

# CPC COOPERATIVE PATENT CLASSIFICATION

## H ELECTRICITY

(NOTE omitted)

## H01 BASIC ELECTRIC ELEMENTS

(NOTE omitted)

## H01R ELECTRICALLY-CONDUCTIVE CONNECTIONS; STRUCTURAL ASSOCIATIONS OF A PLURALITY OF MUTUALLY-INSULATED ELECTRICAL CONNECTING ELEMENTS; COUPLING DEVICES; CURRENT COLLECTORS

### NOTES

1. This subclass covers:
  - all kinds of contact-making disconnectible and non-disconnectible electric line connectors, coupling devices, lamp or similar holders or current collectors for all kinds of electric lines, cables or apparatus;
  - non-printed means for electric connections to or between printed circuits.
2. This subclass does not cover mounting of connections in or specified apparatus. Such mounting is covered by the relevant subclass for such apparatus, e.g. mounting in junction or distribution boxes is covered by subclass [H02B](#) or [H02G](#), high-temperature connections for heating elements is covered by group [H05B 3/08](#). Structural association of one part of a two-part coupling device with specific electric apparatus is classified with the apparatus e.g. association of cap with incandescent lamp is covered by subclass [H01K](#).
3. In this subclass, the following expressions are used with the meaning indicated:
  - "pin" is a rigid or flexible conductor for engagement with an appropriately shaped socket to establish contact therewith;
  - "socket" is a rigid or flexible conductor for receiving an appropriate pin to establish electrical contact therewith;
  - "coupling devices" are devices having two or more parts specially adapted so as to be capable of ready and repeated physical engagement or disengagement, without the use of a tool, for the purpose of establishing or breaking an electrical path. Examples of such devices having more than two parts are:
    - a. adapters for linking two coupling parts;
    - b. rails or bus-bars provided with a plurality of discrete connecting locations for counterparts.
4. General details are classified in groups [H01R 4/00](#), [H01R 9/00](#), [H01R 11/00](#).
5. {In this subclass, a contact in a coupling device is regarded as an additional earth contact only if this contact is clearly designed for that purpose.}

### 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.

<b>3/00</b>	<b>Electrically-conductive connections not otherwise provided for</b>	4/026	• • {comprising means for eliminating an insulative layer prior to soldering or welding}
3/08	• for making connection to a liquid {(slip rings with liquid contacts <a href="#">H01R 39/30</a> , <a href="#">H01R 39/646</a> )}	4/027	• • {comprising means for positioning or holding the parts to be soldered or welded}
<b>4/00</b>	<b>Electrically-conductive connections between two or more conductive members in direct contact, i.e. touching one another; Means for effecting or maintaining such contact; Electrically-conductive connections having two or more spaced connecting locations for conductors and using contact members penetrating insulation</b>	4/028	• • {comprising means for preventing flowing or wicking of solder or flux in parts not desired}
		4/029	• • {Welded connections ( <a href="#">H01R 4/021</a> - <a href="#">H01R 4/028</a> take precedence)}
		4/04	• using electrically conductive adhesives
		4/06	• Riveted connections ( <a href="#">by explosion H01R 4/08</a> )
		4/08	• effected by an explosion
4/01	• Connections using shape memory materials, e.g. shape memory metal	4/10	• effected solely by twisting, wrapping, bending, crimping, or other permanent deformation
4/02	• Soldered or welded connections {( <a href="#">H01R 4/625</a> , <a href="#">H01R 4/723</a> , <a href="#">H01R 12/59</a> take precedence)}	4/12	• • by twisting
4/021	• • {between two or more cables or wires}	4/14	• • by wrapping
4/022	• • • {comprising preapplied solder}	4/16	• • by bending
4/023	• • {between cables or wires and terminals}	4/18	• • by crimping {( <a href="#">H01R 4/01</a> , <a href="#">H01R 4/2495</a> take precedence; for coaxial cables <a href="#">H01R 9/0518</a> )}
4/024	• • • {comprising preapplied solder}	2004/181	• • • {using memory material}
4/025	• • {with built-in heat generating elements}	4/182	• • • {for flat conductive elements, e.g. flat cables ( <a href="#">H01R 4/01</a> takes precedence)}

- 4/183 . . . {for cylindrical elongated bodies, e.g. cables having circular cross-section ([H01R 4/01](#) takes precedence)}
- 4/184 . . . . {comprising a U-shaped wire-receiving portion}
- 4/185 . . . . . {combined with a U-shaped insulation-receiving portion}
- 4/186 . . . . {using a body comprising a plurality of cable-accommodating recesses or bores}
- 4/187 . . . {combined with soldering or welding}
- 4/188 . . . {having an uneven wire-receiving surface to improve the contact}
- 4/20 . . . using a crimping sleeve {(H01R 4/01 takes precedence)}
- 4/203 . . . . {having an uneven wire-receiving surface to improve the contact}
- 4/206 . . . . . {with transversal grooves or threads}
- 4/22 . End caps, i.e. of insulating or conductive material for covering or maintaining connections between wires entering the cap from the same end
- 4/24 . Connections using contact members penetrating or cutting insulation or cable strands
- 4/2404 . . the contact members having teeth, prongs, pins or needles penetrating the insulation

**WARNING**

Group [H01R 4/2404](#) is impacted by reclassification into groups [H01R 4/2406](#) and [H01R 4/2407](#).

Groups [H01R 4/2404](#), [H01R 4/2406](#) and [H01R 4/2407](#) should be considered in order to perform a complete search.

- 4/2406 . . . having needles or pins

**WARNING**

Group [H01R 4/2406](#) is incomplete pending reclassification of documents from groups [H01R 4/2404](#), [H01R 4/2408](#) and [H01R 4/2412](#).

Groups [H01R 4/2404](#), [H01R 4/2406](#), [H01R 4/2408](#) and [H01R 4/2412](#) should be considered in order to perform a complete search.

- 4/2407 . . . having saw-tooth projections

**WARNING**

Group [H01R 4/2407](#) is incomplete pending reclassification of documents from group [H01R 4/2404](#), [H01R 4/2408](#) and [H01R 4/2412](#).

Groups [H01R 4/2404](#), [H01R 4/2407](#), [H01R 4/2408](#) and [H01R 4/2412](#) should be considered in order to perform a complete search.

- 4/2408 . . . actuated by clamping screws

**WARNING**

Group [H01R 4/2408](#) is impacted by reclassification into groups [H01R 4/2406](#) and [H01R 4/2407](#).

Groups [H01R 4/2406](#), [H01R 4/2407](#) and [H01R 4/2408](#) should be considered in order to perform a complete search.

- 4/2412 . . . actuated by insulated cams or wedges

**WARNING**

Group [H01R 4/2412](#) is impacted by reclassification into groups [H01R 4/2406](#) and [H01R 4/2407](#).

Groups [H01R 4/2406](#), [H01R 4/2407](#) and [H01R 4/2412](#) should be considered in order to perform a complete search.

- 4/2416 . . the contact members having insulation-cutting edges, e.g. of tuning fork type
- 4/242 . . . the contact members being plates having a single slot
- 4/2425 . . . . Flat plates, e.g. multi-layered flat plates
- 4/2429 . . . . . mounted in an insulating base
- 4/2433 . . . . . one part of the base being movable to push the cable into the slot
- 4/2437 . . . . Curved plates
- 4/2441 . . . . . tube-shaped
- 4/2445 . . . the contact members having additional means acting on the insulation or the wire, e.g. additional insulation penetrating means, strain relief means or wire cutting knives
- 4/245 . . . . the additional means having two or more slotted flat portions

**WARNING**

Group [H01R 4/245](#) is impacted by reclassification into groups [H01R 4/2452](#) and [H01R 4/2456](#).

Groups [H01R 4/245](#), [H01R 4/2452](#) and [H01R 4/2456](#) should be considered in order to perform a complete search.

- 4/2452 . . . . . in serial configuration, e.g. opposing folded slots

**WARNING**

Group [H01R 4/2452](#) is incomplete pending reclassification of documents from group [H01R 4/245](#).

Groups [H01R 4/245](#) and [H01R 4/2452](#) should be considered in order to perform a complete search.

- 4/2454 . . . . . forming a U-shape with slotted branches

**WARNING**

Group [H01R 4/2454](#) is impacted by reclassification into group [H01R 4/2455](#).

Groups [H01R 4/2454](#) and [H01R 4/2455](#) should be considered in order to perform a complete search.

