to handles of hand tools for soil working A01B 1/22; handles of hand implements for harvesting A01D 1/14; handles integral with brushware A46B)

**NOTES**

1. This subclass covers:
   * handles for hand implements, in general;
   * handles for hand implements for particular purposes, subject to Note (2) below.

2. This subclass does not cover handles provided for elsewhere, e.g. it does not cover those provided for in A45B 9/02, A45C 13/22, A45C 13/26, A45B 95/02, A47J 45/00, B23D 51/01, B25J 13/02, B26B, B60N 3/02, B62B 5/06, B62B 9/20, B62K 21/26, B62M 3/14, B65D 25/28, E05B, G05G.

**WARNING**

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B25H  **WORKSHOP EQUIPMENT, e.g. FOR MARKING-OUT WORK; STORAGE MEANS FOR WORKSHOPS** (storing or packaging B65)

**WARNING**

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.
B25J MANIPULATORS; CHAMBERS PROVIDED WITH MANIPULATION DEVICES

{ manipulators specially adapted for use in surgery A61B 34/70; manipulators used in cleaning hollow articles B08B 9/04; manipulators associated with rolling mills B21B 39/20; manipulators associated with forging machines B21J 13/10; manipulators associated with picking-up and placing mechanisms B23P 19/007; means for holding wheels or parts thereof B60B 30/00; vehicles with ground-engaging propulsion means, e.g. walking members B62D 57/02, B62D 57/032; devices for picking-up and depositing articles or materials between conveyors B65G 47/90, B65G 47/91; manipulators with gripping or holding means for transferring packages B66H 67/065; cranes B66C; manipulators used in the protection or supervision of pipe-line installations F17D 5/00; walking equipment adapted for nuclear steam-generators F22B 37/006; manipulators specially adapted for, or associated with, nuclear reactors G21C; apparatus used for handling wafers during manufacture or treatment of semiconductor H01L 21/68)

NOTE

In this subclass, the following term is used with the meaning indicated:

- “manipulator” covers handling tools, devices, or machines having a gripping or work head capable of bodily movement in space and of change of orientation, such bodily movement and change of orientation being controlled, at will, by means remote from the head.

WARNINGS

1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:
   - B25J 9/18 covered by B25J 9/16
   - B25J 9/22 covered by B25J 9/1656, G05B 19/42

2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B26 HAND CUTTING TOOLS; CUTTING; SEVERING

B26B HAND-HELD CUTTING TOOLS NOT OTHERWISE PROVIDED FOR (for harvesting A01D; for horticulture, for forestry A01G; for butchering or meat treatment A22; for manufacturing or repairing footwear A43D; nail clippers or cutters A45D 29/02; kitchen equipment A47J; vegetable slicers, julienne cutters and similar devices and holders therefor, B26D 3/28; for surgical purposes A61B; for metal B23D; cutting by abrasive fluid jets B24C 5/02; plier-like tools with cutting edges B25B 7/22; pincers B25C 11/02; handles for hand implements, in general B25G; guillotine-type cutters B26D; perforating by non-mechanical means, e.g. by fluid jet, B26F 1/26; for erasing B43L 19/00; for textile materials D06H)

WARNING

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.
B26D  CUTTING; DETAILS COMMON TO MACHINES FOR PERFORATING, PUNCHING, CUTTING-OUT, STAMPING-OUT OR SEVERING (soil-working A01B; for growing crops or plants A01D, A01G; for fodder or straw A01F; for bulk butter A01J; for dough A21C; slaughtering A22B; for tobacco, cigars or cigarettes A24; marking-out, perforating or making buttonholes A41H 25/00; manufacturing footwear A43D; brushmaking A46D; surgery A61B; disintegrating, mincing or shredding in general B02C; cutting wire, making pins or nails B21F, B21G; of the kind used for metal B23; cutting by abrasive fluid jets B24C 5/02; hand-held cutting tools B26B; perforating, cutting-out, stamping-out or punching, or severing by means other than cutting B26F; for wood B27; for stone B28D; working of plastics or substances in a plastic state B29; making boxes, cartons, envelopes or bags, of paper or similarly worked materials, e.g. metal foil, B31B; article or web delivery apparatus incorporating cutting or line-perforating devices B65H 35/00; for leather or upholstery B68; C14B; for glass C03B; making matches C06F; for peat C10F; for sugar C13B 45/00; for textile materials D06H; civil engineering, building, mining, see Section E; for light guides G02B 6/25; cutting processed photographic material G03D 15/04)

NOTES
1. This subclass covers:
   • cutting non-metallic sheet material and metal foil in general;
   • cutting other forms of non-metallic material not otherwise provided for;
   • features specific to machines for cutting, perforating, punching, cutting-out, stamping-out and severing by means other than cutting, which relate to a requirement or problem of a nature which is not peculiar to a machine for these purposes, that is, details of or arrangements for operating or controlling such machines, although the realisation of such features may differ according to the kind of machine concerned. This subclass covers such features in general even if the feature in any particular case is to some extent peculiar to, or is claimed only for, a machine designed for perforating, punching, cutting-out, stamping-out, or for severing other than by cutting.
2. If the details or arrangements have no essential features specific to cutting, perforating, punching, cutting-out or severing machines, the more general classes, e.g. F16, take precedence.
3. In this subclass, in groups B26D 5/00 and B26D 7/00, the following term is used with the meaning indicated:
   • “cutting” includes cutting-out, stamping-out, punching, perforating, and severing by means other than cutting.

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B26F  PERFORATING; PUNCHING; CUTTING-OUT; STAMPING-OUT; SEVERING BY MEANS OTHER THAN CUTTING (marking-out, perforating or making buttonholes A41H 25/00; shoemaking A43D; surgery A61B; punching metal B21D; drilling metal B23B; cutting of metal by applying heat locally, e.g. flame cutting, B23K; cutting by abrasive fluid jets B24C 5/02; details common to machines for severing B26D; drilling wood B27C; drilling stone B28D; working of plastics or substances in a plastic state B29; making boxes, cartons, envelopes or bags, of paper or similarly worked materials, e.g. metal foil, B31B; of glass C03B; of leather C14B; of textile materials D06H; for light guides G02B 6/25; of tickets G07B)

NOTES
1. This subclass covers:
   • perforating, punching, cutting-out, stamping-out;
   • severing, by means other than cutting, non-metallic sheet materials or metal foil in general;
   • severing, by means other than cutting, other forms of non-metallic material not otherwise provided for.
2. Attention is drawn to Notes (1) and (2) following the title of subclass B26D.

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.
B27 WORKING OR PRESERVING WOOD OR SIMILAR MATERIAL; NAILING OR STAPLING MACHINES IN GENERAL

B27B SAWS FOR WOOD OR SIMILAR MATERIAL; COMPONENTS OR ACCESSORIES THEREFORE (saws specially adapted for pruning or debranching A01G 3/08; sawing apparatus specially adapted for felling trees A01G 23/091; features not restricted to a particular type of wood saw B23D, e.g. attaching saw blades B23D 51/00; machine tool frames, beds, pillars or like members, in general B23Q 1/01)

WARNINGS
1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:
   - B27B 33/18 covered by B27B 5/12
2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B27C PLANING, DRILLING, MILLING, TURNING OR UNIVERSAL MACHINES FOR WOOD OR SIMILAR MATERIAL (machine tools in general B23; working wood using abrasive, e.g. sanding, devices B24; tools for these purposes B27G)

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B27D WORKING VENEER OR PLYWOOD (applying liquids or other fluent materials to surface in general B05; grinding, sanding, or polishing of wood B24; applying adhesives or glue to surfaces of wood B27G 11/00; manufacture of veneer B27L 5/00)

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B27F DOVETAILED WORK; TENONS; SLOTTING MACHINES FOR WOOD OR SIMILAR MATERIAL; NAILING OR STAPLING MACHINES (hand-held nailing or stapling tools B25C; manufacture of cases, trunks or boxes from wood B27M 3/34; connections for building structures in general, e.g. dowels for use in building constructions E04B 1/38; jointing elements in general, e.g. dowels in general, F16B {; manufacture of long strips or planks by bonding together pieces of wood, e.g. by gluing, B27M 3/0013})

NOTE
This subclass covers also the assembling of the elements to be jointed, e.g. using adhesives, but the application of adhesives or glue to surfaces of wood to be jointed per se is dealt with in group B27G 11/00 (manufacture of specific semi-finished or finished articles B27M 3/00)

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B27G ACCESSORY MACHINES OR APPARATUS FOR WORKING WOOD OR SIMILAR MATERIALS; TOOLS FOR WORKING WOOD OR SIMILAR MATERIALS (tools for grinding B24D; sawing tools B27B 33/00; tools for slotting or mortising machines B27F 5/02; tools for the manufacture of wood shavings, chips, powder or the like B27L 11/00); SAFETY DEVICES FOR WOOD WORKING MACHINES OR TOOLS

WARNINGS
1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:
   - B27G 17/08 covered by B25D 3/00
2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

**B27G**

**BENDING WOOD OR SIMILAR MATERIAL; COOPERAGE; MAKING WHEELS FROM WOOD OR SIMILAR MATERIAL**

**WARNING**

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

**B27H**

**MECHANICAL WORKING OF CANE, CORK, OR SIMILAR MATERIALS**

**NOTE**

In this subclass, the working of cane embraces the working of other materials, e.g. of strips of wood or plastics, in the same manner

**WARNING**

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

**B27J**

**PROCESSES, APPARATUS OR SELECTION OF SUBSTANCES FOR IMPREGNATING, STAINING, DYING, BLEACHING OF WOOD OR SIMILAR MATERIALS, OR TREATING OF WOOD OR SIMILAR MATERIALS WITH PERMEANT LIQUIDS, NOT OTHERWISE PROVIDED FOR (applying liquids or other fluent materials to surfaces in general B05; coating wood or similar material B44D); CHEMICAL OR PHYSICAL TREATMENT OF CORK, CANE, REED, STRAW OR SIMILAR MATERIALS**

**WARNING**

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

**B27K**

**REMOVING BARK OR VESTIGES OF BRANCHES (forestry A01G); SPLITTING WOOD; MANUFACTURE OF VENEER, WOODEN STICKS, WOOD SHAVINGS, WOOD FIBRES OR WOOD POWDER**

**WARNING**

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

**B27L**

**WORKING OF WOOD NOT PROVIDED FOR IN SUBCLASSES B27B - B27L; MANUFACTURE OF SPECIFIC WOODEN ARTICLES**

**WARNING**

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

**B27M**

**MANUFACTURE BY DRY PROCESSES OF ARTICLES, WITH OR WITHOUT ORGANIC BINDING AGENTS, MADE FROM PARTICLES OR FIBRES CONSISTING OF WOOD OR OTHER LIGNOCELLULOSIC OR LIKE ORGANIC MATERIAL (containing cementitious material B28B; shaping of substances in a plastic state B29C; fibreboards made from fibrous suspensions D21J; drying F26B 17/00)**

**NOTE**

This subclass does not cover treatment of compositions which are in a plastic state, or worked by the same type of process or apparatus as plastics, which is covered by subclass B29B or B29C.
WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B28 WORKING CEMENT, CLAY, OR STONE

B28B SHAPING CLAY OR OTHER CERAMIC COMPOSITIONS, SLAG, OR MIXTURES CONTAINING CEMENTITIOUS MATERIAL, e.g. PLASTER (foundry moulding B22C; working stone or stone-like material B28D; shaping of substances in a plastic state, in general B29C; making layered products not composed wholly of these substances B32B; shaping in situ, see the relevant classes of section E)

NOTE
In this subclass, the following term is used with the meaning indicated:
• “the material” means:
  a. clay or other ceramic compositions;
  b. slag;
  c. mixtures with water-setting properties given by clay, cementitious material, or slag.

