

CPC COOPERATIVE PATENT CLASSIFICATION

H01R **LINE CONNECTORS; CURRENT COLLECTORS** (switches, fuses [H01H](#); coupling devices of the waveguide type [H01P 5/00](#); switching arrangements for the supply or distribution of electric power [H02B](#); installations of electric lines, cables or auxiliary apparatus [H02G](#); printed means for providing electric connections to or between printed circuits [H05K](#))

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, a contact in a coupling device is only regarded as an additional earth contact if this contact is clearly designed for that purpose.
4. General details are classified in groups [H01R 4/00](#), [H01R 9/00](#), [H01R 11/00](#).

| | | | |
|-------------|--|----------|--|
| 3/00 | Electrically-conductive connections not otherwise provided for | 4/18 | . . by crimping { (H01R 4/01 , H01R 4/2495 take precedence; for coaxial cables H01R 9/0518) } |
| 3/08 | . for making connection to a liquid ({ slip rings with liquid contacts H01R 39/30 ; H01R 39/646 }; electrodes for batteries or accumulators H01M) | 2004/181 | . . . {using memory material} |
| | | 4/182 | . . . {for flat conductive elements, e.g. flat cables (H01R 4/01 takes precedence)} |
| 4/00 | Electrically-conductive connections between two or more conductive members in direct contact and means for effecting or maintaining such contact (details of disengageable contacts of two-part coupling devices H01R 13/00 ; two-part coupling devices H01R 12/70 , H01R 24/00 - H01R 33/00 ; flexible or turnable line connectors H01R 35/00 ; non rotary current collectors H01R 41/00) | 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} |
| 4/01 | . Connections using shape memory materials, e.g. shape memory metal | 4/187 | . . . {combined with soldering or welding} |
| 4/02 | . Soldered or welded connections { (H01R 4/625 , H01R 4/723 , H01R 12/59 take precedence) } | 4/188 | . . . {having an uneven wire-receiving surface to improve the contact} |
| 4/021 | . . {between two or more cables or wires} | 4/20 | . . . using a crimping sleeve { (H01R 4/01 takes precedence) } |
| 4/022 | . . . {comprising preapplied solder} | | |
| 4/023 | . . {between cables or wires and terminals} | 4/203 | {having an uneven wire-receiving surface to improve the contact} |
| 4/024 | . . . {comprising preapplied solder} | | |
| 4/025 | . . {with built-in heat generating elements} | 4/206 | {with transversal grooves or threads} |
| 4/026 | . . {comprising means for eliminating an insulative layer prior to soldering or welding} | 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 |
| 4/027 | . . {comprising means for positioning or holding the parts to be soldered or welded} | 4/24 | . Needle-point, slotted plate, or analogous contact members penetrating insulation or cable strands { (for multiphase cables H01R 9/031 ; for coaxial cables H01R 9/053 ; for flat cables H01R 12/67) } |
| 4/028 | . . {comprising means for preventing flowing or wicking of solder or flux in parts not desired} | | |
| 4/029 | . . {Welded connections (H01R 4/021 - H01R 4/028 take precedence) } | 4/2404 | . . {having at least one tooth, prong, pin or needle penetrating the insulation (penetration into a wire end in axial direction H01R 4/5033) } |
| 4/04 | . using electrically conductive adhesives | | |
| 4/06 | . Riveted connections (by explosion H01R 4/08) | 4/2408 | . . . {actuated by means of at least one clamping screw (clamped connection using a screw H01R 4/30) } |
| 4/08 | . effected by an explosion | | |
| 4/10 | . effected solely by twisting, wrapping, bending, crimping, or other permanent deformation | 4/2412 | . . . {actuated by means of an insulating cam or wedge} |
| 4/12 | . . by twisting | | |
| 4/14 | . . by wrapping | 4/2416 | . . {having insulation cutting edges, e.g. tuning fork type, slotted plate type, wire type} |
| 4/16 | . . by bending | | |