- 4/2455 . . . . . forming a slotted bight
- WARNING**
- Group [H01R 4/2455](#) is incomplete pending reclassification of documents from group [H01R 4/2454](#).
- Groups [H01R 4/2454](#) and [H01R 4/2455](#) should be considered in order to perform a complete search.
- 4/2456 . . . . . in parallel configuration
- WARNING**
- Group [H01R 4/2456](#) is incomplete pending reclassification of documents from group [H01R 4/245](#).
- Groups [H01R 4/245](#) and [H01R 4/2456](#) should be considered in order to perform a complete search.
- 4/2458 . . . . . the contact members being in a slotted tubular configuration, e.g. slotted tube-end
- 4/2462 . . . . . the contact members being in a slotted bent configuration, e.g. slotted bight
- 4/2466 . . . . . the contact members having a channel-shaped part, the opposite sidewalls of which comprise insulation-cutting means
- 4/247 . . the contact members penetrating the insulation being actuated by springs
- 4/2475 . . the contact members penetrating the insulation being actuated by screws, nuts or bolts
- 4/2479 . . . penetrating the area under the screw head
- 4/2483 . . . penetrating the area under the screw tip
- 4/2487 . . . penetrating by means of the screw thread
- 4/2491 . . the contact members penetrating the insulation being actuated by conductive cams or wedges
- 4/2495 . . Insulation penetration combined with permanent deformation of the contact member, e.g. crimping
- 4/26 . Connections in which at least one of the connecting parts has projections which bite into or engage the other connecting part in order to improve the contact ([H01R 4/188](#), [H01R 4/203](#), [H01R 4/5075](#) take precedence); using shape memory materials [H01R 4/01](#))
- 4/28 . Clamped connections, spring connections (made by means of terminals specially adapted for contact with, or insertion into, printed circuits [H01R 12/00](#))
- 4/30 . . utilising a screw or nut clamping member ([H01R 4/50](#) takes precedence; utilising a clamping member acted on by screw or nut [H01R 4/38](#); {for coaxial cables [H01R 9/0521](#)})
- 4/301 . . . {having means for preventing complete unscrewing of screw or nut}
- 4/302 . . . {having means for preventing loosening of screw or nut, e.g. vibration-proof connection}
- 4/304 . . . {having means for improving contact}
- 4/305 . . . {having means for facilitating engagement of conductive member or for holding it in position}
- 4/307 . . . {characterised by the thread of the screw or nut}
- 4/308 . . . {Conductive members located parallel to axis of screw}
- 4/32 . . . Conductive members located in slot or hole in screw
- 4/34 . . . Conductive members located under head of screw
- 4/36 . . . Conductive members located under tip of screw
- 4/363 . . . . . {with intermediate part between tip and conductive member}
- 4/366 . . . . . {intermediate part attached to the tip of the screw}
- 4/38 . . utilising a clamping member acted on by screw or nut ([H01R 4/50](#) takes precedence)
- 4/40 . . . Pivotal clamping member
- 4/42 . . . Clamping area to one side of screw only
- 4/44 . . . Clamping areas on both sides of screw
- 4/46 . . . Clamping area between two screws placed side by side
- 4/48 . . utilising a spring, clip, or other resilient member ([H01R 4/52](#) takes precedence)
- 4/4809 . . . {using a leaf spring}
- 4/4818 . . . . . {adapted for axial insertion of a wire end}
- 4/4827 . . . . . {with an opening in the housing for insertion of a release tool}
- 4/4836 . . . . . {with integral release means}
- 4/4845 . . . . . {insertion of a wire only possible by pressing on the spring}
- 4/4854 . . . {using a wire spring}
- 4/4863 . . . . . {Coil spring}
- 4/4872 . . . . . {axially compressed to retain wire end}
- 4/4881 . . . {using a louver type spring}
- 4/489 . . . {spring force increased by screw, cam, wedge, or other fastening means}
- 4/50 . . utilising a cam, wedge, cone or ball {also combined with a screw}
- 4/5008 . . . {using rotatable cam}
- 4/5016 . . . {using a cone}
- 4/5025 . . . . . {combined with a threaded ferrule operating in a direction parallel to the conductor}
- 4/5033 . . . {using wedge or pin penetrating into the end of a wire in axial direction of the wire}
- 4/5041 . . . {using a tapered groove}
- 4/505 . . . {using an excentric element}
- 4/5058 . . . {using a ball}
- 4/5066 . . . {mounted in an insulating housing having a cover providing clamping force}
- 4/5075 . . . {having an uneven wire receiving surface to improve the contact}
- 4/5083 . . . {using a wedge}
- 4/5091 . . . . . {combined with a screw}
- 4/52 . . . which is spring loaded
- 4/54 . {Bayonet or keyhole}
- 4/56 . one conductor screwing into another
- 4/58 . characterised by the form or material of the contacting members ([H01R 4/01](#) takes precedence)
- 4/60 . . Connections between or with tubular conductors ([H01R 4/56](#) takes precedence)
- 4/62 . . Connections between conductors of different materials; Connections between or with aluminium or steel-core aluminium conductors ([H01R 4/68](#) takes precedence)
- 4/625 . . . {Soldered or welded connections}
- 4/64 . . Connections between or with conductive parts having primarily a non-electric function, e.g. frame, casing, rail

- 4/643 . . . {for rigid cylindrical bodies}
- 4/646 . . . {for cables or flexible cylindrical bodies}
- 4/66 . . Connections with the terrestrial mass, e.g. earth plate, earth pin
- 4/68 . . Connections to or between superconductive connectors
- 4/70 . Insulation of connections ([end caps H01R 4/22](#))
- 4/72 . . using a heat shrinking insulating sleeve
- 4/723 . . . {Making a soldered electrical connection simultaneously with the heat shrinking}
- 4/726 . . . {Making a non-soldered electrical connection simultaneously with the heat shrinking}
- 9/00 Structural associations of a plurality of mutually-insulated electrical connecting elements, e.g. terminal strips or terminal blocks; Terminals or binding posts mounted upon a base or in a case; Bases therefor**
- 9/03 . Connectors arranged to contact a plurality of the conductors of a multiconductor cable {, e.g. tapping connections}
- 9/031 . . {for multiphase cables, e.g. with contact members penetrating insulation of a plurality of conductors (insulation penetrating contact members in general [H01R 4/24](#))}
- 9/032 . . {for shielded multiconductor cable (coaxial cables with one conductor surrounded by shield [H01R 9/05](#); flat shielded cables [H01R 12/594](#))}
- (Frozen)
- WARNING**
- Groups [H01R 9/032-H01R 9/038](#) are no longer used for the classification of new documents as from January 1, 2011.
- The content of these groups is being reclassified into groups [H01R 13/658](#) – [H01R 13/6599](#).
- All groups listed in this Warning should be considered in order to perform a complete search.
- 9/034 . . . {connection of the shield to an additional grounding conductor}
- (Frozen)
- 9/035 . . . {twisted pair surrounded by shield}
- (Frozen)
- 9/037 . . . {connection to shield by action of a resilient member}
- (Frozen)
- 9/038 . . . {each conductor being individually surrounded by shield}
- (Frozen)
- 9/05 . . for coaxial cables
- 9/0503 . . . {Connection between two cable ends}
- 9/0506 . . . {Connection between three or more cable ends}
- 9/0509 . . . {Tapping connections}
- 9/0512 . . . {Connections to an additional grounding conductor}
- 9/0515 . . . {Connection to a rigid planar substrate, e.g. printed circuit board}
- 9/0518 . . . {Connection to outer conductor by crimping or by crimping ferrule}
- 9/0521 . . . {Connection to outer conductor by action of a nut}
- 9/0524 . . . {Connection to outer conductor by action of a clamping member, e.g. screw fastening means ([H01R 9/0515](#) takes precedence)}
- 9/0527 . . . {Connection to outer conductor by action of a resilient member, e.g. spring}
- 9/053 . . . using contact members penetrating insulation
- 9/11 . End pieces for multiconductor cables supported by the cable and for facilitating connections to other conductive members {, e.g. for liquid cooled welding cables}
- 9/15 . Connectors for wire wrapping
- 9/16 . Fastening of connecting parts to base or case; Insulating connecting parts from base or case
- 9/18 . . Fastening by means of screw or nut
- 9/20 . . Fastening by means of rivet or eyelet
- 9/22 . Bases, e.g. strip, block, panel {(for printed circuits [H01H 12/50](#))}
- 9/223 . . {Insulating enclosures for terminals (for switches [H01H 9/0264](#))}
- 9/226 . . {comprising a plurality of conductive flat strips providing connection between wires or components ([H01R 9/2425](#) takes precedence)}
- 9/24 . . Terminal blocks
- 9/2408 . . . {Modular blocks ([H01R 9/26](#) takes precedence)}
- 9/2416 . . . {Means for guiding or retaining wires or cables connected to terminal blocks}
- 9/2425 . . . {Structural association with built-in components (for coupling parts [H01R 13/66](#))}
- 9/2433 . . . . {with built-in switch}
- 9/2441 . . . . {with built-in overvoltage protection}
- 9/245 . . . . {with built-in fuse}
- 9/2458 . . . {Electrical interconnections between terminal blocks}
- 9/2466 . . . . {using a planar conductive structure, e.g. printed circuit board}
- 9/2475 . . . {Means facilitating correct wiring, e.g. marking plates, identification tags}
- 9/2483 . . . {specially adapted for ground connection}
- 9/2491 . . . {Terminal blocks structurally associated with plugs or sockets}
- 9/26 . . . Clip-on terminal blocks for side-by-side rail- or strip-mounting
- 9/2608 . . . . {Fastening means for mounting on support rail or strip ([H01R 9/2691](#) takes precedence; for switch or other electrical device [H02B 1/042](#))}
- 9/2616 . . . . {End clamping members}
- 9/2625 . . . . {with built-in electrical component}
- 9/2633 . . . . . {with built-in switch}
- 9/2641 . . . . . {with built-in overvoltage protection}
- 9/265 . . . . . {with built-in fuse}
- 9/2658 . . . . . {with built-in data-bus connection}
- 9/2666 . . . . . {with built-in test-points}
- 9/2675 . . . . {Electrical interconnections between two blocks, e.g. by means of busbars}
- 9/2683 . . . . {Marking plates or tabs}
- 9/2691 . . . . {with ground wire connection to the rail}
- 9/28 . . Terminal boards

