

CPC COOPERATIVE PATENT CLASSIFICATION

B PERFORMING OPERATIONS; TRANSPORTING (NOTES omitted)

SHAPING

B21 MECHANICAL METAL-WORKING WITHOUT ESSENTIALLY REMOVING MATERIAL; PUNCHING METAL (NOTES omitted)

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.

Wire working characterised by operations performed

| | | | |
|-------------|---|--------------|--|
| | | 9/02 | . by tools adapted also for making connections |
| 1/00 | Bending wire other than coiling; Straightening wire | 11/00 | Cutting wire (hand cutting tools B26B) |
| 1/002 | . {by means of manually operated devices, e.g. pliers} | 11/005 | . {springs} |
| 1/004 | . {by means of press-type tooling} | 13/00 | Splitting wire |
| 1/006 | . {in 3D with means to rotate the tools about the wire axis} | 15/00 | Connecting wire to wire or other metallic material or objects; Connecting parts by means of wire (tools for both straining and connecting B21F 9/00 ; jacketing or reinforcing B21F 17/00 ; manufacture of wire network B21F 27/00 ; in making bands B21F 43/00 {; bundling machines or tools B65B 13/00 ; for semiconductors H01L 24/85)) |
| 1/008 | . {in 3D with means to rotate the wire about its axis} | 15/02 | . wire with wire |
| 1/02 | . Straightening | 15/04 | . . without additional connecting elements or material, e.g. by twisting |
| 1/023 | . . {in a device rotating about the wire axis} | 15/06 | . . with additional connecting elements or material {(B21F 27/08 takes precedence)} |
| 1/026 | . . {Straightening and cutting} | 15/08 | . . . making use of soldering or welding {(B21F 27/10 takes precedence)} |
| 1/04 | . Undulating | 15/10 | . wire with sheet metal |
| 1/06 | . Bending wire-eyes | 17/00 | Jacketing or reinforcing articles with wire (by winding B65H 54/00 , B65H 81/00 ; by braiding D04C) |
| 3/00 | Coiling wire into particular forms | 19/00 | Metallic coating of wire (by extruding B21C 23/24 ; by soldering or welding, e.g. cladding or plating B23K ; by other non-mechanical means C23 ; electroplating C25D) |
| 3/02 | . helically | 23/00 | Feeding wire in wire-working machines or apparatus (applicable also to feeding rods or strips B21D 43/00) |
| 3/027 | . . with extended ends formed in a special shape, e.g. for clothes-pegs | 23/002 | . {Feeding means specially adapted for handling various diameters of wire or rod} |
| 3/04 | . . externally on a mandrel or the like | 23/005 | . {Feeding discrete lengths of wire or rod} |
| 3/06 | . . internally on a hollow form | 23/007 | . . {using pick-up means, e.g. for isolating a predefined number of wires from a bundle} |
| 3/08 | . to flat spiral | | |
| 3/10 | . to spirals other than flat, e.g. conical | | |
| 3/12 | . of interconnected helical springs | | |
| 5/00 | Upsetting wire {or pressing operations affecting the wire cross-section}(in the manufacture of nails or pins B21G 3/12) | | |
| 5/005 | . {Upsetting wire} | | |
| 7/00 | Twisting wire; Twisting wire together (for connections of limited size B21F 15/04) | | |
| 9/00 | Straining wire (straining prestressing wires for concrete E04G 21/12 ; connections or attachments adapted for straining F16G 11/00 ; {bundling machines or tools B65B 13/00 }) | | |
| 9/002 | . {to maintain tension in the wire, e.g. to pull the wire taut} | | |
| 9/005 | . {to affect the material properties of the wire} | | |
| 9/007 | . {to induce a plastic deformation of the wire} | | |