- 4/242 . . . {the contact member being a single slotted plate}
- 4/2425 {flat plate; multi-layered flat plate}
- 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 plate}
- 4/2441 {being tube-shaped with a single slot}
- 4/2445 . . . {the contact member being provided with additional means acting on the wire, e.g. a second insulation penetrating means, strain relief means, wire cutting knife}
- 4/245 {with at least two slotted flat portions}
- 4/2454 {being linked in such a way as to form a U-shape, the branches of which are slotted}
- 4/2458 {the contact member having a slotted tubular configuration, e.g. slotted tube-end}
- 4/2462 {the contact member having a slotted bent configuration, e.g. slotted bight}
- 4/2466 {the contact member having a channel-shaped part, the opposite sidewalls of which comprise insulation cutting means}
- 4/247 . . {penetrating insulation by means of a spring, e.g. a coil spring}
- 4/2475 . . {penetrating insulation by means of screw, nut or bolt}
- 4/2479 . . . {penetrating area under the head of the screw}
- 4/2483 . . . {penetrating area under the tip of the screw}
- 4/2487 . . . {penetrating by means of the thread of the screw}
- 4/2491 . . {penetrating insulation by means of a conductive cam or wedge}
- 4/2495 . . {Insulation penetration combined with permanent deformation of 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 (measures against loss of bolt or nut in general [F16B 41/002](#))}
- 4/302 . . . {having means for preventing loosening of screw or nut, e.g. vibration-proof connection (locking of screw or nut in general [F16B 39/00](#) and subgroups)}
- 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 (shapes of thread, special thread forms [F16B 33/02](#))}
- 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 (heat recoverable plastics [B29C 61/00](#))
- 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 Connectors and connecting arrangements providing a plurality of mutually insulated connections; Terminals or binding posts mounted upon a base or in a case; Terminal strips; Terminal blocks (details of direct connections or connections using contact members penetrating insulation [H01R 4/00](#); {individual connecting parts [H01R 11/00](#);} specially adapted for printed circuits, flat or ribbon cables, or like generally planar structures [H01R 12/00](#); coupling devices [H01R 12/70](#), [H01R 24/00](#)-[H01R 33/00](#); flexible or turnable line connectors [H01R 35/00](#))**
- 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](#))}
- WARNING**
This group and its subgroups are no longer used for the classification of new documents as from January 1, 2011. The backlog of this group and its subgroups is being continuously reclassified to [H01R 13/658](#) and its subgroups
- 9/034 . . . {connection of the shield to an additional grounding conductor}
- 9/035 . . . {twisted pair surrounded by shield}
- 9/037 . . . {connection to shield by action of a resilient member}
- 9/038 . . . {each conductor being individually surrounded by shield}
- 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 (in general [H01R 4/18](#))}
- 9/0521 . . . {Connection to outer conductor by action of a nut (in general [H01R 4/30](#))}

- 9/0524 . . . {Connection to outer conductor by action of a clamping member, e.g. screw fastening means ([H01R 9/0515](#) takes precedence; in general [H01R 4/38](#))}
- 9/0527 . . . {Connection to outer conductor by action of a resilient member, e.g. spring (in general [H01R 4/48](#))}
- 9/053 . . . using contact members penetrating insulation
- 9/07 . . {for flat or ribbon cables or flexible printed circuits}

WARNING

This group and its subgroups is no longer used for the classification of new documents as from January 1, 2011. The backlog of this group and its subgroups is being continuously reclassified to [H01R 12/00](#), [H01R 12/50](#) and their respective subgroups.

- 9/0707 . . . {with exposed conductor portions for connection}
- 9/0714 {to another flat or ribbon cable or flexible printed circuit, e.g. by pressing contact areas against each other}
- 9/0721 {by means of interconnecting elements}
- 9/0728 {to a cable of another type, e.g. round section cable}
- 9/0735 {to conductive elements on a rigid planar substrate, e.g. to a printed circuit board}
- 9/0742 {to contact elements}
- 9/075 . . . {with contacts penetrating cable insulation for making contact with conductors, e.g. needle points (in general [H01R 4/24](#))}
- 9/0757 {with contacts having at least a slotted plate for penetration of cable insulation, e.g. insulation displacement contacts for round conductor flat cables (in general [H01R 4/2416](#))}
- 9/0764 {to another flat or ribbon cable or flexible printed circuit, e.g. tapping connection}
- 9/0771 {with permanent deformation of contacts, e.g. crimping contacts for rectangular conductor flat cables (in general [H01R 4/2495](#))}
- 9/0778 . . . {for shielded flat cable}
- 9/0785 {connection of the shield to an additional grounding conductor}
- 9/0792 {each conductor being individually surrounded by shield, e.g. multiple coaxial cables in flat structure}
- 9/09 . {Connectors for printed circuits (printed connections to or between printed circuits [H05K](#)); Terminals, terminal strips, terminal blocks or bases for printed circuits}
- WARNING**
This group and its subgroups is no longer used for the classification of new documents as from January 1, 2011. The backlog of this group and its subgroups is being continuously reclassified to [H01R 12/00](#), [H01R 12/50](#) and their respective subgroups.
- 9/091 . . {terminals for or connections to a printed circuit board ([H01R 9/0515](#) takes precedence)}