<b>11/00</b>	<b>Individual connecting elements providing two or more spaced connecting locations for conductive members which are, or may be, thereby interconnected, e.g. end pieces for wires or cables supported by the wire or cable and having means for facilitating electrical connection to some other wire, terminal, or conductive member, blocks of binding posts</b>	<b>12/00</b>	<b>Structural associations of a plurality of mutually-insulated electrical connecting elements, specially adapted for printed circuits, e.g. printed circuit boards [PCBs], flat or ribbon cables, or like generally planar structures, e.g. terminal strips, terminal blocks; Coupling devices specially adapted for printed circuits, flat or ribbon cables, or like generally planar structures; Terminals specially adapted for contact with, or insertion into, printed circuits, flat or ribbon cables, or like generally planar structures (printed connections to, or between, printed circuits <a href="#">H05K 1/11</a>)</b>
11/01	• characterised by the form or arrangement of the conductive interconnection between the connecting locations		
11/03	• characterised by the relationship between the connecting locations ( <a href="#">H01R 11/11</a> takes precedence)	12/50	• Fixed connections
11/05	• . the connecting locations having different types of direct connections	12/51	• . for rigid printed circuits or like structures
11/07	• . the connecting locations being of the same type but different sizes	12/515	• . . {Terminal blocks providing connections to wires or cables}
11/09	• . the connecting locations being identical	12/52	• . . connecting to other rigid printed circuits or like structures
11/11	• End pieces or tapping pieces for wires, supported by the wire and for facilitating electrical connection to some other wire, terminal or conductive member ( <a href="#">H01R 11/01</a> takes precedence)	12/523	• . . . {by an interconnection through aligned holes in the boards or multilayer board}
11/12	• . End pieces terminating in an eye, hook, or fork	12/526	• . . . {the printed circuits being on the same board (with plated through holes <a href="#">H05K 3/42</a> )}
11/14	• . . the hook being adapted for hanging on overhead or other suspended lines, e.g. hot line clamp	12/53	• . . connecting to cables except for flat or ribbon cables
11/15	• . . . Hook in the form of a screw clamp	12/55	• . . characterised by the terminals
11/16	• . End pieces terminating in a soldering tip or socket	12/57	• . . . surface mounting terminals
11/18	• . End pieces terminating in a probe	12/58	• . . . terminals for insertion into holes
11/20	• . End pieces terminating in a needle point or analogous contact for penetrating insulation or cable strands	12/585	• . . . . {Terminals having a press fit or a compliant portion and a shank passing through a hole in the printed circuit board}
11/22	• . End pieces terminating in a spring clip	12/59	• . for flexible printed circuits, flat or ribbon cables or like structures
11/24	• . . with gripping jaws, e.g. crocodile clip	12/592	• . . {connections to contact elements}
11/26	• . End pieces terminating in a screw clamp, screw or nut	12/594	• . . {for shielded flat cable}
11/28	• . End pieces consisting of a ferrule or sleeve	12/596	• . . . {Connection of the shield to an additional grounding conductor, e.g. drain wire}
11/281	• . . {for connections to batteries}	12/598	• . . . . {Each conductor being individually surrounded by shield, e.g. multiple coaxial cables in flat structure}
11/282	• . . . {comprising means for facilitating engagement or disengagement, e.g. quick release terminal}	12/61	• . . connecting to flexible printed circuits, flat or ribbon cables or like structures
11/283	• . . . {Bolt, screw or threaded ferrule parallel to the battery post}	12/613	• . . . . {by means of interconnecting elements}
11/284	• . . . . {comprising means for preventing corrosion, e.g. covers, enclosures filled with gel}	12/616	• . . . . {having contacts penetrating insulation for making contact with conductors, e.g. needle points}
11/285	• . . . . {Battery post and cable secured by the same locking means}	12/62	• . . connecting to rigid printed circuits or like structures
11/286	• . . . . {having means for improving contact between battery post and clamping member, e.g. uneven interior surface}	12/63	• . . connecting to another shape cable
11/287	• . . . . {Intermediate parts between battery post and cable end piece}	12/65	• . . characterised by the terminal
11/288	• . . . . {Interconnections between batteries}	12/67	• . . . insulation penetrating terminals
11/289	• . . . . {characterised by the shape or the structure of the battery post}	12/675	• . . . . {with contacts having at least a slotted plate for penetration of cable insulation, e.g. insulation displacement contacts for round conductor flat cables}
11/30	• . End pieces held in contact by a magnet	12/68	• . . . . comprising deformable portions
11/32	• . End pieces with two or more terminations	12/69	• . . . . deformable terminals, e.g. crimping terminals
		12/70	• Coupling devices
		12/7005	• . {Guiding, mounting, polarizing or locking means; Extractors (for printed circuit boards <a href="#">H05K</a> )}
		12/7011	• . . {Locking or fixing a connector to a PCB}
		12/7017	• . . . {Snap means}
		12/7023	• . . . . {integral with the coupling device}
		12/7029	• . . . . {not integral with the coupling device}