WARNINGS
1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:
   B28B 23/08 covered by B28B 21/60, B28B 23/06
2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B28C PREPARING CLAY; PRODUCING MIXTURES CONTAINING CLAY OR CEMENTITIOUS MATERIAL, e.g. PLASTER (preparing material for foundry moulds B22C 5/00)

NOTE
In this subclass, the following terms or expressions are used with the meanings indicated:
• “cement” or “mixtures of cement with other substance” includes plaster;
• “clay” includes like ceramic compositions.

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B28D WORKING STONE OR STONE-LIKE MATERIALS

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B29 WORKING OF PLASTICS; WORKING OF SUBSTANCES IN A PLASTIC STATE IN GENERAL

NOTES
1. This class does not cover the working of plastics sheet material in a manner analogous to the working of paper, which is covered by class B31.
2. In this class, the following term is used with the meaning indicated:
   • “plastics” means macromolecular compounds or compositions based on such compounds.
3. In this class, the following rules apply:
   a. The working of plastics is, as far as possible, classified primarily according to the particular shaping technique used, e.g. in subclass B29C.
   b. Classification according to production of particular articles in subclass B29D is restricted to:
      i. aspects which are characteristic for the production of a particular article, and not classifiable in subclass B29B or B29C;
      ii. combined operations for making the particular article which are not fully classifiable in subclass B29C.
SHAPING  

B29  
(continued)  

c. Products per se are not classified in this class. However, if a product is characterised by the way it is produced and not by its structure or composition, the production method should be classified in this class.

B29B  
PREPARATION OR PRETREATMENT OF THE MATERIAL TO BE SHAPED; MAKING GRANULES OR PREFORMS; RECOVERY OF PLASTICS OR OTHER CONSTITUENTS OF WASTE MATERIAL CONTAINING PLASTICS  

WARNING  
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B29C  
SHAPING OR JOINING OF PLASTICS; SHAPING OF MATERIAL IN A PLASTIC STATE, NOT OTHERWISE PROVIDED FOR; AFTER-TREATMENT OF THE SHAPED PRODUCTS, e.g. REPAIRING (making preforms B29B 11/00; making laminated products by combining previously unconnected layers which become one product whose layers will remain together B32B 37/00 - B32B 41/00)  

NOTES  
1. This subclass covers:  
   • shaping or joining of plastics;  
   • shaping of material in a plastic state when a specific material is not identified;  
   • shaping of material in a plastic state, not otherwise provided for.  
2. This subclass does not cover:  
   • working of plastics sheet material in a manner analogous to the working of paper, which is covered by class B31;  
   • shaping of materials provided for elsewhere, e.g. of metal, clay or foodstuffs.  
3. Attention is drawn to Note (3) following the title of class B29.  
4. In this subclass:  
   • repairing of articles made from plastics or materials in a plastic state, e.g. of articles shaped or produced by using techniques covered by this subclass or subclass B29D, is classified in group B29C 73/00;  
   • component parts, details, accessories or auxiliary operations which are applicable to more than one moulding technique are classified in groups B29C 31/00 - B29C 37/00;  
   • component parts, details, accessories or auxiliary operations which are only applicable or only of use for one specific shaping technique are classified only in the relevant subgroups of groups B29C 39/00-B29C 71/00.  
5. In this subclass, it is desirable to add the indexing codes of subclasses B29K and B29L.  

WARNING  
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B29D  
PRODUCING PARTICULAR ARTICLES FROM PLASTICS OR FROM SUBSTANCES IN A PLASTIC STATE (making granules B29B 9/00; making preforms B29B 11/00)  

WARNING  
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B29K  
INDEXING SCHEME ASSOCIATED WITH SUBCLASSES B29B, B29C OR B29D, RELATING TO MOULDING MATERIALS OR TO MATERIALS FOR {MOULDS,} REINFORCEMENTS, FILLERS OR PREFORMED PARTS, e.g. INSERTS  

NOTES  
1. This subclass constitutes an indexing scheme associated with subclasses B29B, B29C or B29D.  
2. In this subclass, the following term is used with the meaning indicated: “rubber” covers: natural or conjugated diene rubbers; rubber in general (for a specific rubber, other than a natural rubber or a conjugated diene rubber, see the group provided for such macromolecular compounds)  
3. Documents relating to compositions or properties of the materials to be shaped, said compositions having a particular influence on the shaping technique, should be classified in the shaping technique, e.g. B29C 39/003, B29C 41/003, B29C 43/003, B29C 45/0001, B29C 48/022, B29C 49/0005, B29C 51/002, B29C 53/005, B29C 55/005, B29C 61/003 and B29C 63/0017. Copolymers are indexed with the same indexing code as the majority polymers  
4. Copolymers are indexed with the same indexing code as the majority polymers  
5. Compositions for moulding materials, condition, form or state of moulded material: B29K 2001/00 - B29K 2105/00  
6. Compositions for reinforcements: B29K 2201/00 - B29K 2313/00
7. Compositions for fillers: B29K 2401/00 - B29K 2511/00
8. Compositions for preformed parts: B29K 2601/00 - B29K 2713/00
9. Compositions for moulds: B29K 2801/00 - B29K 2913/00
10. Properties of moulding materials, reinforcements, fillers, preformed parts or moulds: B29K 2995/00

WARNING

The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:

- B29K 105/22 covered by B29K 2705/00
- B29K 105/28 covered by B29K 2995/0025
- B29K 105/30 covered by B29K 2995/003
- B29K 105/32 covered by B29K 2995/0026
- B29K 105/34 covered by B29K 2995/002, B29K 2995/0007, and B29K 2995/0015

B29L INDEXING SCHEME ASSOCIATED WITH SUBCLASS B29C, RELATING TO PARTICULAR ARTICLES

NOTE

This subclass constitutes an indexing scheme for non-obligatory use only. The indexing scheme may be used to identify information which supplements subject matter already classified in subclass B29C. The indexing codes of this subclass, of which only the pertinent ones should be selected, are added in conformity with paragraph 82 of the Guide so as to provide information concerning the articles produced.

This subclass constitutes an indexing scheme associated with subclass B29C (and group B29B 17/00. Parts of specified articles are indexed with the same index codes as the articles.)

B30 PRESSES

B30B PRESSES IN GENERAL (producing ultra-high pressure or ultra-high pressure and high temperature to effect modifications of a substance, e.g. for making artificial diamonds B01J 3/00) {(compressing means for refuse receptacles B65F 1/1405)}

NOTE

This subclass provides for presses in general and also for those presses, for particular purposes, which are not provided for elsewhere.

WARNING

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B31 MAKING ARTICLES OF PAPER, CARDBOARD OR MATERIAL WORKED IN A MANNER ANALOGOUS TO PAPER; WORKING PAPER, CARDBOARD OR MATERIAL WORKED IN A MANNER ANALOGOUS TO PAPER

NOTES

1. This class covers subject matter restricted to adaptations or associations of handling sheets, webs, or blanks peculiar to paper-working, e.g. bag or box making, machinery.
2. This class does not cover:
   • handling sheets, webs or blanks of wider applicability, irrespective of whether described or claimed only for paper-working machinery, which is regarded as being of a more comprehensive nature and is covered by B65H.
3. Sheet materials made from plastics, laminated materials and metal foils are examples of materials that can be worked in a manner analogous to paper.

B31B MAKING CONTAINERS OF PAPER, CARDBOARD OR MATERIAL WORKED IN A MANNER ANALOGOUS TO PAPER (making wound articles, e.g. wound tubes, B31C; combined making and filling B65B)

NOTE

In this subclass, the following terms or expressions are used with the meaning indicated:
SHAPING

B31B (continued)

- "rigid or semi-rigid containers" includes:
  - containers not deformed by, or not taking-up the shape of, their contents;
  - containers adapted to be temporarily deformed to expel their contents;
  - pallets;
  - trays;
- "flexible containers" includes:
  - containers deformed by, or taking-up the shape of, their contents;
  - containers adapted to be permanently deformed to expel their contents.

B31C MAKING WOUND ARTICLES, e.g. WOUND TUBES, OF PAPER, CARDBOARD OR MATERIAL WORKED IN A MANNER ANALOGOUS TO PAPER

NOTE

The term "winding" in this subclass means forming two or more complete convolutions.

B31D MAKING ARTICLES OF PAPER, CARDBOARD OR MATERIAL WORKED IN A MANNER ANALOGOUS TO PAPER, NOT PROVIDED FOR IN SUBCLASSES B31B OR B31C (manufacture by dry processes of articles made from particles or fibres consisting of wood or other lignocellulosic or like organic material B27N; making layered products not composed wholly of paper or cardboard B32B; making articles from cellulosic fibrous suspensions, e.g. wood pulp, D21J)

B31F MECHANICAL WORKING OR DEFORMATION OF PAPER, CARDBOARD OR MATERIAL WORKED IN A MANNER ANALOGOUS TO PAPER (making layered products not composed wholly of paper or cardboard B32B)

B32 LAYERED PRODUCTS

B32B LAYERED PRODUCTS, i.e. PRODUCTS BUILT-UP OF STRATA OF FLAT OR NON-FLAT, e.g. CELLULAR OR HONEYCOMB, FORM

NOTES

1. This subclass covers:
   - layered products comprising different kinds of material or layered products not characterised by the particular kind of material used;
   - a product similar to a layered product but comprising only material in the form of a sheet or network embedded in a mass of plastics or of physically-similar substances which mass penetrates the said sheet or network and lies on both sides of the latter (e.g. so that the sheet or network reinforces the plastics substance) PROVIDED THAT the embedded sheet or network extends coherently or connectedly over substantially the whole area of the product; thus the embedded sheet or network may be a fabric or a series of rods connected by cross wires. The manner of making such a product is, however, classified in this subclass only if it is essentially a process of building-up an assembly of layers of which at least one outer layer is preformed. If the embedded material comprises only a series of unconnected rods, the product is not classified in this subclass.

2. This subclass does not cover:
   - processes or apparatus used in, or in connection with, the production or treatment of any product, if the process or apparatus is fully classifiable in a single other class or subclass for processes or apparatus, e.g. B05, B29, B44D, C08J, C09J, C23;
   - compositions or preparation or treatment thereof, unless they are essentially restricted to layered products and cannot be fully classified in another class without ignoring this restriction;
   - etched metallic pattern on the surface of a printed circuit board.

3. In this subclass:
   - a film formed on a layer by spreading a substance thereon is not considered to constitute a layer itself if it serves only as an adhesive or its purpose is merely to finish a surface of a product;
   - groups designating products cover also methods or apparatus specially adapted for producing such products.

4. In this subclass, the following terms or expressions are used with the meanings indicated:
   - "layer" is a sheet or strip or anything else having a small thickness relatively to its other dimensions which, together with at least one other layer, exists in a product, whether it pre-existed, e.g. as a separate sheet or strip, or was formed during the production of the layered product. It may or may not be homogeneous or cohesive; it may be an assembly of fibres or pieces of material. It may be discontinuous, e.g. in the form of a grating, honeycomb, or frame. It may or may not be in complete contact with the next layer, e.g. a corrugated layer against a flat layer;
   - "layered product" comprises at least two layers secured together. The term "secured" includes any method of uniting layers, e.g. needling, stitching, gluing, nailing, dovetailing or the interposition of an adhesive or adhesive impregnated
support. It may also be an intermediate stage in the production of an article which is not layered in its final form, e.g. a panel with a protective layer which is stripped off when the panel is placed in its position of use. The layers are preformed layers or layers formed in situ on a preformed layer and may consist of coherent solid materials, including honeycombs and other cellular materials or of non-coherent solid materials composed of assemblies of strands, strips, fibres, tiles or the like;
• "filamentary layer" means a layer of threads or filaments of any substance (e.g. wires) of more or less unlimited length placed in an orderly arrangement and secured together, it may be woven, knitted, braided, or netted, or formed of threads crossed or laid side by side and bonded together;
• "fibrous layer" means a random assembly of fibres of limited length, e.g. felt, fleece; the fibres (being) interengaged or connected, e.g. by adhesive.