| | | | |
|--------|--|--------------|---|
| 9/092 | . . . {Terminals having a press fit or a compliant portion and a shank passing through a hole in the printed circuit board} | 9/2683 | {Marking plates or tabs} |
| 9/093 | . . . {Terminal blocks providing connections to wires or cables} | 9/2691 | {with ground wire connection to the rail (in general H01R 4/64)} |
| 9/095 | . . . {Connections on the surface of the printed circuit} | 9/28 | . . Terminal boards |
| 9/096 | . . {Connections between two or more printed circuits} | 11/00 | Connectors providing two or more spaced connecting locations for conductive members which are thereby interconnected; End pieces for wires or cables, supported by the wire or cable and for facilitating electrical connection to some other wire, terminal, or conductive member (connections between members in direct contact H01R 4/00; structural associations of a plurality of mutually-insulated electrical connecting elements H01R 9/00; coupling devices H01R 12/70, H01R 24/00-H01R 29/00, H01R 33/00; flexible or turnable line connectors H01R 35/00) |
| 9/097 | . . . {by an interconnection through aligned holes in the boards or multilayer board} | 11/01 | . characterised by the form or arrangement of the conductive interconnection between the connecting locations |
| 9/098 | . . . {the printed circuits being on the same board (with plated through holes H05K 3/42)} | 11/03 | . characterised by the relationship between the connecting locations (H01R 11/11 takes precedence) |
| 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} | 11/05 | . . the connecting locations having different types of direct connections |
| 9/15 | . Connectors for wire wrapping | 11/07 | . . the connecting locations being of the same type but different sizes |
| 9/16 | . Fastening of connecting parts to base or case; Insulating connecting parts from base or case (lead-through insulators H01B 17/26) | 11/09 | . . the connecting locations being identical |
| 9/18 | . . Fastening by means of screw or nut | 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 (H01R 11/01 takes precedence; for multiconductor cables H01R 9/11) |
| 9/20 | . . Fastening by means of rivet or eyelet | 11/12 | . . End pieces terminating in an eye, hook, or fork |
| 9/22 | . Bases, e.g. strip, block, panel {(for printed circuits H01R 12/50)} | 11/14 | . . . the hook being adapted for hanging on overhead or other suspended lines, e.g. hot line clamp |
| 9/223 | . . {Insulating enclosures for terminals (for switches H01H 9/0264)} | 11/15 | Hook in the form of a screw clamp |
| 9/226 | . . {comprising a plurality of conductive flat strips providing connection between wires or components (H01R 9/2425 takes precedence)} | 11/16 | . . End pieces terminating in a soldering tip or socket |
| 9/24 | . . Terminal blocks | 11/18 | . . End pieces terminating in a probe |
| 9/2408 | . . . {Modular blocks (H01R 9/26 takes precedence)} | 11/20 | . . End pieces terminating in a needle point or analogous contact for penetrating insulation or cable strands |
| 9/2416 | . . . {Means for guiding or retaining wires or cables connected to terminal blocks} | 11/22 | . . End pieces terminating in a spring clip |
| 9/2425 | . . . {Structural association with built-in components (for coupling parts H01R 13/66)} | 11/24 | . . . with gripping jaws, e.g. crocodile clip |
| 9/2433 | {with built-in switch} | 11/26 | . . End pieces terminating in a screw clamp, screw or nut |
| 9/2441 | {with built-in overvoltage protection} | 11/28 | . . End pieces consisting of a ferrule or sleeve |
| 9/245 | {with built-in fuse} | 11/281 | . . . {for connections to batteries} |
| 9/2458 | . . . {Electrical interconnections between terminal blocks} | 11/282 | {comprising means for facilitating engagement or disengagement, e.g. quick release terminal} |
| 9/2466 | {using a planar conductive structure, e.g. printed circuit board} | 11/283 | {Bolt, screw or threaded ferrule parallel to the battery post} |
| 9/2475 | . . . {Means facilitating correct wiring, e.g. marking plates, identification tags} | 11/284 | {comprising means for preventing corrosion, e.g. covers, enclosures filled with gel} |
| 9/2483 | . . . {specially adapted for ground connection} | 11/285 | {Battery post and cable secured by the same locking means} |
| 9/2491 | . . . {Terminal blocks structurally associated with plugs or sockets} | 11/286 | {having means for improving contact between battery post and clamping member, e.g. uneven interior surface} |
| 9/26 | . . . Clip-on terminal blocks for side-by-side rail- or strip-mounting | 11/287 | {Intermediate parts between battery post and cable end piece} |
| 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)} | 11/288 | {Interconnections between batteries} |
| 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} | | |