- 12/7035 . . . . {involving non-elastic deformation, e.g. plastic deformation, melting ([H01R 12/7064](#) takes precedence)}
- 12/7041 . . . . {Gluing or taping}
- 12/7047 . . . . {with a fastener through a screw hole in the coupling device}
- 12/7052 . . . . {characterised by the locating members}
- 12/7058 . . . . {characterised by the movement, e.g. pivoting, camming or translating parallel to the PCB}
- 12/7064 . . . . {Press fitting}
- 12/707 . . . . {Soldering or welding}
- 12/7076 . . {for connection between PCB and component, e.g. display}
- 12/7082 . . {Coupling device supported only by cooperation with PCB}
- 12/7088 . . {Arrangements for power supply}
- 12/7094 . . {with switch operated by engagement of PCB}
- 12/71 . . for rigid printing circuits or like structures
- 12/712 . . . {co-operating with the surface of the printed circuit or with a coupling device exclusively provided on the surface of the printed circuit ([H01R 12/72](#) takes precedence)}
- 12/714 . . . . {with contacts abutting directly the printed circuit; Button contacts therefore provided on the printed circuit}
- 12/716 . . . . {Coupling device provided on the PCB}
- 12/718 . . . . {Contact members provided on the PCB without an insulating housing (contacts for abutting [H01R 12/714](#))}
- 12/72 . . . coupling with the edge of the rigid printed circuits or like structures
- 12/721 . . . . {cooperating directly with the edge of the rigid printed circuits}
- 12/722 . . . . {coupling devices mounted on the edge of the printed circuits}
- 12/724 . . . . . {containing contact members forming a right angle}
- 12/725 . . . . . {containing contact members presenting a contact carrying strip, e.g. edge-like strip}
- 12/727 . . . . . {Coupling devices presenting arrays of contacts}
- 12/728 . . . . . {Coupling devices without an insulating housing provided on the edge of the PCB}
- 12/73 . . . . connecting to other rigid printed circuits or like structures
- 12/732 . . . . . {Printed circuits being in the same plane}
- 12/735 . . . . . {Printed circuits including an angle between each other}
- 12/737 . . . . . {Printed circuits being substantially perpendicular to each other (for printed connections [H05K 3/366](#))}
- 12/75 . . . connecting to cables except for flat or ribbon cables
- 12/77 . . for flexible printed circuits, flat or ribbon cables or like structures
- 12/771 . . . {Details}
- 12/772 . . . {Strain relieving means}
- 12/774 . . . {Retainers}
- 12/775 . . . {Ground or shield arrangements}
- 12/777 . . {Coupling parts carrying pins, blades or analogous contacts ([H01R 12/78](#), [H01R 12/79](#) take precedence)}
- 12/778 . . . {Coupling parts carrying sockets, clips or analogous counter-contacts ([H01R 12/78](#), [H01R 12/79](#) take precedence)}
- 12/78 . . . connecting to other flexible printed circuits, flat or ribbon cables or like structures
- 12/79 . . . connecting to rigid printed circuits or like structures
- 12/81 . . . connecting to another cable except for flat or ribbon cable
- 12/82 . . connected with low or zero insertion force
- 12/83 . . . connected with pivoting of printed circuits or like after insertion
- 12/85 . . . contact pressure producing means, contacts activated after insertion of printed circuits or like structures
- 12/853 . . . . {Fluid activated}
- 12/856 . . . . {activated by shape memory material}
- 12/87 . . . . acting automatically by insertion of rigid printed or like structures
- 12/88 . . . . acting manually by rotating or pivoting connector housing parts
- 12/89 . . . . acting manually by moving connector housing parts linearly, e.g. slider
- 12/91 . . allowing relative movement between coupling parts, e.g. floating or self aligning (for coupling devices not specially adapted for printed circuits, flat or ribbon cables, or like generally planar structures, [H01R 13/6315](#) takes precedence)
- 13/00 Details of coupling devices of the kinds covered by groups [H01R 12/70](#) or [H01R 24/00](#) - [H01R 33/00](#)**
- 13/005 . {Electrical coupling combined with fluidic coupling}
- 13/02 . Contact members
- 13/025 . . {formed by the conductors of a cable end}
- 13/03 . . characterised by the material, e.g. plating, or coating materials
- 13/035 . . . {Plated dielectric material}
- 13/04 . . Pins or blades for co-operation with sockets
- 13/05 . . . Resilient pins or blades (carrying separate resilient parts [H01R 13/15](#))
- 13/052 . . . . {co-operating with sockets having a circular transverse section}
- 13/055 . . . . {co-operating with sockets having a rectangular transverse section}
- 13/057 . . . . {co-operating with sockets having a square transverse section}
- 13/08 . . . Resiliently-mounted rigid pins or blades
- 13/10 . . Sockets for co-operation with pins or blades
- 13/11 . . . Resilient sockets (carrying separate resilient parts [H01R 13/15](#))
- 13/111 . . . . {co-operating with pins having a circular transverse section}
- 13/112 . . . . {forked sockets having two legs}
- 13/113 . . . . {co-operating with pins or blades having a rectangular transverse section}
- 13/114 . . . . {co-operating with pins or blades having a square transverse section}
- 13/115 . . . . U-shaped sockets having inwardly bent legs, e.g. spade type
- 13/14 . . . Resiliently-mounted rigid sockets
- 13/15 . . Pins, blades or sockets having separate spring member for producing or increasing contact pressure

- 13/17 . . . with spring member on the pin
- 13/18 . . . with the spring member surrounding the socket
- 13/187 . . . with spring member in the socket
- 13/193 . . Means for increasing contact pressure at the end of engagement of coupling part {, e.g. zero insertion force or no friction}
- 13/20 . . Pins, blades, or sockets shaped, or provided with separate member, to retain co-operating parts together
- 13/207 . . . by screw-in connection
- 13/213 . . . by bayonet connection
- 13/22 . . Contacts for co-operating by abutting
- 13/24 . . . resilient; resiliently-mounted
- 13/2407 . . . . {characterized by the resilient means}
- 13/2414 . . . . . {conductive elastomers}
- 13/2421 . . . . . {using coil springs}
- 13/2428 . . . . . {using meander springs}
- 13/2435 . . . . {with opposite contact points, e.g. C beam}
- 13/2442 . . . . {with a single cantilevered beam}
- 13/245 . . . . {by stamped-out resilient contact arm}
- 13/2457 . . . . {consisting of at least two resilient arms contacting the same counterpart}
- 13/2464 . . . . {characterized by the contact point}
- 13/2471 . . . . . {pin shaped}
- 13/2478 . . . . . {spherical}
- 13/2485 . . . . . {for contacting a ball}
- 13/2492 . . . . . {multiple contact points}
- 13/26 . . Pin or blade contacts for sliding co-operation on one side only {(for modular jack type connectors H01R 24/62)}
- 13/28 . . Contacts for sliding cooperation with identically-shaped contact, e.g. for hermaphroditic coupling devices {(H01R 24/84 takes precedence)}
- 13/33 . . Contact members made of resilient wire
- 13/35 . . for non-simultaneous co-operation with different types of contact member, e.g. socket co-operating with either round or flat pin
- 13/40 . . Securing contact members in or to a base or case; Insulating of contact members
- 13/405 . . Securing in non-demountable manner, e.g. moulding, riveting
- 13/41 . . . by frictional grip in grommet, panel or base
- 13/415 . . . by permanent deformation of contact member
- 13/42 . . Securing in a demountable manner
- 13/422 . . . Securing in resilient one-piece base or case, {e.g. by friction}; One-piece base or case formed with resilient locking means
- 13/4223 . . . . {comprising integral flexible contact retaining fingers}
- 13/4226 . . . . . {comprising two or more integral flexible retaining fingers acting on a single contact}
- 13/424 . . . Securing in base or case composed of a plurality of insulating parts having at least one resilient insulating part
- 13/426 . . . Securing by a separate resilient retaining piece supported by base or case, e.g. collar {or metal contact-retention clip}
- 13/428 . . . by resilient locking means on the contact members; by locking means on resilient contact members
- 13/432 . . . . by stamped-out resilient tongue snapping behind shoulder in base or case
- 13/434 . . . . by separate resilient locking means on contact member, e.g. retainer collar or ring around contact member
- 13/436 . . . Securing a plurality of contact members by one locking piece {or operation}
- 13/4361 . . . . {Insertion of locking piece perpendicular to direction of contact insertion}
- 13/4362 . . . . . {comprising a temporary and a final locking position}
- 13/4364 . . . . {Insertion of locking piece from the front}
- 13/4365 . . . . . {comprising a temporary and a final locking position}
- 13/4367 . . . . {Insertion of locking piece from the rear}
- 13/4368 . . . . . {comprising a temporary and a final locking position}
- 13/44 . . Means for preventing access to live contacts {(making use of a switch actuated by engagement of counterpart H01R 13/7036)}
- 13/443 . . Dummy plugs
- 13/447 . . Shutter or cover plate
- 13/453 . . . Shutter or cover plate opened by engagement of counterpart
- 13/4532 . . . . {Rotating shutter}
- 13/4534 . . . . {Laterally sliding shutter}
- 13/4536 . . . . {Inwardly pivoting shutter}
- 13/4538 . . . . {Covers sliding or withdrawing in the direction of engagement}
- 13/46 . . Bases; Cases
- 13/465 . . {Identification means, e.g. labels, tags, markings (H01R 9/2475, H01R 9/2683 take precedence)}
- 13/50 . . formed as an integral body (H01R 13/514 takes precedence)
- 13/501 . . . {comprising an integral hinge or a frangible part}
- 13/502 . . composed of different pieces (H01R 13/514 takes precedence)
- 13/5025 . . . {one or more pieces being of resilient material}
- 13/504 . . . different pieces being moulded, cemented, welded, e.g. ultrasonic, or swaged together
- 13/5045 . . . . {different pieces being assembled by press-fit}
- 13/506 . . . assembled by snap action of the parts
- 13/508 . . . assembled by {a separate} clip or spring
- 13/512 . . . assembled by screw or screws
- 13/514 . . composed as a modular blocks or assembly, i.e. composed of co-operating parts provided with contact members or holding contact members between them
- 13/516 . . Means for holding or embracing insulating body, e.g. casing {, hoods}
- 13/518 . . . for holding or embracing several coupling parts, e.g. frames
- 13/52 . . Dustproof, splashproof, drip-proof, waterproof, or flameproof cases
- 13/5202 . . . {Sealing means between parts of housing or between housing part and a wall, e.g. sealing rings}
- 13/5205 . . . {Sealing means between cable and housing, e.g. grommet (H01R 13/5221 takes precedence)}
- 13/5208 . . . . {having at least two cable receiving openings}
- 13/521 . . . {Sealing between contact members and housing, e.g. sealing insert}