Wire working characterised by the particular articles produced

- 25/00 Making barbed wire**
- 27/00 Making wire network, i.e. wire nets** ([meshed-ring network B21F 31/00](#); in making bands [B21F 43/00](#); using looms [D03D](#))
- 27/005 . {Wire network [per se](#)}
 - 27/02 . without additional connecting elements or material at crossings, e.g. connected by knitting
 - 27/04 . . Manufacturing on machines with rotating blades or formers
 - 27/06 . . Manufacturing on twister-gear machines
 - 27/08 . with additional connecting elements or material at crossings
 - 27/10 . . with soldered or welded crossings {(resistance spot welding machines for manufacturing of metallic grids or mats [B23K 11/008](#))}
 - 27/12 . Making special types or portions of network by methods or means specially adapted therefor
 - 27/121 . . {of tubular form, e.g. as reinforcements for pipes or pillars}
 - 27/122 . . . {by attaching a continuous stirrup to longitudinal wires}
 - 27/124 {applied by rotation}
 - 27/125 . . . {by attaching individual stirrups to longitudinal wires}
 - 27/127 . . . {by bending preformed mesh}
 - 27/128 . . {of three-dimensional form by connecting wire networks, e.g. by projecting wires through an insulating layer}
 - 27/14 . . Specially bending or deforming free wire ends
 - 27/16 . . for spring mattresses
 - 27/18 . . of meshed work for filters or sieves
 - 27/20 . . of plaster-carrying network
 - 27/22 . . of network for wire-reinforced glass or the like
- 29/00 Making fencing or like material made partly of wire** ([B21F 25/00](#), [B21F 27/00](#) take precedence)
- 29/02 . comprising bars or the like connected by wires
- 31/00 Making meshed-ring network from wire**
- 33/00 Tools or devices specially designed for handling or processing wire fabrics or the like**
- 33/002 . {Coiling or packing wire network}
 - 33/005 . {Cutting wire network}
 - 33/007 . {Connecting wire network}
 - 33/02 . Mounting of wire network on frames
 - 33/025 . . {Mounting of mattress innersprings on borderframes}
 - 33/04 . Connecting ends of helical springs for mattresses
- 35/00 Making springs from wire** (by coiling wire [B21F 3/00](#); making resilient rings [B21F 37/02](#))
- 35/003 . {Multi-filament springs, e.g. made of stranded, braided, cable or multi-filament material}
 - 35/006 . {Double twist coil springs}
 - 35/02 . Bending or deforming ends of coil springs to special shape
 - 35/04 . Making flat springs, e.g. sinus springs
- 37/00 Manufacture of rings from wire** (in chain making [B21L](#); making of tyre beads [B29D 30/48](#))
- 37/02 . of resilient rings, e.g. key-rings
 - 37/04 . of washers ([B21F 37/02](#) takes precedence)

- 39/00 Making wheel spokes from wire**
- 41/00 Making umbrella frames or members from wire**
- 43/00 Making bands, e.g. bracelets, or wire** (making chains [B21L](#); using looms [D03D](#))
- 45/00 Wire-working in the manufacture of other particular articles** (of pins, needles, nails, hairpins [B21G](#); of chains [B21L](#) {; for semiconductor devices [H01L 24/42](#)})
- 45/002 . {of frames for spectacles}
 - 45/004 . {Mounting bails on containers}
 - 45/006 . {of concrete reinforcement fibres}
 - 45/008 . {of medical instruments, e.g. stents, corneal rings ([medical science A61](#))}
 - 45/02 . of clothes hangers
 - 45/04 . of elements, e.g. levers or links, for bottle stoppers
 - 45/06 . of flexible shafts or hollow conduits, e.g. for Bowden mechanisms
 - 45/08 . of loom heddles
 - 45/10 . of cards for fabric-napping machines
 - 45/12 . of fishing hooks
 - 45/14 . of end-pieces for laces or ropes
 - 45/16 . of devices for fastening or securing purposes
 - 45/18 . . of slide fastener elements
 - 45/20 . . of springs hooks; of spring safety hooks
 - 45/22 . . of paper fasteners or clips ([staples B21F 45/24](#))
 - 45/24 . . of staples; of belt-fastening elements
 - 45/26 . . of buttons
 - 45/28 . . . of "patent-fastener" or press-button type
- 99/00 Subject matter not provided for in other groups of this subclass**