| | | | |
|--------------|--|---------|--|
| 11/289 | {characterised by the shape or the structure of the battery post} | 12/62 | connecting to rigid printed circuits or like structures |
| 11/30 | . . End pieces held in contact by a magnet | 12/63 | connecting to another shape cable |
| 11/32 | . . End pieces with two or more terminations | 12/65 | characterized by the terminal |
| 12/00 | 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 H05K 1/11) | 12/67 | insulation penetrating terminals |
| | <u>WARNING</u> | 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 (in general H01R 4/2416)} |
| | Not complete pending completion of a reclassification; see also groups H01R 9/07 , H01R 9/09 , H01R 23/66 , H01R 23/68 , H01R 23/70 , H01R 23/72 and their respective subgroups | 12/68 | comprising deformable portions |
| 12/50 | . Fixed connections | 12/69 | deformable terminals, e.g. crimping terminals |
| | <u>WARNING</u> | 12/70 | . Coupling devices |
| | This group and its subgroups are not complete pending completion of a reclassification; see also groups H01R 9/07 , H01R 9/09 and their respective subgroups | | <u>WARNING</u> |
| 12/51 | . . for rigid printed circuits or like structures | | This group and its subgroups are not complete pending completion of a reclassification; see also groups H01R 23/66 , H01R 23/68 , H01R 23/70 , H01R 23/72 and their respective subgroups |
| 12/515 | . . . {Terminal blocks providing connections to wires or cables} | 12/7005 | . . {Guiding, mounting, polarizing or locking means; Extractors (for printed circuit boards H05K)} |
| 12/52 | . . . connecting to other rigid printed circuits or like structures | 12/7011 | . . . {Locking or fixing a connector to a PCB} |
| 12/523 | {by an interconnection through aligned holes in the boards or multilayer board} | 12/7017 | {Snap means} |
| 12/526 | {the printed circuits being on the same board (with plated through holes H05K 3/42)} | 12/7023 | {integral with the coupling device} |
| 12/53 | . . . connecting to cables except for flat or ribbon cables | 12/7029 | {not integral with the coupling device} |
| 12/55 | . . . characterized by the terminals | 12/7035 | {involving non-elastic deformation, e.g. plastic deformation, melting (H01R 12/7064 takes precedence)} |
| 12/57 | surface mounting terminals | 12/7041 | {Gluing or taping} |
| 12/58 | terminals for insertion into holes | 12/7047 | {with a fastener through a screw hole in the coupling device} |
| 12/585 | {Terminals having a press fit or a compliant portion and a shank passing through a hole in the printed circuit board} | 12/7052 | {characterised by the locating members} |
| 12/59 | . . for flexible printed circuits, flat or ribbon cables or like structures | 12/7058 | {characterised by the movement, e.g. pivoting, camming or translating parallel to the PCB} |
| 12/592 | . . . {connections to contact elements} | 12/7064 | {Press fitting} |
| 12/594 | . . . {for shielded flat cable} | 12/707 | {Soldering or welding} |
| 12/596 | {Connection of the shield to an additional grounding conductor, e.g. drain wire} | 12/7076 | . . {for connection between PCB and component, e.g. display (plugging components in general H05K 7/10)} |
| 12/598 | {Each conductor being individually surrounded by shield, e.g. multiple coaxial cables in flat structure} | 12/7082 | . . {Coupling device supported only by cooperation with PCB} |
| 12/61 | . . . connecting to flexible printed circuits, flat or ribbon cables or like structures | 12/7088 | . . {Arrangements for power supply} |
| 12/613 | {by means of interconnecting elements} | 12/7094 | . . {with switch operated by engagement of PCB} |
| 12/616 | {having contacts penetrating insulation for making contact with conductors, e.g. needle points (in general H01R 4/24)} | 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} | 13/025 | . . . {formed by the conductors of a cable end} |
| 12/725 | {containing contact members presenting a contact carrying strip, e.g. edge-like strip} | 13/03 | . . characterised by the material, e.g. plating, or coating materials |
| 12/727 | {Coupling devices presenting arrays of contacts} | 13/035 | . . . {Plated dielectric material} |
| 12/728 | {Coupling devices without an insulating housing provided on the edge of the PCB} | 13/04 | . . Pins or blades for co-operation with sockets |
| 12/73 | connecting to other rigid printed circuits or like structures | 13/05 | . . . Resilient pins or blades (carrying separate resilient parts H01R 13/15) |
| 12/732 | {Printed circuits being in the same plane} | 13/052 | {co-operating with sockets having a circular transverse section} |
| 12/735 | {Printed circuits including an angle between each other} | 13/055 | {co-operating with sockets having a rectangular transverse section} |
| 12/737 | {Printed circuits being substantially perpendicular to each other (for printed connections H05K 3/366 takes precedence)} | 13/057 | {co-operating with sockets having a square transverse section} |
| 12/75 | . . . connecting to cables except for flat or ribbon cables | 13/08 | . . . Resiliently-mounted rigid pins or blades |
| 12/77 | . . for flexible printed circuits, flat or ribbon cables or like structures | 13/10 | . . Sockets for co-operation with pins or blades |
| 12/771 | . . . {Details} | 13/11 | . . . Resilient sockets (carrying separate resilient parts H01R 13/15) |
| 12/772 | {Strain relieving means} | 13/111 | {co-operating with pins having a circular transverse section} |
| 12/774 | {Retainers} | 13/112 | {forked sockets having two legs} |
| 12/775 | {Ground or shield arrangements (in general H01R 13/658)} | 13/113 | {co-operating with pins or blades having a rectangular transverse section} |
| 12/777 | . . . {Coupling parts carrying pins, blades or analogous contacts (H01R 12/78 , H01R 12/79 take precedence)} | 13/114 | {co-operating with pins or blades having a square transverse section} |
| 12/778 | . . . {Coupling parts carrying sockets, clips or analogous counter-contacts (H01R 12/78 , H01R 12/79 take precedence)} | 13/115 | U-shaped sockets having inwardly bent legs, e.g. spade type |
| 12/78 | . . . connecting to other flexible printed circuits, flat or ribbon cables or like structures | 13/14 | . . . Resiliently-mounted rigid sockets |
| 12/79 | . . . connecting to rigid printed circuits or like structures | 13/15 | . . Pins, blades or sockets having separate spring member for producing or increasing contact pressure |
| 12/81 | . . . connecting to another cable except for flat or ribbon cable | 13/17 | with spring member on the pin |
| 12/82 | . . connected with low or zero insertion force | 13/18 | with the spring member surrounding the socket |
| 12/83 | . . . connected with pivoting of printed circuits or like after insertion | 13/187 | with spring member in the socket |
| 12/85 | . . . contact pressure producing means, contacts activated after insertion of printed circuits or like structures | 13/193 | . . Means for increasing contact pressure at the end of engagement of coupling part, {e.g. zero insertion force or no friction (combined with printed circuit boards H01R 23/6813)} |
| 12/853 | {Fluid activated} | 13/20 | . . Pins, blades, or sockets shaped, or provided with separate member, to retain co-operating parts together |
| 12/856 | {activated by shape memory material} | 13/207 | by screw-in connection |
| 12/87 | acting automatically by insertion of rigid printed or like structures | 13/213 | by bayonet connection |
| 12/88 | acting manually by rotating or pivoting connector housing parts | 13/22 | . . Contacts for co-operating by abutting |
| 12/89 | acting manually by moving connector housing parts linearly, e.g. slider | 13/24 | resilient; resiliently-mounted |
| 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) | 13/2407 | {characterized by the resilient means} |
| 13/00 | Details of coupling devices of the kinds covered by groups H01R 12/70 or H01R 24/00-H01R 33/00 {(electro-optical connectors G02B 6/24)} | 13/2414 | {conductive elastomers} |
| 13/005 | . {Electrical coupling combined with fluidic coupling} | 13/2421 | {using coil springs} |
| 13/02 | . Contact members | 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-operation with either round or flat pin [{\(H01R 27/00 takes precedence\)}](#)
- 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 \(for flat or ribbon cables H01R 12/771; for distribution boxes H02G 3/0616\)}](#)
- 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 ([in general H01B 17/586](#))}
- 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](#) -[H01R 13/659](#); coaxial connectors specifically adapted for high frequency [H01R 24/40](#)- [H01R 24/56](#))