5. In this subclass,
• The classification of layered products is provided for in many classes, most of which are confined to a particular kind of material. However, in order that this subclass may provide a basis for making a complete search with respect to layered products, all relevant subject matter is classified in this subclass even though it may also be classified in other classes.

**WARNING**

The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:

- B32B 3/24 covered by B32B 3/266
- B32B 17/12 covered by B32B 17/067

**B33 ADDITIVE MANUFACTURING TECHNOLOGY**

**B33Y ADDITIVE MANUFACTURING, i.e. MANUFACTURING OF THREE-DIMENSIONAL [3-D] OBJECTS BY ADDITIVE DEPOSITION, ADDITIVE AGGLOMERATION OR ADDITIVE LAYERING, e.g. BY 3-D PRINTING, STEREOLITHOGRAPHY OR SELECTIVE LASER SINTERING**

**NOTES**

1. This subclass covers additive manufacturing, irrespective of the process or material used.
2. This subclass is intended to enable a comprehensive search of subject matter related to additive manufacturing by combination of classification symbols of this subclass with classification symbols from other subclasses. Therefore this subclass covers aspects of additive manufacturing (e.g. 3D printing) that might also be entirely or partially covered elsewhere in CPC.
3. This subclass is for obligatory supplementary classification of subject matter already classified as such in other classification places, when the subject matter contains an aspect of additive manufacturing.
4. The classification symbols of this subclass are not listed first when assigned to patent documents.
5. In this subclass, multi-aspect classification is applied, so aspects of subject matter characterised by aspects covered by more than one of its groups should be classified in each of those groups.

**PRINTING**

**B41 PRINTING; LINING MACHINES; TYPEWRITERS; STAMPS**

**B41B MACHINES OR ACCESSORIES FOR MAKING, SETTING, OR DISTRIBUTING TYPE; TYPE; PHOTOGRAPHIC OR PHOTOELECTRIC COMPOSING DEVICES (photographic devices in general G03)**

**WARNING**

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

**B41C PROCESSES FOR THE MANUFACTURE OR REPRODUCTION OF PRINTING SURFACES (photomechanical processes for producing printing surfaces G03F; photoelectrical processes for producing printing surfaces G03G)**

**WARNING**

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.
APPARATUS FOR THE MECHANICAL REPRODUCTION OF PRINTING SURFACES FOR STEREOTYPE PRINTING; SHAPING ELASTIC OR DEFORMABLE MATERIAL TO FORM PRINTING SURFACES (engraving by spark erosion B23H;)
marking or engraving metal by the action of a high concentration of electric current B23H 9/06; type, machines or accessories for making, setting, or distributing type B41B; processes for the manufacture or reproduction of printing surfaces B41C; machines or apparatus for engraving in general, or for embossing B44B 3/00, B44B 5/00; chemical etching of metal C23F 1/00; electrolytic etching C25F 3/00; photomechanical reproduction G03F)

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

PRINTING MACHINES OR PRESSES (manifolding devices or office printing machines B41L)

NOTE
Attention is drawn to Notes 1 and 2 following the title of subclass B41L.

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

APPARATUS FOR BRONZE PRINTING, LINE PRINTING, OR FOR BORDERING OR EDGING SHEETS OR LIKE ARTICLES; AUXILIARY FOR PERFORATING IN CONJUNCTION WITH PRINTING (perforating in general B26D; production of decorations B44C; perforating in conjunction with sheet or web delivery B65H 35/00; folding or unfolding thin material, e.g. sheets, webs, B65H 45/00, B65H 47/00)

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

TYPEWRITERS; SELECTIVE PRINTING MECHANISMS, (e.g. INK-JET PRINTERS, THERMAL PRINTERS), i.e. MECHANISMS PRINTING OTHERWISE THAN FROM A FORME; CORRECTION OF TYPOGRAPHICAL ERRORS (composing B41B; printing on special surfaces B41F; laundry marking B41K; erasers, rubbers or erasing devices B43L 19/00; fluid media for correction of typographical errors by coating C09D 10/00; recording the results of measuring G01; recognition or presentation of data, marking record carriers in digital fashion, e.g. by punching, G06K; franking or ticket-printing and issuing apparatus G07B; electric keyboard switches, in general H01H 13/70, H03K 17/94; coding in connection with keyboards or like devices, in general H03M 11/00; receivers or transmitters for transmission of digital information H04L; transmission or reproduction of documents, or the like, e.g. facsimile transmission, H04N 1/00; printing mechanisms specially adapted for apparatus, e.g. cash registers, weighing machines, producing records of their own performance, see the relevant subclasses)

NOTES
1. This subclass covers:
   • manually controlled power-operated apparatus or apparatus of this type with additional control by input of recorded information, e.g. on punched cards of tapes;
   • the "print-out" features of apparatus controlled by record carriers or electric signals in so far as these are of general interest, e.g. impression, inking, line-spacing mechanisms, printing heads.
2. This subclass does not cover:
   • electrical features of apparatus controlled by record carriers or electric signals and of interest apart from the "print-out" features of said apparatus;
   • apparatus controlled by record carriers or electric signals, as a whole.
3. In this subclass, the following term is used with the meaning indicated:

- “paper” covers also similar flexible copy material;
- “printing material” covers both paper and temporary record carriers from which records are transferred to a paper, but does not cover printing masters, e.g. formes.

WARNING

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B41K STAMPS; STAMPING OR NUMBERING APPARATUS OR DEVICES (marking meat A22C 17/10; embossing combined with printing B41F 19/00; selective printing mechanisms B41J; embossing decorations or marks B44B 5/00; marking or coding completed packages B65B 61/26; ticket printing and issuing, fare registering, nonprinting aspects of franking apparatus G07B)

WARNING

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B41L APPARATUS OR DEVICES FOR MANIFOLDING, DUPLICATING, OR PRINTING FOR OFFICE OR OTHER COMMERCIAL PURPOSES; ADDRESSING MACHINES OR LIKE SERIES-PRINTING MACHINES (printing presses or machines for industrial purposes B41F; stamps, stamping or numbering devices B41K)

NOTES

1. This subclass does not cover constituent parts common to manifolding by means of pressure-sensitive layers or intermediaries, to apparatus or machines for duplicating or printing for office or other commercial purposes, or to addressing machines or like series-printing machines, which are covered by subclass B41F.

2. In this subclass, as indicated by the references, groups B41L 15/00 and B41L 17/00 are intended to cover letterpress and lithographic printing apparatus only in so far as it is specially adapted for office or other commercial purposes; the general constructions or features of apparatus of these types are classified in subclass B41F. Constructions or features determining classification in these groups are, for example: ease of operation by clerical staff, cleanliness of operation in non-industrial environments, the use of printing surfaces constructed for the production of a limited number of copies.

3. In this subclass, the following terms are used with the meanings indicated:

- “manifolding” means the obtaining of several copies simultaneously by means of pressure-sensitive layers when making an original;
- “duplicating” means the obtaining of successive copies from a master, e.g. a hectographic image;
- “stencilling” involves the use of a printing surface which is perforated to form the image, the ink flowing through the perforations on the copy material.

WARNING

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B41M PRINTING, DUPLICATING, MARKING, OR COPYING PROCESSES; COLOUR PRINTING, (correction of typographical errors B41J; processes for applying transfer pictures or the like B44C 1/16; fluid media for correction of typographical errors by coating C09D 10/00; printing textiles D06P)

WARNING

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.
B41N  PRINTING PLATES OR FOILS (photosensitive material G03); MATERIALS FOR SURFACES USED IN PRINTING MACHINES FOR PRINTING, INKING, DAMPING, OR THE LIKE; PREPARING SUCH SURFACES FOR USE AND CONSERVING THEM

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B41P  INDEXING SCHEME RELATING TO PRINTING, LINING MACHINES, TYPEWRITERS, AND TO STAMPS

NOTE
This subclass constitutes an internal scheme for indexing only.

B42  BOOKBINDING; ALBUMS; FILES; SPECIAL PRINTED MATTER

B42B  PERMANENTLY ATTACHING TOGETHER SHEETS, QUIRES OR SIGNATURES OR PERMANENTLY ATTACHING OBJECTS THERETO (nailing or stapling in general B25C, B27F; machines for both collating or gathering and permanently attaching together sheets or signatures B42C 1/12; temporarily attaching sheets together B42F)

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B42C  BOOKBINDING (cutting or perforating machines, devices or tools B26; folding sheets or webs B31F; ornamenting books B44)

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B42D  BOOKS; BOOK COVERS; LOOSE LEAVES; PRINTED MATTER CHARACTERISED BY IDENTIFICATION OR SECURITY FEATURES; PRINTED MATTER OF SPECIAL FORMAT OR STYLE NOT OTHERWISE PROVIDED FOR; DEVICES FOR USE THEREWITH AND NOT OTHERWISE PROVIDED FOR; MOBILE-STRIP WRITING OR READING APPARATUS

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B42F  SHEETS TEMPORARILY ATTACHED TOGETHER; FILING APPLIANCES; FILE CARDS; INDEXING (reading desks A47B 19/00; book rests A47B 23/00)

NOTE
The words "filing appliance" in this subclass mean holders for collections of papers, sheets, cards, or units thereof, each paper, sheet, card, or unit being individually insertable and extractable. These words may thus include a calendar, an instruction manual, or a letter file.

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B42P  INDEXING SCHEME RELATING TO BOOKS, FILING APPLIANCES OR THE LIKE

NOTE
This subclass constitutes an internal scheme for indexing only.
B43  WRITING OR DRAWING IMPLEMENTS; BUREAU ACCESSORIES

B43K  IMPLEMENTS FOR WRITING OR DRAWING (containers, casings or accessories for cosmetic substances, e.g. shaving soap, lipstick, make-up A45D 34/00, A45D 40/00)

NOTE
In this subclass, the following expression is used with the meaning indicated:
• “writing implements” covers pens, pencils, crayons, chalks or like markers for writing or drawing

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B43L  ARTICLES FOR WRITING OR DRAWING UPON; {WRITING OR DRAWING AIDS;} ACCESSORIES FOR WRITING OR DRAWING (workshop equipment for marking-out work B25H 7/00; teaching hand-writing or drawing G09B 11/00)

NOTE
Devices used for both teaching and facilitating writing or drawing are classified in G09B 11/00

B43M  BUREAU ACCESSORIES NOT OTHERWISE PROVIDED FOR (stapling devices B25C 5/00; devices for temporarily attaching sheets together B42F)

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B44  DECORATIVE ARTS

NOTE
Any machine, apparatus, tool or process is classified in this class insofar as it produces an effect or mark meant to be judged by the eye and insofar as such machine, apparatus, tool or process is not provided for elsewhere

B44B  MACHINES, APPARATUS OR TOOLS FOR ARTISTIC WORK, e.g. FOR SCULPTURING, GUILLOCHING, CARVING, BRANDING, INLAYING (processes for producing decorative effects B44C; embossing leather C14B)

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B44C  PRODUCING DECORATIVE EFFECTS (processes for applying liquids or other fluent materials to surfaces, in general B05D; shaping of plastics or substances in a plastic state B29C; printing processes to produce transfer pictures B41M 3/12; thermographic duplication or marking methods B41M 5/00); MOSAICS; TARSIA WORK (imitation of mosaic or tarsia work patterns B44F 11/04); PAPERHANGING {labels G09F; multi-step processes for making paper labels or tags B31D 1/02}

NOTE
In this subclass, the following expression is used with the meaning indicated:
• “decorative effects”; when used in connection with the expressions “transfer picture” or “decalcomanias”, covers also “information”

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.
B44D  PAINTING OR ARTISTIC DRAWING, NOT OTHERWISE PROVIDED FOR; PRESERVING PAINTINGS; SURFACE TREATMENT TO OBTAIN SPECIAL ARTISTIC SURFACE EFFECTS OR FINISHES (surface treatment in general, see the relevant places, e.g. applying liquids or other fluent materials B05)

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B44F  SPECIAL DESIGNS OR PICTURES

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

TRANSPORTING

B60  VEHICLES IN GENERAL

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

• "vehicle" means all vehicles except those restricted to one of the following types of vehicles: rail vehicles, waterborne vessels, aircraft, space vehicles, hand carts, cycles, animal-drawn vehicles, and sledges, which are covered by the relevant subclasses of B61 - B64.