- 13/5213 . . . {Covers}
- 13/5216 . . . {characterised by the sealing material, e.g. gels or resins}
- 13/5219 . . . {Sealing means between coupling parts, e.g. interfacial seal}
- 13/5221 . . . . {having cable sealing means}
- 13/5224 . . . {for medical use}
- 13/5227 . . . {with evacuation of penetrating liquids}
- 13/523 . . . for use under water
- 13/527 . . . Flameproof cases ([H01R 13/70 takes precedence](#))
- 13/53 . . Bases or cases for heavy duty; Bases or cases {for high voltage} with means for preventing corona or arcing
- 13/533 . . Bases, cases made for use in extreme conditions, e.g. high temperature, radiation, vibration, corrosive environment, pressure ([H01R 13/52 takes precedence](#))
- 13/56 . . Means for preventing chafing or fracture of flexible leads at outlet from coupling part
- 13/562 . . {Bending-relieving}
- 13/565 . . {Torsion-relieving}
- 13/567 . . {Traverse cable outlet or wire connection}
- 13/58 . . Means for relieving strain on wire connection, e.g. cord grip {, for avoiding loosening of connections between wires and terminals within a coupling device terminating a cable (for flat or ribbon cables [H01R 12/771](#))}
- 13/5804 . . {comprising a separate cable clamping part ([H01R 13/5841 takes precedence](#))}
- 13/5808 . . . {formed by a metallic element crimped around the cable ([H01R 4/185 takes precedence](#))}
- 13/5812 . . . {the cable clamping being achieved by mounting the separate part on the housing of the coupling device}
- 13/5816 . . . {for cables passing through an aperture in a housing wall, the separate part being captured between cable and contour of aperture}
- 13/582 . . {the cable being clamped between assembled parts of the housing}
- 13/5825 . . . {the means comprising additional parts captured between housing parts and cable}
- 13/5829 . . . {the clamping part being flexibly or hingedly connected to the housing}
- 13/5833 . . {the cable being forced in a tortuous or curved path, e.g. knots in cable ([H01R 13/582 takes precedence](#))}
- 13/5837 . . {specially adapted for accommodating various sized cables ([H01R 13/5825 takes precedence](#))}
- 13/5841 . . {allowing different orientations of the cable with respect to the coupling direction}
- 13/5845 . . {the strain relief being achieved by molding parts around cable and connections}
- 13/585 . . Grip increasing with strain force
- 13/59 . . Threaded ferrule or bolt operating in a direction parallel to the cable or wire
- 13/595 . . Bolts operating in a direction transverse to the cable or wire
- 13/60 . . Means for supporting coupling part when not engaged
- 13/62 . . Means for facilitating engagement or disengagement of coupling parts or for holding them in engagement
- 13/6205 . . {Two-part coupling devices held in engagement by a magnet}
- 13/621 . . Bolt, set screw or screw clamp
- 13/6215 . . . {using one or more bolts}
- 13/622 . . Screw-ring or screw-casing ([H01R 13/623 takes precedence](#))
- 13/623 . . Casing or ring with helicoidal groove
- 13/625 . . Casing or ring with bayonet engagement
- 13/627 . . Snap or like fastening
- 13/6271 . . . {Latching means integral with the housing ([H01R 13/6276](#), [H01R 13/6277](#), [H01R 13/6278 take precedence](#))}
- 13/6272 . . . . {comprising a single latching arm}
- 13/6273 . . . . {comprising two latching arms}
- 13/6275 . . . {Latching arms not integral with the housing ([H01R 13/6276](#), [H01R 13/6277](#), [H01R 13/6278 take precedence](#))}
- 13/6276 . . . {comprising one or more balls engaging in a hole or a groove}
- 13/6277 . . . {comprising annular latching means, e.g. ring snapping in an annular groove}
- 13/6278 . . . {comprising a pin snapping into a recess}
- 13/629 . . Additional means for facilitating engagement or disengagement of coupling parts, e.g. aligning or guiding means, levers, gas pressure {electrical locking indicators, manufacturing tolerances (separate tools or apparatus [H01R 43/26](#))}
- 13/62905 . . . {comprising a camming member ([H01R 13/62933](#) and [H01R 13/641 take precedence](#))}
- 13/62911 . . . . {U-shaped sliding element}
- 13/62916 . . . . {Single camming plate}
- 13/62922 . . . . {Pair of camming plates}
- 13/62927 . . . . {Comprising supplementary or additional locking means}
- 13/62933 . . . {Comprising exclusively pivoting lever}
- 13/62938 . . . . {Pivoting lever comprising own camming means}
- 13/62944 . . . . {Pivoting lever comprising gear teeth}
- 13/6295 . . . . {Pivoting lever comprising means indicating incorrect coupling of mating connectors}
- 13/62955 . . . . {Pivoting lever comprising supplementary/ additional locking means}
- 13/62961 . . . . {Pivoting lever having extendable handle}
- 13/62966 . . . . {Comprising two pivoting levers}
- 13/62972 . . . . . {Wherein the pivoting levers are two lever plates}
- 13/62977 . . . {Pivoting levers actuating linearly camming means}
- 13/62983 . . . {Linear camming means or pivoting lever for connectors for flexible or rigid printed circuit boards, flat or ribbon cables}
- 13/62988 . . . . {Lever acting directly on flexible or rigid printed circuit boards, flat or ribbon cables, e.g. recess provided to this purpose on the surface or edge of the flexible or rigid printed circuit boards, flat or ribbon cables}
- 13/62994 . . . . {Lever acting on a connector mounted onto the flexible or rigid printed circuit boards, flat or ribbon cables}
- 13/631 . . . for engagement only



- 13/6315 . . . . {allowing relative movement between coupling parts, e.g. floating connection (for coupling devices specially adapted for printed circuits, flat or ribbon cables, or like generally planar structures, [H01R 12/91](#) takes precedence)}
- 13/633 . . . for disengagement only {(in combination with safety switch [H01R 13/7132](#))}
- 13/6335 . . . . {comprising a handle}
- 13/635 . . . . by mechanical pressure, e.g. spring force
- 13/637 . . . . by fluid pressure, e.g. explosion
- 13/639 . . Additional means for holding or locking coupling parts together, after engagement, {e.g. separate keylock, retainer strap}
- 13/6392 . . . {for extension cord}
- 13/6395 . . . {for wall or panel outlets}
- 13/6397 . . . {with means for preventing unauthorised use}
- 13/64 . Means for preventing incorrect coupling
- 13/641 . . by indicating incorrect coupling; by indicating correct or full engagement
- 13/642 . . by position or shape of contact members
- 13/645 . . by exchangeable elements on case or base
- 13/6453 . . . {comprising pin-shaped elements, capable of being orientated in different angular positions around their own longitudinal axes, e.g. pins with hexagonal base}
- 13/6456 . . . {comprising keying elements at different positions along the periphery of the connector}
- 13/646 . specially adapted for high-frequency, e.g. structures providing an impedance match or phase match (non-coaxed protective earth or shield arrangements [H01R 13/648](#); coaxial connectors specially adapted for high frequency [H01R 24/40](#))

**WARNING**

This group and its subgroups are not complete pending completion of a reclassification, see also [H01R 9/035](#), [H01R 13/6658](#), [H01R 24/44](#), [H01R 24/00](#), [H01R 12/00](#)

- 13/6461 . . Means for preventing cross-talk
- 13/6463 . . . using twisted pairs of wires
- 13/6464 . . . by adding capacitive elements
- 13/6466 . . . . on substrates, e.g. PCBs [Printed Circuit Boards]
- 13/6467 . . . by cross-over of signal conductors
- 13/6469 . . . . on substrates
- 13/6471 . . . by special arrangement of ground and signal conductors, e.g. GSGS [Ground-Signal-Ground-Signal]
- 13/6473 . . Impedance matching
- 13/6474 . . . by variation of conductive properties, e.g. by dimension variations
- 13/6476 . . . . by making an aperture, e.g. a hole
- 13/6477 . . . by variation of dielectric properties
- 13/648 . Protective earth or shield arrangements on coupling devices {, e.g. anti-static shielding} (coaxially arranged shields [H01R 24/38](#))
- 13/6485 . . {Electrostatic discharge protection (in general [H05F 1/00](#), for electric apparatus [H05K 9/0067](#))}
- 13/652 . . with earth pin, blade or socket
- 13/655 . . with earth brace

- 13/658 . . High frequency shielding arrangements, e.g. against EMI [Electro-Magnetic Interference] or EMP [Electro-Magnetic Pulse] {(coaxial coupling devices specially adapted for high frequency [H01R 24/40](#); for flat or ribbon cable connectors [H01R 12/774](#); for coaxial cable [H01R 9/05](#))}

**WARNING**

Groups [H01R 13/658](#) – [H01R 13/6599](#) are incomplete pending reclassification of documents from groups [H01R 9/032](#) – [H01R 9/038](#).