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 23/005](#), [H01R 23/6873](#), [H01R 23/688](#)

- 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 (coaxially arranged shields [H01R 24/38](#)) {, e.g. anti-static shielding}
 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

This group is not complete pending reclassification, see also [H01R 9/032](#), [H01R 13/658](#), [H01R 23/6873](#) and their respective subgroups

- 13/65802 . . . {with resilient grounding means}

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 13/6582](#) and [H01R 13/6583](#)

- 13/65805 . . . {using dielectric material made conductive, e.g. plastics material coated with metal}

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 13/6599](#)

- 13/65807 . . . {and comprising shielding between neighboring signal paths}

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 13/6585](#) and [H01R 13/6586](#)

- 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](#)-[H01R 24/56](#))
 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. relais, 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)}

- 23/00 {Two-part coupling devices having four or more
poles, with or without additional protective earth
connection; Separate parts thereof}**

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 24/00](#) and its subgroups. See also [H01R 2107/00](#) as part of the indexing scheme associated with group [H01R 24/00](#) and its subgroups, relating to the number of poles in a two-part coupling device.

- 23/005 . {comprising means for reducing cross-talk, e.g. special layout of conductors between input and output pins (by shielding of neighboring signal paths [H01R 13/65807](#), [H01R 23/688](#); twisted pair cables [H01B 11/02](#); in line transmission systems [H04B 3/32](#); ground circuit layout on printed circuit boards [H05K 9/0039](#))}
- 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 13/6461](#), [H01R 13/6473](#) and their respective subgroups
- 23/02 . {having parallelly-arranged contacts for sliding engagement with their counter-contacts}
- WARNING**
- This group and its subgroups is no longer used for the classification of new documents as from January 1, 2011. The backlog of this group and its subgroups is being continuously reclassified to [H01R 24/00](#) and its subgroups. See also [H01R 2107/00](#) as part of the indexing scheme associated with group [H01R 24/00](#) and its subgroups, relating to the number of poles in a two-part coupling device.
- 23/025 . . {sliding engagement on one side only, e.g. modular jack type}
- 23/10 . . {wherein one coupling part is secured to wire or cable and the other part is secured to apparatus or structure}
- 23/26 . {having concentrically or coaxially arranged contacts}
- 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 24/38](#) and its subgroups. See also [H01R 2107/00](#) as part of the indexing scheme associated with group [H01R 24/00](#) and its subgroups, relating to the number of poles in a two-part coupling device.
- 23/27 . {Hermaphroditic coupling devices ([hermaphroditic contact members H01R 13/28](#))}
- 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 24/84](#)
- 23/66 . {for connection to or between flat or ribbon cables}
- WARNING**
- This group and its subgroups is no longer used for the classification of new documents as from January 1, 2011. The backlog of this group and its subgroups is being continuously reclassified to [H01R 12/00](#), [H01R 12/70](#) and their respective subgroups.
- 23/661 . . {Details, e.g. strain relieving means, retainers}
- 23/662 . . . {Earth or shield arrangements ([in general H01R 13/648](#))}
- 23/664 . . {Coupling parts carrying pins, blades or analogous contacts ([H01R 23/667](#), [H01R 23/668](#) take precedence)}
- 23/665 . . {Coupling parts carrying sockets, clips or analogous countercontacts ([H01R 23/667](#), [H01R 23/668](#) take precedence)}
- 23/667 . . {for connection of flat or ribbon cables between each other, e.g. adaptors}
- 23/668 . . {for connection of flat or ribbon cables to a printed circuit board}
- 23/68 . {for connection to or between printed circuits; Non printed connecting arrangements of printed circuit boards (PCB's) ([H01R 23/668](#) takes precedence)}
- WARNING**
- This group and its subgroups is no longer used for the classification of new documents as from January 1, 2011. The backlog of this group and its subgroups is being continuously reclassified to [H01R 12/00](#), [H01R 12/70](#) and their respective subgroups.
- 23/6806 . . {for connection between PCB and component, e.g. display (plugging components in general [H05K 7/10](#))}
- 23/6813 . . {with low or zero insertion force}
- 23/682 . . . {and with pivoting of PCB after insertion}
- 23/6826 . . . {Contact pressure producing means activated after insertion of PCB}
- 23/6833 {acting linearly ([H01R 23/6846](#), [H01R 23/6853](#) and [H01R 23/686](#) take precedence)}
- 23/684 {acting by rotation or by pivoting ([H01R 23/6846](#), [H01R 23/6853](#) and [H01R 23/686](#) take precedence)}
- 23/6846 {acting automatically by insertion of PCB}
- 23/6853 {fluid activated}
- 23/686 {activated by shape memory material}
- 23/6866 . . {Arrangements for power supply bus-bars}
- 23/6873 . . {adapted for high frequency}
- WARNING**
- This group and its subgroups are no longer used for the classification of new documents as from January 1, 2011. The backlog of this group and its subgroups is being continuously reclassified to [H01R 13/646](#), [H01R 13/658](#) and their respective subgroups
- 23/688 . . . {and comprising shielding between neighboring signal paths}
- 23/6886 . . {Coupling parts supported only by cooperation with PCB}
- 23/6893 . . {Connectors for contacting one or more arrays of pins or sockets mounted on a PCB ([counterparts presenting such arrays H01R 23/7073](#))}
- 23/70 . . {co-operating with the edge of the printed circuit or with a counterpart provided on the edge of the printed circuit ([H01R 23/6813](#) takes precedence); Counterparts therefor; Special features of the edge of the board}
- 23/7005 . . . {Guiding, mounting, polarizing or locking means; Extractors ([for printed circuit boards H05K](#))}