Thus, the term "vehicle" includes:

• vehicular characteristics which are common to more than one of the above listed types;
• certain characteristics restricted to automobiles, road or cross-country trailers

The following exceptions to the above should be noted:

a. Subclass B60B or B60C embrace all vehicle wheels and tyres, except wheels for roller skates A63C 17/22, wheels for model railway vehicles A63H 19/22, and special adaptations of wheels or tyres for aircraft B64C 25/36
b. Subclass B60C embraces the connection of valves to inflatable elastic bodies in general, and in this respect it is not limited to vehicles
c. Subclass B60L embraces certain electric equipment of all electrically-propelled vehicles
d. Subclass B60M embraces certain power supply for, but external to, any kind of electrically-propelled vehicle
e. Subclass B60R embraces safety belts or body harnesses used in all types of land vehicles
f. Subclass B60S relates to all kinds of vehicles, except the servicing of rail locomotives B61K 11/00, ground equipment for aircraft B64F, or cleaning apparatus peculiar to waterborne vessels B63B 57/00, B63B 59/00
g. Subclass B60T includes brake control systems of general applicability, and in this respect it is not limited to vehicles. It also includes rail-vehicle power-brake systems and some other features of rail-vehicle brake systems

B60B  VEHICLE WHEELS (making wheels or wheel parts by rolling B21H 1/00, by forging, hammering or pressing B21K 1/28); CASTORS; AXLES FOR WHEELS OR CASTORS; INCREASING WHEEL ADHESION

NOTE
Attention is drawn to the Explanatory Note following the class title (B60)

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B60C  VEHICLE TYRES (manufacture B29); TYRE INFLATION; TYRE CHANGING OR REPAIRING; REPAIRING, OR CONNECTING VALVES TO, INFLATABLE ELASTIC BODIES IN GENERAL; DEVICES OR ARRANGEMENTS RELATED TO TYRES (testing of tyres G01M 17/02)

NOTES
1. In this subclass, the term "tyre" is to be understood as a separate ground-engaging, continuous element outside the periphery of the wheel rim and includes the tyre casing, cover, or jacket and any insert, e.g. inner tube. In the groups relating to repair or connection of valves, the term "tyre" is to be understood to include also inflatable elastic bodies other than tyres or inner tubes
2. Attention is drawn to the note following the title of class B60.
**B60C** (continued)  

**WARNINGS**

1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:

- B60C 11/113 covered by B60C 11/0311
- B60C 11/117 covered by B60C 11/032

2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

**B60D**  

**VEHICLE CONNECTIONS** (components of brake systems B60T 17/04)  

**NOTE**

Attention is drawn to the note following the class B60

**WARNING**

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

**B60F**  

**VEHICLES FOR USE BOTH ON RAIL AND ON ROAD; AMPHIBIOUS OR LIKE VEHICLES; CONVERTIBLE VEHICLES** (air-cushion vehicles B60V)

**WARNING**

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

**B60G**  

**VEHICLE SUSPENSION ARRANGEMENTS** (air-cushion vehicles B60V; {cycle suspensions B62K 25/00})

**NOTES**

1. Attention is drawn to the explanatory note following the class title B60

2. Indexing codes B60G 2200/00 - B60G 2800/00 are dedicated to particular aspects of suspension arrangements:
   - B60G 2200/00 refers to the type of suspension arrangement;
   - B60G 2202/00 refers to the suspension elements used (springs, dampers and actuators);
   - B60G 2204/00 refers to mounting features of suspension elements;
   - B60G 2206/00 refers to constructional and manufacturing details of suspension elements;
   - B60G 2300/00 refers to the type of vehicle;
   - B60G 2400/00 - B60G 2800/00 refer to the electronic control of suspension arrangements, whereby:
     - B60G 2400/00 refers to input parameters of the control;
     - B60G 2401/00 refers to types of sensors used;
     - B60G 2500/00 refers to the controlled action or device;
     - B60G 2600/00 refers to particular details of the control system;
     - B60G 2800/00 refers to the result to be achieved by the control action.

3. Groups B60G 2200/00 - B60G 2800/00 are to be used in multi-aspect classification, so that subject matter characterised by aspects covered by more than one of these groups, which is considered to represent information of interest for search, should be classified in a combination of at least one relevant "invention information" symbol in association with indexing codes from each of these groups.

**WARNINGS**

1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:

- B60G 23/00 covered by B60G 17/0165

2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

**B60H**  

**ARRANGEMENTS OR ADAPTATIONS OF HEATING, COOLING, VENTILATING, OR OTHER AIR-TREATING DEVICES SPECIALLY FOR PASSENGER OR GOODS SPACES OF VEHICLES**

**NOTE**

Attention is drawn to the Note following the title of class B60
B60H (continued)  WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B60J  WINDOWS, WINDSCREENS, NON-FIXED ROOFS, DOORS, OR SIMILAR DEVICES FOR VEHICLES; REMOVABLE EXTERNAL PROTECTIVE COVERINGS SPECIALLY ADAPTED FOR VEHICLES (fastening, suspending, closing, or opening of such devices E05)

NOTES
1. Windows, windscreens, non-fixed roofs, doors, or similar devices which are of general applicability, irrespective of whether described or claimed only for vehicles, are also classified in subclass E06B.
2. Attention is drawn to the Note following the title of class B60.

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B60K  ARRANGEMENT OR MOUNTING OF PROPULSION UNITS OR OF TRANSMISSIONS IN VEHICLES; ARRANGEMENT OR MOUNTING OF PLURAL DIVERSE PRIME-MOVERS IN VEHICLES; AUXILIARY DRIVES FOR VEHICLES; INSTRUMENTATION OR DASHBOARDS FOR VEHICLES; ARRANGEMENTS IN CONNECTION WITH COOLING, AIR INTAKE, GAS EXHAUST OR FUEL SUPPLY OF PROPULSION UNITS IN VEHICLES

NOTES
1. In this subclass, the following terms or expressions are used with the meanings indicated:
   • "conjoint control of drive units" includes such control for vehicles or of general applicability;
   • "auxiliary drives" means drives of auxiliary or external machines or devices from the propulsion unit, transmission, or other parts of the vehicle, and includes the control of such drives;
   • "transmission" means all propulsion parts linking propulsion units, e.g. engines, to ultimate propulsive elements, e.g. wheels;
   • "drive unit" means propulsion unit conjoint with transmission, a "drive unit" can additionally include the ultimate driven unit;
   • "sub-unit" means, e.g. propulsion unit, clutch, gearing or brake system;
   • "hybrid vehicle" means vehicles with plural diverse prime-movers for mutual or common propulsion
2. Attention is drawn to the Note following the title of class B60.

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B60L  PROPULSION OF ELECTRICALLY-PROPELLED VEHICLES (arrangements or mounting of electrical propulsion units or of plural diverse prime-movers for mutual or common propulsion in vehicles B60K 1/00, B60K 6/20); arrangements or mounting of electrical gearing in vehicles B60K 17/12, B60K 17/14; preventing wheel slip by reducing power in rail vehicles B61C 15/08; dynamo-electric machines H02K; control or regulation of electric motors H02P); SUPPLYING ELECTRIC POWER FOR AUXILIARY EQUIPMENT OF ELECTRICALLY-PROPELLED VEHICLES (electric coupling devices combined with mechanical couplings of vehicles B60D 1/64; electric heating for vehicles B60H 1/00); ELECTRODYNAMIC BRAKE SYSTEMS FOR VEHICLES IN GENERAL (control or regulation of electric motors H02P); MAGNETIC SUSPENSION OR LEVITATION FOR VEHICLES; MONITORING OPERATING VARIABLES OF ELECTRICALLY-PROPELLED VEHICLES; ELECTRIC SAFETY DEVICES FOR ELECTRICALLY-PROPELLED VEHICLES

NOTES
1. This subclass, subject to the above references, covers:
TRANSPORTING

B60L (continued)

- feeding of power to auxiliary circuits;
- current collectors; arrangements thereof on rail or road vehicles or on vehicles in general
- electrodynamic brake systems;
- electric propulsion of vehicles; control and regulation therefor

2. In this subclass it is desirable to classify any “additional information” which is of interest for search.

WARNING

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B60M POWER SUPPLY LINES, AND DEVICES ALONG RAILS, FOR ELECTRICALLY-PROPELLED VEHICLES (control of points and safety arrangements along railway lines B61L; construction of rails and points in general E01B)

NOTE

This subclass deals with:
- overhead, overground or underground power supply lines; their crossings and points, erection and supervision;
- devices along rails and rail joints, for current conduction and for insulation;
- safety devices along the route against earth currents and inductive interference with nearby communication lines

WARNING

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B60N SEATS SPECIALLY ADAPTED FOR VEHICLES; VEHICLE PASSENGER ACCOMMODATION NOT OTHERWISE PROVIDED FOR

NOTES

1. Attention is drawn to the Explanatory Note following the class title B60
2. In this subclass the following term is used with the meaning indicated:
   - “cushion”: seating part of a seat distinguished from the back-rest

B60P VEHICLES ADAPTED FOR LOAD TRANSPORTATION OR TO TRANSPORT, TO CARRY, OR TO COMPRIZE SPECIAL LOADS OR OBJECTS (vehicles with special provisions for transporting patients or disabled persons, or their personal conveyances A61G 3/00)

NOTE

Attention is drawn to the Explanatory Note following the class title (B60)

WARNINGS

1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:

<table>
<thead>
<tr>
<th>IPC Group</th>
<th>Covered by</th>
</tr>
</thead>
<tbody>
<tr>
<td>B60P 1/46</td>
<td>B60P 1/4421</td>
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<tr>
<td>B60P 3/022</td>
<td>E04G 21/14</td>
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<td>B60P 3/32</td>
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<td>B60P 3/34</td>
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<tr>
<td>B60P 3/335</td>
<td>B60P 3/32</td>
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<td>B60P 3/343</td>
</tr>
<tr>
<td>B60P 3/373</td>
<td>B60P 3/32</td>
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<td>B60P 3/34</td>
</tr>
<tr>
<td>B60P 5/00</td>
<td>G01G 19/08</td>
</tr>
</tbody>
</table>