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

- 13/6581 . . . Shield structure
- 13/6582 . . . . with resilient means for engaging mating connector
- 13/6583 . . . . . with separate conductive resilient members between mating shield members
- 13/6584 . . . . . formed by conductive elastomeric members, e.g. flat gaskets or O-rings
- 13/6585 . . . . Shielding material individually surrounding or interposed between mutually spaced contacts
- 13/6586 . . . . . for separating multiple connector modules
- 13/6587 . . . . . for mounting on PCBs
- 13/6588 . . . . . with through openings for individual contacts
- 13/6589 . . . . . with wires separated by conductive housing parts
- 13/659 . . . . . with plural ports for distinct connectors
- 13/6591 . . . Specific features or arrangements of connection of shield to conductive members
- 13/6592 . . . . the conductive member being a shielded cable
- 13/6593 . . . . . the shield being composed of different pieces
- 13/6594 . . . . the shield being mounted on a PCB and connected to conductive members
- 13/6595 . . . . . with separate members fixing the shield to the PCB
- 13/6596 . . . . the conductive member being a metal grounding panel
- 13/6597 . . . . the conductive member being a contact of the connector
- 13/6598 . . . Shield material
- 13/6599 . . . . Dielectric material made conductive, e.g. plastic material coated with metal
- 13/66 . Structural association with built-in electrical component (coupling devices having concentrically or coaxially-arranged contacts [H01R 24/38](#))
- 13/6608 . . {with built-in single component ([H01R 13/68](#), [H01R 13/70](#) take precedence)}
- 13/6616 . . . {with resistor}
- 13/6625 . . . {with capacitive component}
- 13/6633 . . . {with inductive component, e.g. transformer}
- 13/6641 . . . {with diode (with LED [H01R 13/7175](#))}
- 13/665 . . {with built-in electronic circuit ([H01R 13/70](#), [H01R 13/719](#) take precedence)}

- 13/6658 . . . {on printed circuit board ([H01R 13/6666](#) - [H01R 13/6691](#) take precedence)}
- WARNING**  
This group is no longer used for the classification of new documents as from January 1, 2011. The backlog of this group is being continuously reclassified to [H01R 13/6466](#) and [H01R 13/6469](#)
- 13/6666 . . . {with built-in overvoltage protection}
- 13/6675 . . . {with built-in power supply}
- 13/6683 . . . {with built-in sensor}
- 13/6691 . . . {with built-in signalling means ([H01R 13/717](#) takes precedence)}
- 13/68 . . with built-in fuse
- WARNING**  
The subgroups of [H01R 13/68](#) are not complete pending completion of a reclassification, see also this group
- 13/684 . . . the fuse being removable
- 13/688 . . . . with housing part adapted for accessing the fuse
- 13/692 . . . . Turnable housing part
- 13/696 . . . the fuse being integral with the terminal, e.g. pin or socket
- 13/70 . . with built-in switch
- 13/701 . . . {the switch being actuated by an accessory, e.g. cover, locking member}
- 13/703 . . . operated by engagement or disengagement of coupling parts, {e.g. dual-continuity coupling part} ([H01R 13/71](#) takes precedence)
- 13/7031 . . . . {Shorting, shunting or bussing of different terminals interrupted or effected on engagement of coupling part, e.g. for ESD protection, line continuity}
- 13/7032 . . . . . {making use of a separate bridging element directly cooperating with the terminals}
- 13/7033 . . . . . {making use of elastic extensions of the terminals}
- 13/7034 . . . . . {the terminals being in direct electric contact separated by double sided connecting element (for printed circuit boards [H01R 12/7094](#))}
- 13/7035 . . . . {comprising a separated limit switch}
- 13/7036 . . . . {the switch being in series with coupling part, e.g. dead coupling, explosion proof coupling}
- 13/7037 . . . . . {making use of a magnetically operated switch}
- 13/7038 . . . . . {making use of a remote controlled switch, e.g. relays, solid state switch activated by the engagement of the coupling parts}
- 13/7039 . . . . {the coupling part with coding means activating the switch to establish different circuits}
- 13/707 . . . interlocked with contact members or counterpart
- 13/71 . . . Contact members of coupling parts operating as switch {, e.g. linear or rotational movement required after mechanical engagement of coupling part to establish electrical connection}

- 13/713 . . . the switch being a safety switch
- 13/7132 . . . . {having ejecting mechanisms}
- 13/7135 . . . . {with ground fault protector ([H01R 13/7132](#) takes precedence)}
- 13/7137 . . . . {with thermal interrupter ([H01R 13/7132](#) takes precedence)}
- 13/717 . . with built-in light source
- 13/7172 . . . {Conduits for light transmission}
- 13/7175 . . . {Light emitting diodes (LEDs)}
- 13/7177 . . . {filament or neon bulb}
- 13/719 . . specially adapted for high frequency, e.g. with filters
- WARNING**  
The subgroups of [H01R 13/719](#) are not complete pending completion of a reclassification, see also [H01R 13/646](#) and the respective subgroups
- 13/7193 . . . with ferrite filters
- 13/7195 . . . with planar filters with openings for contacts
- 13/7197 . . . with filters integral with or fitted onto contacts, e.g. tubular filters
- 13/72 . Means for accommodating flexible lead within the holder
- 13/73 . Means for mounting coupling parts to apparatus or structures, e.g. to a wall
- 13/74 . . Means for mounting coupling parts in openings of a panel
- 13/741 . . . {using snap fastening means}
- 13/743 . . . . {integral with the housing}
- 13/745 . . . . {separate from the housing}
- 13/746 . . . {using a screw ring}
- 13/748 . . . {using one or more screws ([H01R 13/746](#) takes precedence)}
- 24/00 Two-part coupling devices, or either of their cooperating parts, characterised by their overall structure** ([contact members H01R 13/02](#); [securing contact members in or to a base or case or insulating of contact members H01R 13/40](#); [bases or cases H01R 13/46](#); [means for supporting coupling part when not engaged H01R 13/60](#); [means for facilitating engagement or disengagement of coupling parts or for holding them in engagement H01R 13/62](#); [means for preventing, inhibiting or avoiding incorrect coupling H01R 13/64](#))
- NOTE**  
In this group, it is desirable to add the indexing codes of groups [H01R 2101/00](#) - [H01R 2107/00](#)
- 24/005 . {requiring successive relative motions to complete the coupling, e.g. bayonet type}
- 24/20 . Coupling parts carrying sockets, clips or analogous contacts and secured only to wire or cable
- 24/22 . . with additional earth or shield contacts
- 24/28 . Coupling parts carrying pins, blades or analogous contacts and secured only to wire or cable
- 24/30 . . with additional earth or shield contacts
- 24/38 . having concentrically or coaxially arranged contacts
- 24/40 . . specially adapted for high frequency
- 24/42 . . . comprising impedance matching means or electrical components, e.g. filters or switches
- 24/44 . . . . comprising impedance matching means