| | | | |
|--------------|--|--------------|--|
| 23/701 | {locking or fixing a connector to a PCB} | 24/40 | . . specially adapted for high frequency |
| 23/7015 | {Snap means} | 24/42 | . . . comprising impedance matching means or electrical components, e.g. filters or switches |
| 23/7021 | {integral with the coupling device} | 24/44 | comprising impedance matching means |
| 23/7026 | {not integral with the coupling device} | 24/46 | comprising switches |
| 23/7031 | {involving non-elastic deformation, e.g. plastic deformation, melting (H01R 23/7057 takes precedence)} | 24/48 | comprising protection devices, e.g. overvoltage protection |
| 23/7036 | {Gluing or taping} | 24/50 | . . . mounted on a PCB [Printed Circuit Board] |
| 23/7042 | {with a fastener through a screw hole in the coupling device} | 24/52 | . . . mounted in or to a panel or structure |
| 23/7047 | {characterised by the locating members} | 24/525 | {Outlets} |
| 23/7052 | {characterised by the movement, e.g. pivoting, camming or translating parallel to the PCB} | 24/54 | . . . Intermediate parts, e.g. adapters, splitters or elbows |
| 23/7057 | {Press fitting} | 24/542 | {Adapters} |
| 23/7063 | {Soldering or welding} | 24/545 | {Elbows} |
| 23/7068 | . . . {cooperating directly with the edge of the PCB} | 24/547 | {Splitters} |
| 23/7073 | . . . {Counterparts, e.g. containing pins forming a right angle, mounted on the edge of the PCB} | 24/56 | . . . specially adapted to a specific shape of cables, e.g. corrugated cables, twisted pair cables, cables with two screens or hollow cables |
| 23/7078 | {Counterparts presenting a contact carrying strip, e.g. edge-like strip} | 24/562 | {Cables with two screens} |
| 23/7084 | {Counterparts presenting arrays of sockets} | 24/564 | {Corrugated cables} |
| 23/7089 | {Contact members without an insulating housing provided on the edge of the PCB} | 24/566 | {Hollow cables} |
| 23/7094 | . . . {with switch operated by engagement of PCB} | 24/568 | {Twisted pair cables} |
| 23/72 | . . {co-operating with the surface of the printed circuit or with a counterpart provided on the surface of the printed circuit (H01R 23/6813 , H01R 23/70 take precedence)} | 24/58 | . Contacts spaced along longitudinal axis of engagement |
| 23/722 | . . . {with contacts abutting directly the printed circuit; Button contacts therefor provided on the printed circuit} | 24/60 | . Contacts spaced along planar side wall transverse to longitudinal axis of engagement |
| 23/725 | . . . {Counterparts provided on the PCB} | 24/62 | . . Sliding engagements with one side only, e.g. modular jack coupling devices |
| 23/727 | {Contact members provided on the PCB without an insulating housing (contacts for abutting H01R 23/722)} | 24/64 | . . . for high frequency, e.g. RJ 45 |
| 24/00 | Two-part coupling devices, or either of their cooperating parts, characterised by their overall structure (specially adapted for printed circuits, flat or ribbon cables, or like structures H01R 12/00 ; specially adapted for supporting apparatus H01R 33/00) | 24/66 | . with pins, blades or analogous contacts and secured to apparatus or structure, e.g. to a wall |
| | NOTE | 24/68 | . . mounted on directly pluggable apparatus |
| | In this group, it is desirable to add the indexing codes of groups H01R 2101/00 - H01R 2107/00 | 24/70 | . . with additional earth or shield contacts |
| | WARNING | 24/76 | . with sockets, clips or analogous contacts and secured to apparatus or structure, e.g. to a wall |
| | This group and its subgroups are not complete pending reclassification; see also groups H01R 2201/16 , H01R 2201/16 and their respective subgroups, and H01R 23/00 , H01R 23/26 , H01R 23/27 | 24/78 | . . with additional earth or shield contacts |
| 24/005 | . {requiring successive relative motions to complete the coupling, e.g. bayonet type} | 24/84 | . Hermaphroditic coupling devices |
| 24/20 | . Coupling parts carrying sockets, clips or analogous contacts and secured only to wire or cable | 24/86 | . Parallel contacts arranged about a common axis |
| 24/22 | . . with additional earth or shield contacts | 25/00 | Coupling parts adapted for simultaneous co-operation with two or more identical counterparts, e.g. for distributing energy to two or more circuits (supported only by co-operation with a counterpart H01R 31/00 ; with a holder adapted for supporting apparatus to which its counterpart is attached H01R 33/88) |
| 24/28 | . Coupling parts carrying pins, blades or analogous contacts and secured only to wire or cable | 25/003 | . {the coupling part being secured only to wires or cables} |
| 24/30 | . . with additional earth or shield contacts | 25/006 | . {the coupling part being secured to apparatus or structure, e.g. duplex wall receptacle} |
| 24/38 | . having concentrically or coaxially arranged contacts | 25/14 | . Rails or bus-bars constructed so that the counterparts can be connected thereto at any point along their length, {e.g. track lighting systems} (installation of bus bars H02G 5/00) |
| | | 25/142 | . . {Their counterparts} |
| | | 25/145 | . . {Details, e.g. end pieces or joints (H01R 25/147 takes precedence)} |
| | | 25/147 | . . {Low voltage devices, i.e. safe to touch live conductors} |
| | | 25/16 | . Rails or bus-bars provided with a plurality of discrete connecting locations for counterparts {(protective tubings or conduits H02G 3/00 ; installations of bus-bars H02G 5/00)} |
| | | 25/161 | . . {Details} |

