

# CPC COOPERATIVE PATENT CLASSIFICATION

## 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](#))

### Wire working characterised by operations performed

- 1/00 Bending wire other than coiling; Straightening wire**
  - 1/002 . {by means of manually operated devices, e.g. pliers}
  - 1/004 . {by means of press-type tooling}
  - 1/006 . {in 3D with means to rotate the tools about the wire axis}
  - 1/008 . {in 3D with means to rotate the wire about its axis}
  - 1/02 . Straightening
  - 1/023 . . {in a device rotating about the wire axis}
  - 1/026 . . {Straightening and cutting}
  - 1/04 . Undulating
  - 1/06 . Bending wire-eyes
- 3/00 Coiling wire into particular forms**
  - 3/02 . helically
  - 3/027 . . with extended ends formed in a special shape, e.g. for clothes-pegs
  - 3/04 . . externally on a mandrel or the like
  - 3/06 . . internally on a hollow form
  - 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 pre-stressing 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}
  - 9/02 . by tools adapted also for making connections
- 11/00 Cutting wire (hand cutting tools [B26B](#))**
  - 11/005 . {springs}
- 13/00 Splitting wire**
- 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](#)})**
  - 15/02 . wire with wire

- 15/04 . . without additional connecting elements or material, e.g. by twisting
- 15/06 . . with additional connecting elements or material {([B21F 27/08](#) takes precedence)}
- 15/08 . . . making use of soldering or welding {([B21F 27/10](#) takes precedence)}
- 15/10 . wire with sheet metal
- 17/00 Jacketing or reinforcing articles with wire (by winding [B65H 54/00](#), [B65H 81/00](#); by braiding [D04C](#))**
- 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](#))**
- 23/00 Feeding wire in wire-working machines or apparatus (applicable also to feeding rods or strips [B21D 43/00](#))**
  - 23/002 . {Feeding means specially adapted for handling various diameters of wire or rod}
  - 23/005 . {Feeding discrete lengths of wire or rod}
  - 23/007 . . {using pick-up means, e.g. for isolating a predefined number of wires from a bundle}

### 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	45/28	. . . of "patent-fastener" or press-button type
27/16	. . for spring mattresses	<b>99/00</b>	<b>Subject matter not provided for in other groups of this subclass</b>
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		
<b>29/00</b>	<b>Making fencing or like material made partly of wire</b> ( <a href="#">B21F 25/00</a> , <a href="#">B21F 27/00</a> take precedence)		
29/02	. comprising bars or the like connected by wires		
<b>31/00</b>	<b>Making meshed-ring network from wire</b>		
<b>33/00</b>	<b>Tools or devices specially designed for handling or processing wire fabrics or the like</b>		
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		
<b>35/00</b>	<b>Making springs from wire</b> (by coiling wire <a href="#">B21F 3/00</a> ; making resilient rings <a href="#">B21F 37/02</a> )		
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		
<b>37/00</b>	<b>Manufacture of rings from wire</b> (in chain making <a href="#">B21L</a> ; making of tyre beads <a href="#">B29D 30/48</a> )		
37/02	. of resilient rings, e.g. key-rings		
37/04	. of washers ( <a href="#">B21F 37/02</a> takes precedence)		
<b>39/00</b>	<b>Making wheel spokes from wire</b>		
<b>41/00</b>	<b>Making umbrella frames or members from wire</b>		
<b>43/00</b>	<b>Making bands, e.g. bracelets, or wire</b> (making chains <a href="#">B21L</a> ; using looms <a href="#">D03D</a> )		
<b>45/00</b>	<b>Wire-working in the manufacture of other particular articles</b> (of pins, needles, nails, hairpins <a href="#">B21G</a> ; of chains <a href="#">B21L</a> ; {for semiconductor devices <a href="#">H01L 24/42</a> })		
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 ( <a href="#">medical science A61</a> )}		
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 ( <a href="#">staples B21F 45/24</a> )		
45/24	. . of staples; of belt-fastening elements		
45/26	. . of buttons		