24/46	. . . . comprising switches	25/164	. . {Connecting locations formed by flush mounted apparatus}
24/48	. . . . comprising protection devices, e.g. overvoltage protection	25/165	. . {Connecting locations formed by surface mounted apparatus}
24/50	. . . mounted on a PCB [Printed Circuit Board]	25/167	. . {Connecting locations formed by staggering mounted apparatus}
24/52	. . . mounted in or to a panel or structure	25/168	. . {the connecting locations being situated away from the rail or bus-bar}
24/525	. . . . {Outlets}		
24/54	. . . Intermediate parts, e.g. adapters, splitters or elbows		
24/542	. . . . {Adapters}	27/00	<b>Coupling parts adapted for co-operation with two or more dissimilar counterparts</b> ({for dissimilar contact members <a href="#">H01R 13/35</a> }; supported only by co-operation with a counterpart <a href="#">H01R 31/00</a> ; with a holder adapted for supporting apparatus to which its counterpart is attached <a href="#">H01R 33/90</a> )
24/545	. . . . {Elbows}	27/02	. for simultaneous co-operation with two or more {dissimilar} counterparts
24/547	. . . . {Splitters}	29/00	<b>Coupling parts for selective co-operation with a counterpart in different ways to establish different circuits, e.g. for voltage selection, for series-parallel selection, {programmable connectors}</b>
24/56	. . . specially adapted to a specific shape of cables, e.g. corrugated cables, twisted pair cables, cables with two screens or hollow cables	31/00	<b>Coupling parts supported only by co-operation with counterpart</b>
24/562	. . . . {Cables with two screens}	31/005	. {Intermediate parts for distributing signals}
24/564	. . . . {Corrugated cables}	31/02	. Intermediate parts for distributing energy to two or more circuits in parallel, e.g. splitter (with a holder adapted for supporting apparatus to which its counterpart is attached <a href="#">H01R 33/92</a> )
24/566	. . . . {Hollow cables}	31/06	. Intermediate parts for linking two coupling parts, e.g. adapter (with a holder adapted for supporting apparatus to which its counterpart is attached <a href="#">H01R 33/94</a> )
24/568	. . . . {Twisted pair cables}	31/065	. . {with built-in electric apparatus}
24/58	. Contacts spaced along longitudinal axis of engagement	31/08	. Short-circuiting members for bridging contacts in a counterpart
24/60	. Contacts spaced along planar side wall transverse to longitudinal axis of engagement	31/085	. . {Short circuiting bus-strips}
24/62	. . Sliding engagements with one side only, e.g. modular jack coupling devices	33/00	<b>Coupling devices specially adapted for supporting apparatus and having one part acting as a holder providing support and electrical connection via a counterpart which is structurally associated with the apparatus, e.g. lamp holders; Separate parts thereof</b>
24/64	. . . for high frequency, e.g. RJ 45	33/02	. Single-pole devices, e.g. holder for supporting one end of a tubular incandescent or neon lamp
24/66	. with pins, blades or analogous contacts and secured to apparatus or structure, e.g. to a wall	33/05	. Two-pole devices
24/68	. . mounted on directly pluggable apparatus	33/06	. . with two current-carrying pins, blades or analogous contacts, having their axes parallel to each other
24/70	. . with additional earth or shield contacts	33/065	. . . . {for supporting starter switches}
24/76	. with sockets, clips or analogous contacts and secured to apparatus or structure, e.g. to a wall	33/08	. . . for supporting tubular fluorescent lamp
24/78	. . with additional earth or shield contacts	33/0809	. . . . {having contacts on one side only}
24/84	. Hermaphroditic coupling devices	33/0818	. . . . {for a plurality of lamps}
24/86	. Parallel contacts arranged about a common axis	33/0827	. . . . {characterised by the contacts}
25/00	<b>Coupling parts adapted for simultaneous co-operation with two or more identical counterparts, e.g. for distributing energy to two or more circuits</b> (supported only by co-operation with a counterpart <a href="#">H01R 31/00</a> ; with a holder adapted for supporting apparatus to which its counterpart is attached <a href="#">H01R 33/88</a> )	33/0836	. . . . {characterised by the lamp holding means}
25/003	. {the coupling part being secured only to wires or cables}	33/0845	. . . . . {with axially resilient member}
25/006	. {the coupling part being secured to apparatus or structure, e.g. duplex wall receptacle}	33/0854	. . . . . {with lamp rotating means}
25/14	. Rails or bus-bars constructed so that the counterparts can be connected thereto at any point along their length (supporting elements for lighting devices, displaceable along guiding elements and making electrical contact with conductors running along the guiding elements <a href="#">F21V 21/35</a> )	33/0863	. . . . {characterised by the mounting means}
25/142	. . {Their counterparts}	33/0872	. . . . . {for mounting in an opening of a structure}
25/145	. . {Details, e.g. end pieces or joints ( <a href="#">H01R 25/147</a> takes precedence)}	33/0881	. . . . {composed of different pieces}
25/147	. . {Low voltage devices, i.e. safe to touch live conductors}	33/089	. . . . {integral with starter holding structure ( <a href="#">H01R 33/065</a> for starters only)}
25/16	. Rails or bus-bars provided with a plurality of discrete connecting locations for counterparts	33/09	. . . for baseless lamp bulb
25/161	. . {Details}		
25/162	. . . {Electrical connections between or with rails or bus-bars (rails having primarily a non electrical function <a href="#">H01R 4/64</a> )}		

- 33/18 . . having only abutting contacts
- 33/20 . . having concentrically or coaxially arranged contacts
- 33/205 . . . {secured to structure or printed circuit board}
- 33/22 . . for screw type base, e.g. for lamp
- 33/225 . . . {secured to structure or printed circuit board}
- 33/46 . . for bayonet type base
- 33/465 . . . {secured to structure or printed circuit board}
- 33/72 . . Three-pole devices
- 33/74 . . Devices having four or more poles {, e.g. holders for compact fluorescent lamps}
- 33/76 . . Holders with sockets, clips, or analogous contacts adapted for axially-sliding engagement with parallelly-arranged pins, blades, or analogous contacts on counterpart, e.g. electronic tube socket
- 33/7607 . . . {the parallel terminal pins having a circular disposition}
- 33/7614 . . . . {the terminals being connected to individual wires}
- 33/7621 . . . . . {the wires being connected using screw, clamp, wrap or spring connection}
- 33/7628 . . . . . {the wires being connected using solder}
- 33/7635 . . . . {the terminals being collectively connected, e.g. to a PCB}
- 33/7642 . . . . . {socket snap fastened in an opening of a PCB}
- 33/765 . . . {the terminal pins having a non-circular disposition}
- 33/7657 . . . {characterised by keying or marking means}
- 33/7664 . . . {having additional guiding, adapting, shielding, anti-vibration or mounting means}
- 33/7671 . . . {having multiple positions or sockets, e.g. stacked sockets while mounting}
- 33/7678 . . . {having a separated part for spark preventing means}
- 33/7685 . . . {having internal socket contact by abutting}
- 33/7692 . . . {for supporting a tubular fluorescent lamp (for two-pole devices [H01R 33/06](#))}
- 33/88 . . adapted for simultaneous co-operation with two or more identical counterparts
- 33/90 . . adapted for co-operation with two or more dissimilar counterparts
- 33/92 . . Holders formed as intermediate parts for distributing energy in parallel through two or more counterparts at least one of which is attached to apparatus to be held
- 33/94 . . Holders formed as intermediate parts for linking a counter-part to a coupling part
- 33/942 . . {for tubular fluorescent lamps}
- 33/945 . . Holders with built-in electrical component
- 33/9453 . . {for screw type coupling devices}
- 33/9456 . . {for bayonet type coupling devices}
- 33/95 . . with fuse; with thermal switch
- 33/955 . . with switch operated manually and independent of engagement or disengagement of coupling
- 33/9555 . . . {for screw type coupling devices}
- 33/96 . . with switch operated by engagement or disengagement of coupling
- 33/962 . . . {for screw type coupling devices}
- 33/965 . . Dustproof, splashproof, drip-proof, waterproof, or flameproof holders
- 33/9651 . . {for screw type coupling devices}
- 33/9653 . . . . {neither pole becoming electrically connected until the coupling parts are substantially engaged}
- 33/9655 . . {for bayonet type coupling devices}
- 33/9656 . . . . {neither pole becoming electrically connected until the coupling parts are substantially engaged}
- 33/9658 . . {for tubular fluorescent lamps}
- 33/97 . . Holders with separate means to prevent loosening of the coupling or unauthorised removal of apparatus held
- 33/971 . . {for screw type coupling devices}
- 33/973 . . {for bayonet type coupling devices}
- 33/975 . . Holders with resilient means for protecting apparatus against vibrations or shocks
- 33/9753 . . {for screw type coupling devices}
- 33/9756 . . {for bayonet type coupling devices}
- 35/00 Flexible or turnable line connectors {, i.e. the rotation angle being limited} (rotary current collectors, distributors [H01R 39/00](#))**
- 35/02 . . Flexible line connectors {without frictional contact members}
- 35/025 . . {having a flexible conductor wound around a rotation axis}
- 35/04 . . Turnable line connectors with limited rotation angle {with frictional contact members}
- 39/00 Rotary current collectors, distributors or interrupters**
- 39/02 . . Details {for dynamo electric machines (for current collectors not particularly for dynamo electric machines [H01R 39/60](#), [H01R 39/64](#))}
- 39/022 . . {characterised by the materials used, e.g. ceramics}
- 39/025 . . . {Conductive materials}
- 39/027 . . . {Insulating materials}
- 39/04 . . Commutators (wherein the segments are formed by extensions of dynamo-electric machine winding [H02K](#))
- 39/045 . . . {the commutators being made of carbon}
- 39/06 . . . other than with external cylindrical contact surface, e.g. flat commutators
- 39/08 . . Slip-rings
- 39/085 . . . {the slip-rings being made of carbon}
- 39/10 . . . other than with external cylindrical contact surface, e.g. flat slip-rings
- 39/12 . . . using bearing or shaft surface as contact surface
- 39/14 . . Fastenings of commutators or slip-rings to shafts
- 39/16 . . . by means of moulded or cast material applied during or after assembly
- 39/18 . . Contacts for co-operation with commutator or slip-ring, e.g. contact brush
- 39/20 . . . characterised by the material thereof
- 39/22 . . . . incorporating lubricating or polishing ingredient
- 39/24 . . . Laminated contacts; Wire contacts, e.g. metallic brush, carbon fibres
- 39/26 . . . Solid sliding contacts, e.g. carbon brush
- 39/27 . . . . End caps on carbon brushes to transmit spring pressure
- 39/28 . . . Roller contacts; Ball contacts
- 39/30 . . . Liquid contacts
- 39/32 . . Connections of conductor to commutator segment