2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.
B60Q ARRANGEMENT OF SIGNALLING OR LIGHTING DEVICES, THE MOUNTING OR SUPPORTING THEREOF OR CIRCUITS THEREFOR, FOR VEHICLES IN GENERAL

NOTES
1. This subclass also covers the operation and control of lighting devices, for example:
   • arrangement or adaptation of lighting switches or signal-initiating means for vehicles.
   • control of lighting devices in relation to the vehicle as a whole, e.g. for levelling, swivelling or aiming.
2. This subclass does not cover optical, mechanical, thermal or electrical arrangement of elements within lighting devices, which are covered by groups F21S 41/00 – F21S 45/00.
3. Attention is drawn to the Note following the title of class B60.
4. Attention is drawn to the following places:
   5. B60K 28/00 Safety devices, e.g. sleeping driver
      B60R 25/00 Anti-theft
      B62D Driving assistance
      B62D 15/02 Steering aids
      B60K 31/0008 Cruise control
      G01S Infrared night vision
      G01S 13/931 Anti-collision
      G05D 1/00 Automatic pilot
      G06K 9/00 Pattern recognition
      G06T 3/00 Image transformation
      G06T 5/00 Image enhancement
      G06T 7/00 Image analysis
      G08B 21/00 Alarms in general
      G08G Traffic control
      G08G 1/16 Anti-collision systems
      H04N Television systems

WARNINGS
1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:
   B60Q 1/128 covered by B60Q 1/124
   B60Q 1/132 covered by B60Q 1/124
   B60Q 1/136 covered by B60Q 1/124
2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B60R VEHICLES, VEHICLE FITTINGS, OR VEHICLE PARTS, NOT OTHERWISE PROVIDED FOR

NOTE
Attention is drawn to the Note following the title of class B60

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B60S SERVICING, CLEANING, REPAIRING, SUPPORTING, LIFTING, OR MANOEUVRING OF VEHICLES, NOT OTHERWISE PROVIDED FOR

NOTE
Attention is drawn to the Note following the title of class B60

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.
B60T VEHICLE BRAKE CONTROL SYSTEMS OR PARTS THEREOF; BRAKE CONTROL SYSTEMS OR PARTS THEREOF, IN GENERAL (electrodynamic brake systems for vehicle, in general B60L; brakes per se, i.e. devices where braking effect occurs, including ultimate brake actuators, F16D); ARRANGEMENT OF BRAKING ELEMENTS ON VEHICLES IN GENERAL; PORTABLE DEVICES FOR PREVENTING UNWANTED MOVEMENT OF VEHICLES; VEHICLE MODIFICATIONS TO FACILITATE COOLING OF BRAKES

NOTE
In this subclass, the term "brake control systems" includes brake control systems for vehicles or of general applicability

WARNINGS
1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:

<table>
<thead>
<tr>
<th>IPC Group</th>
<th>Covered by</th>
</tr>
</thead>
<tbody>
<tr>
<td>B60T 8/20</td>
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<tr>
<td>B60T 8/78</td>
<td>B60T 8/17</td>
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<tr>
<td>B60T 13/122</td>
<td>B60T 13/147, B60T 13/167</td>
</tr>
<tr>
<td>B60T 13/125</td>
<td>B60T 13/141</td>
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<tr>
<td>B60T 13/128</td>
<td>B60T 13/145, B60T 13/165</td>
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<td>B60T 13/13</td>
<td>B60T 13/146, B60T 13/166</td>
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<tr>
<td>B60T 13/132</td>
<td>B60T 13/143, B60T 13/162</td>
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<td>B60T 13/135</td>
<td>B60T 13/144, B60T 13/163</td>
</tr>
<tr>
<td>B60T 13/138</td>
<td>B60T 13/148, B60T 13/168</td>
</tr>
<tr>
<td>B60T 13/60</td>
<td>B60T 13/58</td>
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<td>B60T 15/06</td>
<td>B60T 15/04</td>
</tr>
<tr>
<td>B60T 15/08</td>
<td>B60T 15/04</td>
</tr>
</tbody>
</table>

2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B60V AIR-CUSHION VEHICLES

NOTE
The term "air-cushion vehicles" in this subclass includes all vehicles which are wholly or partly supported on land or water by air or other gaseous cushions

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B60W CONJOINTE CONTROL OF VEHICLE SUB-UNITS OF DIFFERENT TYPE OR DIFFERENT FUNCTION; CONTROL SYSTEMS SPECIALLY ADAPTED FOR HYBRID VEHICLES; ROAD VEHICLE DRIVE CONTROL SYSTEMS FOR PURPOSES NOT RELATED TO THE CONTROL OF A PARTICULAR SUB-UNIT

NOTES
1. This subclass does not cover the control of a single sub-unit; such control is classified in the relevant place for the sub-unit, e.g. F02D, F16H. Where a single sub-unit is controlled by means of signals or commands from other sub-units, the control of this single sub-unit is classified in the relevant place for this sub-unit. For example, the control of variable-ratio gearing by means of signals from the engine or the accelerator is classified in the subclass for gearing, F16H.

2. Conjoint control of driveline units, e.g. engines, and variable-ratio gearing occurring only transiently during ratio shift and being also characterised by the control of the gearing is also classified in the subclass for gearing, F16H.

3. In groups B60W 20/00 - B60W 50/00, the first place priority rule is applied, i.e. at each hierarchical level, classification is made in the first appropriate place.

4. When classifying in group B60W 10/00, classification must also be made in groups B60W 20/00 - B60W 50/00 in order to identify the purpose or use of the control.

5. In this subclass, the following terms are used with the meanings indicated:
   - "conjoint control" means that a programmed or condition-responsive (main) automatic controller on board the vehicle, embodying control logic for vehicle sub-units of different type or different function, sends control signals to actuators of two or more vehicle sub-units, so that the sub-units act together to solve a particular problem or in response to a particular driving condition, [in order to improve stability, comfort or safety by managing the global dynamics of the vehicle];
"drive control system" means an electronic system on board a road vehicle for automatically controlling the movement [by managing the global dynamics] of that vehicle in order to take certain actions [in order to improve stability, comfort or safety];

"road vehicle" means a motorised vehicle for transportation on roads, e.g. an automobile, truck or bus;

"autonomous road vehicle" means a road vehicle capable of controlling all dynamic driving tasks without human intervention during a plurality of driving scenarios by using on-board computer hardware and software to execute decision making processes in real-time.

"sub-unit" means one of the following vehicle systems: {driveline systems, e.g.} propulsion system, clutch system, change-speed gearing system, system for distributing drive torque between front and rear axles, axle differential system, brake system, steering system, suspension system, [and, particularly for hybrid vehicles,] energy storage means, fuel cells, or auxiliary equipment.

**WARNING**

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

**B60Y**

**INDEXING SCHEME RELATING TO ASPECTS CROSS-CUTTING VEHICLE TECHNOLOGY**

**B61**

**RAILWAYS**

**NOTE**

In this class, the following expression is used with the meaning indicated:

- "railway systems" covers:
  a. systems in which trains or individual passenger vehicles or load carriers run on, or are guided by, ground or elevated tracks defined by rails, ropes, cables, or other guiding elements for wheels, rollers, or sliding anti-friction devices;
  b. systems in which carriers or impellers for persons or loads are attached to, e.g. suspended from, a guided traction rope or cable which determines their path of movement;
  c. power-and-free systems of either of the above types in which vehicles, load-carriers, or loads may be selectively coupled to, or uncoupled from, continuous traction members, e.g. cables, chains;

- "railway systems" does not cover:
  a. conveyors with load-carriers permanently attached to a continuous traction element, e.g. chain conveyors, which are covered by group B65G 17/00;
  b. conveyors moving articles or materials over a supporting surface or underlying material, e.g. scraper conveyors, which are covered by group B65G 19/00.

**B61B**

**RAILWAY SYSTEMS; EQUIPMENT THEREFOR NOT OTHERWISE PROVIDED FOR** (lifts or hoists, elevators, escalators, moving walkways B66B)

**NOTE**

In this subclass, the following terms are used with the meanings indicated:

- "rope railways" covers railways using cables or chains as traction or suspension means;
- "ropes", "cables", or "chains" are equivalent unless specifically mentioned

**WARNING**

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

**B61C**

**LOCOMOTIVES; MOTOR RAILCARS** (vehicles in general B60; frames or bogies B61F; special railroad equipment for locomotives B61J, B61K)

**NOTE**

This subclass covers:

- general design features or items of locomotives and motor railcars not otherwise provided for;
- non-electric features of electric locomotives

**WARNING**

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.
TRANSPORTING

B61D BODY DETAILS OR KINDS OF RAILWAY VEHICLES (vehicles in general B60; adaptation of vehicles to special systems B61B; underframes B61F)

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B61F RAIL VEHICLE SUSPENSIONS, e.g. UNDERFRAMES, BOGIES OR ARRANGEMENTS OF WHEEL AXLES; RAIL VEHICLES FOR USE ON TRACKS OF DIFFERENT WIDTH; PREVENTING DERRAILING OF RAIL VEHICLES; WHEEL GUARDS, OBSTRUCTION REMOVERS OR THE LIKE FOR RAIL VEHICLES (for vehicles in general B60; axles or wheels B60B; vehicle tyres B60C)

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B61G COUPLINGS; DRAUGHT AND BUFFING APPLIANCES (vehicle connections in general B60D)

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B61H BRAKES OR OTHER RETARDING APPARATUS PECULIAR TO RAIL VEHICLES; ARRANGEMENTS OR DISPOSITIONS OF BRAKES OR OTHER RETARDING APPARATUS IN RAIL VEHICLES (electrodynamic braking of vehicles B60L, in general H02K; arrangements in rail vehicles for adjusting wheel-braking force to meet varying vehicular or permanent-way conditions B60T 8/00; transmitting braking action from initiating means to ultimate brake actuator with power assistance or drive, brake systems incorporating such transmitting means, e.g. air-pressure brake systems, B60T 13/00 - B60T 17/00; brakes per se F16D)

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B61J SHIFTING OR SHUNTING OF RAIL VEHICLES (shifting vehicles in general B60S; marshalling systems B61B)

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B61K OTHER AUXILIARY EQUIPMENT FOR RAILWAYS (energy storing brakes B61H; protection of permanent way against weather influences E01B; rail cleaning, snow ploughs E01H)

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.
B61L GUIDING RAILWAY TRAFFIC; ENSURING THE SAFETY OF RAILWAY TRAFFIC
(power supply lines for electrically-propelled vehicles B60M; vehicle signalling in general B60Q; brakes or auxiliary equipment B61H, B61K; point or crossing construction E01B; insulated rail joints E01B 11/54; optical devices in general G02; controlling in general G05; electric communication technique H04)

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B62 LAND VEHICLES FOR TRAVELLING OTHERWISE THAN ON RAILS

B62B HAND-PROPELLED VEHICLES, e.g. HAND CARTS OR PERAMBULATORS; SLEDGES (characterised by animal propulsion B62C; propulsion of sledges by driver or engine B62M)

NOTES
1. In this subclass, the term "hand carts" also embraces hand-propelled wheeled devices in so far as the features thereof are generic to hand carts. This term also embraces pedestrian-controlled power-driven vehicles in so far as the features thereof are generic to hand carts
2. Rollers are taken as being equivalent to wheels

WARNINGS
1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:
   B62B 3/065 covered by B62B 3/0618
2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B62C VEHICLES DRAWN BY ANIMALS

NOTES
1. This subclass covers only vehicles or parts thereof in so far as the relevant features are essential for animal-drawn vehicles.
2. This subclass does not cover animal-drawn vehicles which have not the features mentioned in Note (1) above. They are regarded as trailers which are covered by class B60 or subclass B62D, or as sledges which are covered by subclass B62B.