| | | | |
|--------------|--|---------|--|
| 25/162 | . . . {Electrical connections between or with rails or bus-bars (rails having primarily a non electrical function H01R 4/64)} | 33/0881 | {composed of different pieces} |
| 25/164 | . . {Connecting locations formed by flush mounted apparatus} | 33/089 | {integral with starter holding structure (H01R 33/065 for starters only)} |
| 25/165 | . . {Connecting locations formed by surface mounted apparatus} | 33/09 | . . . for baseless lamp bulb |
| 25/167 | . . {Connecting locations formed by staggering mounted apparatus} | 33/18 | . . having only abutting contacts |
| 25/168 | . . {the connecting locations being situated away from the rail or bus-bar} | 33/20 | . . having concentrically or coaxially arranged contacts |
| 27/00 | Coupling parts adapted for co-operation with two or more dissimilar counterparts ({for dissimilar contact members H01R 13/35 }; supported only by co-operation with a counterpart H01R 31/00 ; with a holder adapted for supporting apparatus to which its counterpart is attached H01R 33/90) | 33/205 | . . . {secured to structure or printed circuit board} |
| 27/02 | . for simultaneous co-operation with two or more {dissimilar} counterparts | 33/22 | . . for screw type base, e.g. for lamp |
| 29/00 | 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} | 33/225 | . . . {secured to structure or printed circuit board} |
| 31/00 | Coupling parts supported only by co-operation with counterpart | 33/46 | . . for bayonet type base |
| 31/005 | . {Intermediate parts for distributing signals} | 33/465 | . . . {secured to structure or printed circuit board} |
| 31/02 | . Intermediate parts for distributing energy to two or more circuits in parallel, e.g. splitter (for linking coupling parts that cannot co-operated H01R 31/06 ; with a holder adapted for supporting apparatus to which its counterpart is attached H01R 33/92) | 33/72 | . Three-pole devices |
| 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 H01R 33/94) | 33/74 | . Devices having four or more poles, {e.g. holders for compact fluorescent lamps} |
| 31/065 | . . {with built-in electric apparatus} | 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 |
| 31/08 | . Short circuiting members for bridging contacts in a counterpart (insulating members for separating contacts in a counterpart H01H 27/04) | 33/7607 | . . . {the parallel terminal pins having a circular disposition} |
| 31/085 | . . {Short circuiting bus-strips} | 33/7614 | {the terminals being connected to individual wires} |
| 33/00 | Coupling devices in which a holder is adapted for supporting apparatus to which its counterpart is attached; Separate parts thereof (structural association of counterpart with specific apparatus, see the relevant subclass for the apparatus) | 33/7621 | {the wires being connected using screw, clamp, wrap or spring connection} |
| 33/02 | . Single-pole devices, e.g. holder for supporting one end of a tubular incandescent or neon lamp | 33/7628 | {the wires being connected using solder} |
| 33/05 | . Two-pole devices | 33/7635 | {the terminals being collectively connected, e.g. to a PCB} |
| 33/06 | . . with two current-carrying pins, blades or analogous contacts, having their axes parallel to each other | 33/7642 | {socket snap fastened in an opening of a PCB} |
| 33/065 | . . . {for supporting starter switches} | 33/765 | . . . {the terminal pins having a non-circular disposition} |
| 33/08 | . . . for supporting tubular fluorescent lamp | 33/7657 | . . . {characterised by keying or marking means} |
| 33/0809 | {having contacts on one side only} | 33/7664 | . . . {having additional guiding, adapting, shielding, anti-vibration or mounting means} |
| 33/0818 | {for a plurality of lamps} | 33/7671 | . . . {having multiple positions or sockets, e.g. stacked sockets while mounting} |
| 33/0827 | {characterised by the contacts} | 33/7678 | . . . {having a separated part for spark preventing means} |
| 33/0836 | {characterised by the lamp holding means} | 33/7685 | . . . {having internal socket contact by abutting} |
| 33/0845 | {with axially resilient member} | 33/7692 | . . . {for supporting a tubular fluorescent lamp (for two-pole devices H01R 33/06)} |
| 33/0854 | {with lamp rotating means} | 33/88 | . adapted for simultaneous co-operation with two or more identical counterparts |