- 39/34 . . Connections of conductor to slip-ring
- 39/36 . . Connections of cable or wire to brush
- 39/38 . . Brush holders
- 39/381 . . . {characterised by the application of pressure to brush}
- 39/383 . . . {characterised by the electrical connection to the brush holder}
- 39/385 . . . {Means for mechanical fixation of the brush holder}
- 39/386 . . . . {Electrically insulated bolts}
- 39/388 . . . {characterised by the material of the brush holder}
- 39/39 . . . wherein the brush is fixedly mounted in the holder
- 39/40 . . . enabling brush movement within holder during current collection
- 39/41 . . . cartridge type
- 39/415 . . . . with self-recoiling spring
- 39/42 . . Devices for lifting brushes
- 39/44 . . Devices for shifting brushes
- 39/46 . . Auxiliary means for improving current transfer, or for reducing or preventing sparking or arcing
- 39/48 . . . by air blast; by surrounding collector with non-conducting liquid or gas
- 39/50 . . . Barriers placed between brushes
- 39/52 . . . by use of magnets
- 39/54 . . . by use of impedance between brushes or segments
- 39/56 . . Devices for lubricating or polishing slip-rings or commutators during operation of the collector
- 39/58 . . Means structurally associated with the current collector for indicating condition thereof, e.g. for indicating brush wear
- 39/59 . . Means structurally associated with the brushes for interrupting current ([H01R 39/58 takes precedence](#))
- 39/60 . . Devices for interrupted current collection, e.g. commutating device, distributor, interrupter ([self-interrupters H01H, e.g. H01H 51/34](#))
- 39/62 . . with more than one brush co-operating with the same set of segments
- 39/64 . . Devices for uninterrupted current collection
- 39/643 . . {through ball or roller bearing}
- 39/646 . . {through an electrical conductive fluid}
- 41/00** **Non-rotary current collectors for maintaining contact between moving and stationary parts of an electric circuit (end pieces terminating in a hook or the like [H01R 11/12](#); current collectors for power supply lines of electrically-propelled vehicles [B60L 5/00](#))**
- 41/02 . . Devices for interrupted current collection, e.g. distributor ([electrically-operated selector switches H01H 67/00](#))
- 43/00** **Apparatus or processes specially adapted for manufacturing, assembling, maintaining, or repairing of line connectors or current collectors or for joining electric conductors (of trolley lines [B60M 1/28](#))**
- 43/002 . . {Maintenance of line connectors, e.g. cleaning}
- 43/005 . . {for making dustproof, splashproof, drip-proof, waterproof, or flameproof connection, coupling, or casing}
- 43/007 . . {for elastomeric connecting elements}
- 43/01 . . for connecting unstripped conductors to contact members having insulation cutting edges
- 43/015 . . {Handtools}
- 43/02 . . for soldered or welded connections
- 43/0207 . . {Ultrasonic-, H.F.-, cold- or impact welding}
- 43/0214 . . {Resistance welding ([H01R 43/0228 takes precedence](#))}
- 43/0221 . . {Laser welding ([H01R 43/0228 takes precedence](#))}
- 43/0228 . . {without preliminary removing of insulation before soldering or welding}
- 43/0235 . . {for applying solder ([H01R 43/0228 takes precedence](#))}
- 43/0242 . . {comprising means for controlling the temperature, e.g. making use of the curie point}
- 43/0249 . . {for simultaneous welding or soldering of a plurality of wires to contact elements}
- 43/0256 . . {for soldering or welding connectors to a printed circuit board}
- 43/0263 . . {for positioning or holding parts during soldering or welding process}
- 43/027 . . for connecting conductors by clips
- 43/0275 . . {by using explosive force}
- 43/033 . . for wrapping or unwrapping wire connections
- 43/0335 . . {for unwrapping}
- 43/04 . . for forming connections by deformation, e.g. crimping tool
- 43/042 . . Hand tools for crimping
- 43/0421 . . . {combined with other functions, e.g. cutting}
- 43/0422 . . . {operated by an explosive force}
- 43/0424 . . . {with more than two radially actuated mandrels}
- 43/0425 . . . {with mandrels actuated in axial direction to the wire}
- 43/0427 . . . {fluid actuated hand crimping tools}
- 43/0428 . . . {Power-driven hand crimping tools}
- 43/045 . . . with contact member feeding mechanism
- 43/048 . . Crimping apparatus or processes ([H01R 43/042 takes precedence](#))
- 43/0482 . . . {combined with contact member manufacturing mechanism}
- 43/0484 . . . {for eyelet contact members}
- 43/0486 . . . {with force measuring means}
- 43/0488 . . . {with crimp height adjusting means}
- 43/05 . . . with wire-insulation stripping
- 43/052 . . . with wire-feeding mechanism
- 43/055 . . . with contact member feeding mechanism
- 43/058 . . Crimping mandrels
- 43/0585 . . . {for crimping apparatus with more than two radially actuated mandrels}
- 43/06 . . Manufacture of commutators
- 43/08 . . in which segments are not separated until after assembly
- 43/10 . . Manufacture of slip-rings
- 43/12 . . Manufacture of brushes
- 43/14 . . Maintenance of current collectors, e.g. reshaping of brushes, cleaning of commutators
- 43/16 . . for manufacturing contact members, e.g. by punching and by bending
- 43/18 . . for manufacturing bases or cases for contact members
- 43/20 . . for assembling or disassembling contact members with insulating base, case or sleeve

## H01R

- 43/205 . . {with a panel or printed circuit board}
- 43/22 . . Hand tools
- 43/24 . . Assembling by moulding on contact members
- 43/26 . . for engaging or disengaging the two parts of a coupling device ([structural association with two-part coupling device H01R 13/629](#))
- 43/28 . . for wire processing before connecting to contact members, not provided for in groups [H01R 43/02](#) - [H01R 43/26](#)

### **2101/00 One pole**

### **2103/00 Two poles**

### **2105/00 Three poles**

### **2107/00 Four or more poles**

### **2201/00 Connectors or connections adapted for particular applications**

- 2201/02 . . for antennas
- 2201/04 . . for network, e.g. LAN connectors
- 2201/06 . . for computer periphery
- 2201/08 . . for halogen lamps
- 2201/10 . . for dynamoelectric machines
- 2201/12 . . for medicine and surgery
- 2201/14 . . seismic connectors
- 2201/16 . . for telephony
- 2201/18 . . for television
- 2201/20 . . for testing or measuring purposes
- 2201/22 . . for transformers or coils
- 2201/24 . . for radio transmission
- 2201/26 . . for vehicles