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.
B62D  MOTOR VEHICLES; TRAILERS (steering, or guiding on a desired track, of agricultural machines or implements A01B 69/00; wheels, castors, axles, increasing wheel adhesion B60B; vehicle tyres, tyre inflation or tyre changing B60C; connections between vehicles of a train or the like B60D; vehicles for use on rail and road, amphibious or convertible vehicles B60F; suspension arrangements B60G; heating, cooling, ventilating or other air treating devices B60H; windows, windscreens, non-fixed roofs, doors or similar devices, protective coverings for vehicles not in use B60J; propulsion plant arrangements, auxiliary drives, transmissions, controls, instrumentation or dashboards B60K; electric equipment or propulsion of electrically-propelled vehicles B60L; power supply for electrically-propelled vehicles B60M; passenger accommodation not otherwise provided for B60N; adaptations for load transportation or to carry special loads or objects B60P; arrangement of signalling or lighting devices, the mounting or supporting thereof or circuits therefor, for vehicles in general B60Q; vehicles, vehicle fittings or vehicle parts not otherwise provided for B60R; servicing, cleaning, repairing, supporting, lifting, or manoeuvring, not otherwise provided for, B60S; brake arrangements, brake control systems or parts thereof B60T; air-cushion vehicles B60V; motor-cycles, accessories therefor B62J, B62K; testing of vehicles G01M)

NOTE
In this subclass, the following terms are used with the meanings indicated:
• "vehicles" include motor vehicles and trailers;
• "trailers" include forecars or sidecars.

WARNINGS
1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:
   - B62D 25/13 covered by B60J 1/20, B60R 13/07
   - B62D 25/22 covered by B60J 3/00
   - B62D 65/08 covered by B60J 10/45
   - B62D 101/00-B62D 137/00 covered by B62D 6/00 - B62D 6/008
2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B62H  CYCLE STANDS; SUPPORTS OR HOLDERS FOR PARKING OR STORING CYCLES; APPLIANCES PREVENTING OR INDICATING UNAUTHORIZED USE OR THEFT OF CYCLES; LOCKS INTEGRAL WITH CYCLES; DEVICES FOR LEARNING TO RIDE CYCLES

NOTES
1. In this subclass, the term "cycles" also embraces scooters.
2. { "Cycles" includes single or plural wheeled straddle type vehicles having a handlebar, self-balancing vehicles and kid scooters. }

WARNINGS
1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:
   - B62H 5/16 covered by B62H 5/14
2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B62J  CYCLE SADDLES OR SEATS; AUXILIARY DEVICES OR ACCESSORIES SPECIALLY ADAPTED TO CYCLES AND NOT OTHERWISE PROVIDED FOR, e.g. ARTICLE CARRIERS OR CYCLE PROTECTORS

NOTES
1. In this subclass, the term "cycles" also embraces scooters.
2. { "Cycles" includes single or plural wheeled straddle type vehicles having a handlebar, self-balancing vehicles and kid scooters. }
B62J (continued) WARNING

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B62K CYCLES; CYCLE FRAMES; CYCLE STEERING DEVICES; RIDER-OPERATED TERMINAL CONTROLS SPECIALLY ADAPTED FOR CYCLES; CYCLE AXLE SUSPENSIONS; CYCLE SIDE-CARS, FORECARS, OR THE LIKE

NOTES
1. In this subclass, each of the main groups B62K 7/00 - B62K 15/00 takes precedence over all the preceding main groups, e.g. a child's bicycle is classified in B62K 9/00 and not in B62K 3/00.
2. "Cycles" includes a single or plural wheeled straddle type vehicles having a handlebar, self-balancing vehicles and kid scooters.

WARNING

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B62L BRAKES SPECIALLY ADAPTED FOR CYCLES {(arrangements in cycles for adjusting wheel-braking force to meet varying vehicular or ground-surface conditions B60T 8/00)}

NOTES
1. This subclass covers only adaptations of brakes and their actuating mechanisms peculiar to their use on cycles.
2. This subclass does not cover brakes or actuating mechanisms of wider applicability, which are regarded as of general type, irrespective of whether described or claimed only for cycles, which are covered by subclass B60T or the relevant subclass of F16.

WARNING

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B62M RIDER PROPULSION OF WHEELED VEHICLES OR SLEDGES; POWERED PROPULSION OF SLEDGES OR {SINGLE-TRACK} CYCLES; TRANSMISSIONS SPECIALLY ADAPTED FOR SUCH VEHICLES (arrangements or mounting of transmissions in vehicles in general B60K; transmission elements per se F16)

NOTE

In this subclass, the term "transmission" means all parts between the prime mover or the part to which a rider immediately applies propulsive effort, e.g. pedal cranks, and a driven ground wheel.

WARNING

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B63 SHIPS OR OTHER WATERBORNE VESSELS; RELATED EQUIPMENT

B63B SHIPS OR OTHER WATERBORNE VESSELS; EQUIPMENT FOR SHIPPING (arrangements of vessel ventilation, heating, cooling, or air-conditioning B63J 2/00; floating substructures as supports of dredgers or soil-shifting machines E02F 9/06)

NOTE

In this subclass, the indexing codes B63B 2201/00 - B63B 2241/00 are to be used for relevant technical information concerning particular or unusual use, materials, design, methods or means.

WARNINGS
1. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.
2. Groups B63B 1/00 - B63B 2241/28 are incomplete pending reclassification of documents from groups B63B 2701/00 - B63B 2770/00.

All groups listed in this Warning should be considered in order to perform a complete search.
B63C  TRANSPORTING, LAUNCHING-OUT, OR DRY-DOCKING OF VESSELS; LIFE-SAVING IN WATER; EQUIPMENT FOR DWELLING OR WORKING UNDER WATER; MEANS FOR SALVAGING OR SEARCHING FOR UNDERWATER OBJECTS (floating nets, floating slipways, or the like for recovering aircraft from the water B63B 35/52)

NOTE
In this subclass, the indexing codes B63B 2201/00 - B63B 2241/00 are to be used for relevant technical information concerning particular or unusual use, materials, design, methods or means.

WARNINGS
1. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.
2. Groups B63C 1/00 - B63C 15/00 are incomplete pending reclassification of documents from groups B63B 2701/00 - B63B 2770/00.
   All groups listed in this Warning should be considered in order to perform a complete search.

B63G  OFFENSIVE OR DEFENSIVE ARRANGEMENTS ON VESSELS; MINE-LAYING; MINE-SWEEPING; SUBMARINES; AIRCRAFT CARRIERS (means of attack or defence in general, e.g. turrets F41H)

NOTE
In this subclass, the indexing codes B63B 2201/00 - B63B 2241/00 are to be used for relevant technical information concerning particular or unusual use, materials, design, methods or means.

WARNINGS
1. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.
2. Groups B63G 1/00 - B63G 2013/027 are incomplete pending reclassification of documents from groups B63B 2701/00 - B63B 2770/00.
   All groups listed in this Warning should be considered in order to perform a complete search.

B63H  MARINE PROPULSION OR STEERING (propulsion of air-cushion vehicles B60V 1/14; specially adapted for submarines, other than nuclear propulsion, B63G; specially adapted for torpedoes F42B 19/00)

NOTE
In this subclass, the indexing codes B63B 2201/00 - B63B 2241/00 are to be used for relevant technical information concerning particular or unusual use, materials, design, methods or means.

WARNINGS
1. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.
2. Groups B63H 1/00 - B63H 25/52 are incomplete pending reclassification of documents from groups B63B 2701/00 - B63B 2770/00.
   All groups listed in this Warning should be considered in order to perform a complete search.

B63J  AUXILIARIES ON VESSELS

NOTES
1. In this subclass, the following term is used with the meaning indicated:
   • “auxiliaries” means only apparatus specially arranged for rendering vessels, in general, habitable or operative, insofar as such apparatus is not specifically provided for in another subclass of class B63.
2. In this subclass, the indexing codes B63B 2201/00 - B63B 2241/00 are to be used for relevant technical information concerning particular or unusual use, materials, design, methods or means.
B63J  (continued)  

**WARNINGS**

1. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

2. Groups B63J 1/00 - B63J 2099/005 are incomplete pending reclassification of documents from groups B63B 2701/000 - B63B 2770/000.

All groups listed in this Warning should be considered in order to perform a complete search.

### B64 AIRCRAFT; AVIATION; COSMONAUTICS

#### B64B LIGHTER-THAN AIR AIRCRAFT

**WARNING**

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

#### B64C AEROPLANES; HELICOPTERS (air-cushion vehicles B60V)

**NOTE**

As far as possible, classification is made according to constructional features; classification according to particular kinds of aircraft is normally regarded as being of secondary importance, except in cases where this is considered to be the characteristic feature.

**WARNINGS**

1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:

   - B64C 35/02 covered by B64C 35/00

2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

#### B64D EQUIPMENT FOR FITTING IN OR TO AIRCRAFT; FLYING SUITS; PARACHUTES; ARRANGEMENTS OR MOUNTING OF POWER PLANTS OR PROPULSION TRANSMISSIONS IN AIRCRAFT

**WARNINGS**

1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:

   - B64D 15/18 covered by B64D 15/16
   - B64D 25/102 covered by B64D 25/10
   - B64D 25/105 covered by B64D 25/10
   - B64D 25/108 covered by B64D 25/10
   - B64D 25/11 covered by B64D 25/10
   - B64D 25/112 covered by B64D 25/10
   - B64D 25/115 covered by B64D 25/10
   - B64D 25/118 covered by B64D 25/10

2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

#### B64F GROUND OR AIRCRAFT-CARRIER-DECK INSTALLATIONS SPECIALLY ADAPTED FOR USE IN CONNECTION WITH AIRCRAFT; DESIGNING, MANUFACTURING, ASSEMBLING, CLEANING, MAINTAINING OR REPAIRING AIRCRAFT, NOT OTHERWISE PROVIDED FOR; HANDLING, TRANSPORTING, TESTING OR INSPECTING AIRCRAFT COMPONENTS, NOT OTHERWISE PROVIDED FOR

**NOTE**

In this subclass, the following terms or expressions are used with the meaning indicated:

- "installations" embraces equipment, including mobile equipment, peculiar to use in connection with aircraft and not fitted thereto;
- "ground installations" embraces waterborne installations.
B64F (continued) **WARNING**

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

**B64G** **COSMONAUTICS; VEHICLES OR EQUIPMENT THEREFOR** (apparatus for, or methods of, winning materials from extraterrestrial sources E21C 51/00)

**NOTES**
1. This subclass covers only vehicles, equipment or the like, which are specially adapted for cosmonautics.
2. This subclass does not cover vehicles and equipment applicable to both cosmonautics and aeronautics, which are covered by the appropriate aeronautical subclasses of class B64.
3. In this subclass, the following term is used with the meaning indicated:
   - "cosmonautics" includes all transport outside the earth's atmosphere, and thus includes artificial earth satellites, and interplanetary and interstellar travel.