| 33/0863 | {characterised by the mounting means} | 33/90 | . adapted for co-operation with two or more dissimilar counterparts |
| 33/0872 | {for mounting in an opening of a structure} | 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 unauthorized 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](#); {arrangement of these connectors in vehicle steering wheels [B60R 16/027](#); arrangements of electric cables or lines between relatively movable parts [H02G 11/00](#))}**
- 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 (cam-operated switches [H01H 19/00](#); structural association with dynamo-electric machine [H02K 13/00](#))**
- 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 connectors or for joining electric conductors (of trolley lines B60M 1/28; joining cables H02G 1/14) | 43/08 | . . in which segments are not separated until after assembly |
| 43/002 | . {Maintenance of line connectors, e.g. cleaning} | 43/10 | . Manufacture of slip-rings |
| 43/005 | . {for making dustproof, splashproof, drip-proof, waterproof, or flameproof connection, coupling, or casing} | 43/12 | . Manufacture of brushes |
| 43/007 | . {for elastomeric connecting elements} | 43/14 | . Maintenance of current collectors, e.g. reshaping of brushes, cleaning of commutators |
| 43/01 | . for connecting unstripped conductors to contact members having insulation cutting edges | 43/16 | . for manufacturing contact members, e.g. by punching and by bending |
| 43/015 | . . {Handtools} | 43/18 | . for manufacturing bases or cases for contact members |
| 43/02 | . for soldered or welded connections (soldering or welding in general B23K) | 43/20 | . for assembling or disassembling contact members with insulating base, case or sleeve |
| 43/0207 | . . {Ultrasonic-, H.F.-, cold- or impact welding} | 43/205 | . . {with a panel or printed circuit board} |
| 43/0214 | . . {Resistance welding (H01R 43/0228 takes precedence)} | 43/22 | . . Hand tools |
| 43/0221 | . . {Laser welding (H01R 43/0228 takes precedence)} | 43/24 | . . Assembling by moulding on contact members |
| 43/0228 | . . {without preliminary removing of insulation before soldering or welding} | 43/26 | . for engaging or disengaging the two parts of a coupling device (structural association with two-part coupling device H01R 13/629) |
| 43/0235 | . . {for applying solder (H01R 43/0228 takes precedence)} | 43/28 | . for wire processing before connecting to contact members (H01R 43/02 - H01R 43/26 take precedence) |
| 43/0242 | . . {comprising means for controlling the temperature, e.g. making use of the curie point} | 2101/00 | One pole |
| 43/0249 | . . {for simultaneous welding or soldering of a plurality of wires to contact elements} | 2103/00 | Two poles |
| 43/0256 | . . {for soldering or welding connectors to a printed circuit board} | 2105/00 | Three poles |
| 43/0263 | . . {for positioning or holding parts during soldering or welding process} | 2107/00 | Four or more poles |
| 43/027 | . for connecting conductors by clips | 2201/00 | Connectors or connections adapted for particular applications |
| 43/0275 | . . {by using explosive force} | 2201/02 | . for antennas |
| 43/033 | . for wrapping or unwrapping wire connections | 2201/04 | . for network, e.g. LAN connectors |
| 43/0335 | . . {for unwrapping} | 2201/06 | . for computer periphery |
| 43/04 | . for forming connections by deformation, e.g. crimping tool | 2201/08 | . for halogen lamps |
| 43/042 | . . Hand tools for crimping | 2201/10 | . for dynamoelectric machines |
| 43/0421 | . . . {combined with other functions, e.g. cutting} | 2201/12 | . for medicine and surgery |
| 43/0422 | . . . {operated by an explosive force} | 2201/14 | . seismic connectors |
| 43/0424 | . . . {with more than two radially actuated mandrels} | 2201/16 | . for telephony |
| 43/0425 | . . . {with mandrels actuated in axial direction to the wire} | 2201/18 | . for television |
| 43/0427 | . . . {fluid actuated hand crimping tools} | 2201/20 | . for testing or measuring purposes |
| 43/0428 | . . . {Power-driven hand crimping tools} | 2201/22 | . for transformers or coils |
| 43/045 | . . . with contact member feeding mechanism | 2201/24 | . for radio transmission |
| 43/048 | . . Crimping apparatus or processes (H01R 43/042 takes precedence) | 2201/26 | . for vehicles |
| 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 | | |