**WARNING**

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

**B65** **CONVEYING; PACKING; STORING; HANDLING THIN OR FILAMENTARY MATERIAL**

**B65B** **MACHINES, APPARATUS OR DEVICES FOR, OR METHODS OF, PACKAGING ARTICLES OR MATERIALS; UNPACKING** (bundleing and pressing devices for cigars A24C 1/44; devices for tensioning and securing binders adapted to be supported by the article or articles to be bound B25B 25/00; applying closure members to bottles, jars or similar containers B67B 1/00-B67B 6/00; concurrent cleaning, filling and closing of bottles B67C 7/00; emptying bottles, jars, cans, casks, barrels or similar containers B67C 9/00)

**NOTE**

The term "packaging" should be understood as including mainly the following operations:
- filling portable containers or receptacles with materials or small articles to form packages
- inserting articles, or groups of articles, into containers or receptacles
- closing filled containers or receptacles otherwise than by metal-, glass-, or wood-working operations
- enclosing, or partially enclosing, articles or quantities of material, in sheets, strips, blanks, webs, or tubes of thin flexible material, e.g. wrapping
- bundling articles, e.g. holding articles together in groups by applying string or wire
- attaching articles to cards, sheets, or webs

Operations of these types employed in the manufacture of articles other than packages are classified in other appropriate subclasses, e.g. making confectionery products by casting in moulds formed by wrappers A23G, filling ammunition cartridges F42B. Methods of packaging which are wholly characterised by the form of the package produced, or the form of the container or packaging-element utilised, are to be classified in B65D rather than in this subclass. In the following elaborations, the term "package" is used to mean the end product of a packaging operation, e.g. a filled and closed container, an article enclosed in a wrapper, a group of articles held together by string or wire, a crate of bottles. In the following elaborations, the term "materials" is to be understood as embracing matter, or masses of articles, which are to be packaged, as distinct from separate or individual articles. Machines, apparatus or methods of general application for packaging articles or materials

**WARNINGS**
1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups: B65B 51/09 covered by B65B 51/00
2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.
TRANSPORTING

B65C LABELLING OR TAGGING MACHINES, APPARATUS, OR PROCESSES (nailing or stapling in general B25C, B27F: applying labels for packaging purposes B65B; labels, name-plates G09F) (series-printing machines B41L; containers for the storage or transport of packages B65D)

NOTE
In this subclass, the following term is used with the meaning indicated:
• “labels” covers also decalcomanias, stamps or the like

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B65D CONTAINERS FOR STORAGE OR TRANSPORT OF ARTICLES OR MATERIALS, e.g. BAGS, BARRELS, BOTTLES, BOXES, CANS, CARTONS, CRATES, DRUMS, JARS, TANKS, HOPPERS, FORWARDING CONTAINERS; ACCESSORIES, CLOSURES, OR FITTINGS THEREFOR; PACKAGING ELEMENTS; PACKAGES

NOTES
1. In this subclass, the indexing codes of B65D 2519/00004 - B65D 2519/00995 should be added, if applicable
2. This subclass covers:
   • containers, packaging elements or packages with auxiliary means or provisions for displaying articles or materials;
   • methods of packaging which are wholly characterised by the form of the package produced or the form of the container or packaging element used, as distinct from the operations performed or the apparatus employed, which are covered by subclass B65B
3. This subclass, which is intended to be as comprehensive as possible, only excludes containers or packages of a nature clearly confined to a single other subclass, which are classified in that subclass
4. In this subclass, groups B65D 5/00, B65D 27/00, B65D 29/00, B65D 31/00 or B65D 65/00 include constructional features of foldable or erectable container or wrapper blanks as well as the containers or wrappers formed by folding or erecting such blanks.
5. Containers, packaging elements or packages classified in group B65D 85/00, are also classified according to the constructional or functional features, if such features are of interest
6. In this subclass, the following terms or expressions are used with the meanings indicated:
   • “rigid or semi-rigid containers” includes:
     a. containers not deformed by, or not taking-up the shape of, their contents;
     b. containers adapted to be temporarily deformed to expel their contents;
     c. pallets;
     d. trays;
   • “flexible containers” includes:
     a. containers deformed by, or taking-up the shape of, their contents;
     b. containers adapted to be permanently deformed to expel their contents;
   • “packaging elements” includes:
     a. elements, other than containers, for covering, protecting, stiffening, or holding together articles or materials to be stored or transported;
     b. packaging materials of special type or form not provided for in other subclasses;
   • “packages” includes:
     a. combination of containers or packaging elements with articles or materials to be stored or transported;
     b. articles joined together for convenience of storage or transport;
     • “paper” includes materials, e.g. cardboard, plastic sheet materials, laminated materials, or metal foils, worked in a manner analogous to paper;
     • “large containers”, in groups B65D 88/00 or B65D 90/00, means containers having about the size of containers used in container traffic, sometimes referred to as freight, forwarding or “ISO” (International Standardization) containers, or larger containers
7. Tamper-indicating means for containers or closures are classified in the group appropriate to the type of container or closure, e.g. B65D 5/54, B65D 17/00, B65D 27/30, B65D 27/30, B65D 27/34, B65D 33/34, B65D 41/32, B65D 47/36, B65D 49/12, B65D 51/20, B65D 55/06

WARNINGS
1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:
   B65D 5/34 covered by B65D 5/325
   B65D 5/35 covered by B65D 5/325
   B65D 5/355 covered by B65D 5/0005
2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.
TRANSPORTING

B65F GATHERING OR REMOVAL OF DOMESTIC OR LIKE REFUSE (disinfecting refuse A61L; refuse disintegrators B02C; sorting refuse B03B; B07B; handcarts for transporting refuse receptacles B62B; sack holders B65B 67/00; converting refuse into fertilisers C05F; converting refuse into solid fuels C10L; sewers, cesspools E03F; arrangements in buildings for the disposal of refuse E04F 17/10; refuse-consuming furnaces F23G; { for surgical articles A61B 50/36})

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B65G TRANSPORT OR STORAGE DEVICES, e.g. CONVEYORS FOR LOADING OR TIPPING, SHOP CONVEYOR SYSTEMS OR PNEUMATIC TUBE CONVEYORS (packaging B65B; handling thin or filamentary materials, e.g. paper sheets or thread, B65H; cranes B66C; portable mobile or lifting or hauling appliances, e.g. hoists, B66D; devices for lifting or lowering goods for loading or unloading purposes, e.g. fork-lift trucks, B66F 9/00; emptying bottles, jars, casks, barrels or similar containers, not otherwise provided for, B67C 9/00; delivering or transferring liquids B67D; filling or discharging vessels for liquefied, solidified or compressed gases F17C; pipe-line systems for fluids F17D)

NOTE
This subclass does not cover road or railway vehicles, waterborne vessels or aircraft per se, or their adaptation for transport purposes. This subject matter is covered by classes B60 - B64, for example in the following places:
- vehicles adapted for load transportation B60P;
- railway wagons adapted for load transportation B61D;
- hand carts B62B;
- superstructures for load-carrying vehicles B62D 33/00;
- loading or load-accommodating arrangements on ships or vessels B63B 25/00, B63B 27/00;
- equipment for handling freight in aircraft B64D 9/00

WARNINGS
1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:
   - B65G 47/10 covered by B65G 1/1373
   - B65G 47/86 covered by B65G 47/842, B65G 47/847
   - B65G 69/32 covered by B65G 69/28
   - B65G 69/34 covered by B65G 69/28
2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B65H HANDLING THIN OR FILAMENTARY MATERIAL, e.g. SHEETS, WEBS, CABLES

NOTES
1. This subclass does not cover methods or devices intimately associated with other operations on thin or filamentary material, e.g. sheets, webs, cables or means for performing such operations, which are classified in the relevant subclasses for these operations, e.g.:
   - B07C Postal sorting, similar sorting of documents, e.g. cheques
   - B08B 1/02 Cleaning travelling work, e.g. webs, by methods involving the use of tools, brushes or like members
   - B21B 41/00 Metal rolling involving guiding, conveying or accumulating easily-flexible work, e.g. wire, sheet metal bands, in loops or curves
   - B21C 47/00 , Winding-up,coiling, winding-off or temporarily
   - B21C 49/00 accumulating metal wire, metal band or other flexible metal material, characterised by features relevant to metal processing only, other than by rolling
   - B21D 43/00 Feeding, positioning or storing devices, combined with, or arranged in, or specially adapted for use in connection with, apparatus for working or processing sheet metal without essentially removing material
   - B23K 9/12 Means for automatic feeding of electrodes for spot or seam welding or cutting
   - B29C 31/00 Handling for shaping or joining of plastics, for shaping of substances in a plastic state in general or for after-treatment of shaped products, e.g. feeding the material to be shaped
   - B41B 15/32 , Film-handling mechanisms in photographic
   - B41B 21/32 composing machines
   - B41F 13/02 Conveying or guiding webs through rotary printing presses or machines

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B65H (continued)

B41J 11/00 to Handling of copy- or impression-transfer material
B41J 17/00 in typewriters or selective printing mechanisms
B41K 3/44 Means for handling copy matter in stamping or numbering apparatus or devices
B41L Handling sheets or webs in apparatus for, or methods of, packaging articles, not of interest apart from their application in packaging machines
B42B Handling relating to permanently attaching together sheets, quires, or signatures
B42C Handling sheets in book-binding
B65B Handling of sheets or webs in apparatus for, or methods of, packaging articles, not of interest apart from their application in packaging machines
B65C Handling of labels in labelling or tagging apparatus
C14B 1/62 Winding or stacking hides or leather in machines or devices for manufacturing leather
D01 J D07 Spinning, weaving, braiding, lace-making, knitting, sewing, making ropes or cables
D21F 2/00 Transferring webs from wet ends to press sections in paper-making
F26B 13/00 Handling fabrics, fibres, yarns or other material in long lengths in drying apparatus
G03B Film-strip handling or handling of pictures in apparatus for taking photographs or for projecting or viewing them
G06K 13/00 Conveying record carriers from one station to another
G06M 7/00 Counting of flat articles, e.g. sheets, carried by a conveyor
G11B 15/00 to Information storage based on relative movement
G11B 19/00, between record carrier and transducer,
G11B 23/00, involving handling record carriers for
G11B 25/00 recording or reproducing
H01F 4/1/06 Manufacturing coils for magnets, inductances, transformers, by winding
H01G 13/02 Machines for winding capacitors
H04N 1/00 Sheet handling not of interest apart from its use in systems for transmission or reproduction of pictures or patterns not varying in time, e.g. facsimile transmission

2. In this subclass:
   • the groups relating to thin material, as defined under (i) of Note (3) below, are primarily intended to cover the handling of articles made of paper or cardboard, but also include the handling of articles made of other materials which have similar characteristics or present similar handling problems, e.g. articles made of sheet plastics or leather;
   • the groups relating to filamentary material (groups B65H 49/00 onwards,) as defined in Note (3) below, cover only methods or devices of general application or interest.

3. In this subclass, the following terms or expressions are used with the meanings indicated:
   • “handling” includes feeding, folding (other than in the manufacture of products), guiding, orientating, storing, unwinding, and winding;
   • “thin material” includes:
      i. sheets, signatures, envelopes, blanks, and thin and thin piles thereof (hereinafter referred to as “articles”), and
      ii. webs, tapes, and films, e.g. of paper, fabric, metal foil, or plastics;
   • “filamentary material” includes thread, wires, ropes, cables, and hoses;
   • “package” means a mass of filamentary material, formed by coiling, depositing, or winding, with or without a supporting core or former or an enclosing container or receptacle.
   • (“yarn” also covers similar filamentary materials.)

WARNINGS

1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:
   B65H 19/16 covered by B65H 19/1889
   B65H 35/07 covered by B65H 35/0006
   B65H 77/00 covered by B65H 23/00, B65H 59/00

2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B66 HOISTING; LIFTING; HAULING
B66B ELEVATORS; ESCALATORS OR MOVING WALKWAYS

({apparatus for raising or lowering persons on theatrical stages or the like A63J 5/12}; funicular railbound systems with rigid ground-supported tracks and cable traction, e.g. cliff railways, B61B 9/00; arrangements of ammunition handlers in vessels B63G 3/00; hoists, lifts, or conveyors for loading or unloading in general B65G; braking or detent devices controlling normal movements of winding drums or barrels B66D; ship-lifting devices E02C; garages for many vehicles with mechanical means for lifting vehicles E04H 6/12; hoists for feeding ammunition or projectiles to launching apparatus or to loading mechanisms F41A 9/00)

NOTE
In this subclass, the following term is used with the meaning indicated:
• "elevator" covers the term "lift", and the two terms are interchangeable

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B66C CRANES; LOAD-ENGAGING ELEMENTS OR DEVICES FOR CRANES, CAPSTANS, WINCHES, OR TACKLES

({specially adapted for lifting invalids A61G 7/10}; rope, cable, or chain winding mechanisms, braking or detent devices therefor B66D; specially adapted for nuclear reactors G21)

WARNING
1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:
   B66C 23/61 covered by B66C 23/60
   B66C 23/683 covered by B66C 23/68
   B66C 23/687 covered by B66C 23/701
   B66C 23/69 covered by B66C 23/701
   B66C 23/693 covered by B66C 23/705
   B66C 23/697 covered by B66C 23/707

2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B66D CAPSTANS; WINCHES; TACKLES, e.g. PULLEY BLOCKS; HOISTS

(winding or unwinding ropes or cables for feeding or storage purposes B65H; rope or cable winding or unwinding mechanisms for lifts B66B)

NOTE
This subclass covers:
• rope, cable or chain winding or unwinding mechanisms for moving all loads except lift cages, e.g. winches for dredges;
• braking or detent devices characterised by their application for retarding or preventing rotary movement of a winding drum or barrel

WARNING
1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:
   B66D 1/395 covered by B66D 1/36, B66D 1/50

2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.
B66F TRANSPORTING, LIFTING, HAULING OR PUSHING, NOT OTHERWISE PROVIDED FOR, e.g. DEVICES WHICH APPLY A LIFTING OR PUSHING FORCE DIRECTLY TO THE SURFACE OF A LOAD (invalid lifting devices A61G 7/10; mounting artificial islands on piles or like supports E02B 17/00; scaffolding combined with lifting devices E04G 1/22; lifting devices for sliding forms E04G 11/24; lifting of buildings E04G 23/06; shores or struts E04G 25/00; lifts or other hoisting devices on ladders E06C 7/12; props for mining E21D 15/00)

WARNINGS
1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:
   B66F 19/02 covered by B66F 19/00
2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B67 OPENING, CLOSING {OR CLEANING} BOTTLES, JARS OR SIMILAR CONTAINERS; LIQUID HANDLING

B67B APPLYING CLOSURE MEMBERS TO BOTTLES, JARS, OR SIMILAR CONTAINERS; OPENING CLOSED CONTAINERS (opening or closing devices attached to, or incorporated in, containers or container closures B65D)

WARNINGS
1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:
   B67B 7/46 covered by B67B 7/30-B67B 7/385
   B67B 7/48-B67B 7/52 covered by B67B 7/24, B67B 7/26, B67B 7/28
   B67B 7/54-B67B 7/90 covered by B67B 7/30-B67B 7/385
2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B67C CLEANING, FILLING WITH LIQUIDS OR SEMILIQUIDS, OR EMPTYING, OF BOTTLES, JARS, CANS, CASKS, BARRELS, OR SIMILAR CONTAINERS, NOT OTHERWISE PROVIDED FOR; FUNNELS

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B67D DISPENSING, DELIVERING OR TRANSFERRING LIQUIDS, NOT OTHERWISE PROVIDED FOR (cleaning pipes or tubes or systems of pipes or tubes B08B 9/02; emptying or filling of bottles, jars, cans, casks, barrels, or similar containers, not otherwise provided for B67C; water supply E03; pipe systems F17D; domestic hot-water supply systems F24D; measuring volume, volume flow, mass flow or liquid level, metering by volume G01F; coin-freed or like apparatus G07F)

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B68 SADDLERY; UPHOLSTERY

B68B HARNESS; DEVICES USED IN CONNECTION THEREWITH; WHIPS OR THE LIKE

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.
B68C  SADDLES; STIRRUPS

WARNING

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B68F  MAKING ARTICLES FROM LEATHER, CANVAS, OR THE LIKE

WARNING

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

B68G  METHODS, EQUIPMENT, OR MACHINES FOR USE IN UPHOLSTERING; UPHOLSTERY NOT OTHERWISE PROVIDED FOR

WARNING

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

MICROSTRUCTURAL TECHNOLOGY; NANOTECHNOLOGY

B81  MICROSTRUCTURAL TECHNOLOGY

NOTES

1. This class covers microstructural devices or systems, including at least one essential element or formation characterised by its very small size typically within the range of 10^-4 to 10^-7 meters, i.e. its significant features can not, in at least one dimension, be completely discerned without the use of an optical microscope.

2. In this class, the following expressions are used with the meaning indicated:
   • "microstructural devices" covers:
     i. micromechanical devices comprising movable, flexible or deformable elements; and
     ii. three-dimensional structures without movable, flexible or deformable elements, comprising microformations designed to accomplish an essential structural function for interacting with their environment, as opposed to purely electronic or chemical functions, regardless of whether the structures are combined with microelectronic devices or formed from specific materials;
   • "microstructural systems" covers:
     i. systems of cooperating microstructural devices; and
     ii. microelectro-mechanical or microopto-mechanical systems, which combine on a common substrate the specific features of microstructural devices and electrical or optical components, e.g. for controlling, analysing or signalling the functioning of microstructural devices.

B81B  MICROSTRUCTURAL DEVICES OR SYSTEMS, e.g. MICROMECHANICAL DEVICES (piezo-electric, electrostrictive or magnetostrictive elements per se H01L 41/00)

NOTES

1. This subclass does not cover:
   • purely electrical or electronic devices per se which are covered by section H, e.g. subclass H01L;
   • purely optical devices per se which are covered by subclasses G02B or G02P;
   • essentially two-dimensional structures, e.g. layered products which are covered by subclass B32B;
   • chemical or biological structures per se which are covered by section C;
   • structures in atomic scale produced by manipulation of single atoms or molecules, which are covered by group B82B 1/00.

2. Devices or systems classified in this subclass are also classified in appropriate subclasses providing for their structural or functional features, if such features are of interest.

3. Attention is drawn to the following places:
   A61K 9/50 Microcapsules for medicinal preparations
   B25J 7/00 Micromanipulators
   G02B 21/32 Micromanipulators combined with microscopes
   G11B 5/127 Magnetic heads
   H01P 3/08 Waveguide microstrips.

4. In this subclass, local "residual" subgroups, e.g. B81B 7/0077, are used with the following purpose:
   When classifying a document which does not fit in any of a set of subgroups with the same dot-level, the document should be classified in the residual group, if present, and not in the group at the hierarchical level one dot above.

   In the example, the document shall be classified in B81B 7/0077 and not in B81B 7/0032 as B81B 7/0077 is "residual" to B81B 7/0035-B81B 7/0074.
**Microstructural Technology; Nanotechnology**

**B81B**
(continued)

**WARNING**
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

**B81C**
**Processes or Apparatus Specially Adapted for the Manufacture or Treatment of Microstructural Devices or Systems**
(making microcapsules or microballoons B01J 13/02; processes or apparatus peculiar to the manufacture or treatment of piezo-electric, electrostrictive or magnetostrictive element per se H01L 41/22)

**NOTES**
1. This subclass does not cover:
   - processes or apparatus for the manufacture or treatment of purely electrical or electronic devices, which are covered by section H, e.g. group H01L 21/00;
   - processes or apparatus involving the manipulation of single atoms or molecules, which are covered by group B82B 3/00.
2. In this subclass, local "residual" subgroups, e.g. B81C 1/00126, are used with the following purpose.
   When classifying a document which does not fit in any of a set of subgroups with the same dot-level, the document should be classified in the residual group, if present, and not in the group at the hierarchical level one dot above.
   In the example, the document shall be classified in B81C 1/00126 and not in B81C 1/00023 as B81C 1/00126 is "residual" to B81C 1/00031-B81C 1/00119.

**B82**
**Nanotechnology**

**NOTE**
In this class, the following terms are used with the meaning indicated:
- "nanosize" or "nanoscale" relate to a controlled geometrical size below 100 nanometres (nm) in one or more dimensions;
- "nanostructure" means an entity having at least one nanosized functional component that makes physical, chemical or biological properties or effects available, which are uniquely attributable to the nanoscale.

**B82B**
**Nanostructures Formed by Manipulation of Individual Atoms, Molecules, or Limited Collections of Atoms or Molecules As Discrete Units; Manufacture or Treatment Thereof**

**NOTES**
1. This subclass does not cover chemical or biological nanostructures per se, provided for elsewhere, e.g. in classes C08 or C12.
2. Attention is drawn to the Note following the title of class B82, which defines the meaning of the terms "nanosize", "nanoscale" and "nanostructure" in this subclass.
3. Subject matter classified in this subclass is further classified in subclass B82Y, in order to enable a comprehensive search of nanostructure technology using classification symbols of B82Y in combination with classification symbols of B82B.
4. Nanostructures having specialised features or functions are further classified in appropriate places in other subclasses that provide for those features or functions, e.g. in G01Q, G02F 1/017, H01L 29/775.

**B82Y**
**Specific Uses or Applications of Nanostructures; Measurement or Analysis of Nanostructures; Manufacture or Treatment of Nanostructures**

**NOTES**
1. This subclass covers applications and aspects of nanostructures which are produced by any method, and is not restricted to those that are formed by manipulation of individual atoms or molecules.
2. Attention is drawn to the Note following the title of class B82, which defines the meaning of the terms "nanosize", "nanoscale" and "nanostructure" in this subclass.
3. This subclass is intended to enable a comprehensive search of subject matter related to nanostructures by combination of classification symbols of this subclass with classification symbols from other subclasses. Therefore this subclass covers aspects of nanostructures that might also be entirely or partially covered elsewhere in the IPC.
4. This subclass is for secondary classification, i.e. obligatory supplementary classification of subject matter already classified as such in other classification places, e.g.:
   - B82B Nanostructures formed by individual manipulation of atoms, molecules, or limited collections of atoms or molecules as discrete units; manufacture or treatment thereof
   - A61K 9/51 Nanocapsules for medicinal preparations
   - B05D 1/20 Langmuir-Blodgett films
   - C01B 32/05 Carbon nanostructures, e.g. bucky-balls, nanotubes, nanocoils, nanodoughnuts or nanoonions
   - G01Q Scanning probe techniques
   - G02F 1/017 Optical quantum wells or boxes

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5. The classification symbols of this subclass are not listed first when assigned to patent documents.
6. In this subclass, multi-aspects classification is applied, so that aspects of subject matter that are covered by more than one of its groups should be classified in each of those groups.

**B99** SUBJECT MATTER NOT OTHERWISE PROVIDED FOR IN THIS SECTION

**B99Z** SUBJECT MATTER NOT OTHERWISE PROVIDED FOR IN THIS SECTION

**NOTE**

This subclass covers subject matter that:

a. Is not provided for, but is most closely related to, the subject matter covered by the subclasses of this section, and

b. Is not explicitly covered by any subclass of another section.