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.

3/00 Electrically-conductive connections not otherwise provided for
  3/08 . for making connection to a liquid { (slip rings with liquid contacts H01R 39/30, H01R 39/646) }
4/00 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
  4/01 . Connections using shape memory materials, e.g. shape memory metal
  4/02 . Soldered or welded connections { (H01R 4/625, H01R 4/723, H01R 12/59 take precedence) }
  4/021 . . { between two or more cables or wires }
  4/022 . . . { comprising preapplied solder }
  4/023 . . . { between cables or wires and terminals }
  4/024 . . . { comprising preapplied solder }
  4/025 . . . { with built-in heat generating elements }
  4/026 . . . { comprising means for eliminating an insulative layer prior to soldering or welding }
  4/027 . . . { comprising means for positioning or holding the parts to be soldered or welded }
  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) }
  4/04 . . using electrically conductive adhesives
  4/06 . . Riveted connections (by explosion H01R 4/08)
  4/08 . . effected by an explosion
  4/10 . . effected solely by twisting, wrapping, bending, crimping, or other permanent deformation
  4/12 . . by twisting
  4/14 . . by wrapping
  4/16 . . by bending
  4/18 . . by crimping { (H01R 4/01, H01R 4/295 take precedence; for coaxial cables H01R 9/0518) }
  4/182 . . . { for flat conductive elements, e.g. flat cables (H01R 4/01 takes precedence) }

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End caps, i.e. of insulating or conductive material for covering or maintaining connections between wires entering the cap from the same end.

Connections using contact members penetrating or cutting insulation or cable strands

- 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, H01R 4/2408 and H01R 4/2412 should be considered in order to perform a complete search.

- 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.

- 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.

- 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 4/245 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 4/501)
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]
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)}

9/05 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 H01R 12/50)]

9/223 [Insulating enclosures for terminals (for switches H01I 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

11/00 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

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 (H01R 11/11 takes precedence)

11/05 the connecting locations having different types of direct connections

11/07 the connecting locations being of the same type but different sizes

11/09 the connecting locations being identical

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)

11/12 End pieces terminating in an eye, hook, or fork

11/14 the hook being adapted for hanging on overhead or other suspended lines, e.g. hot line clamp

11/15 Hook in the form of a screw clamp

11/16 End pieces terminating in a soldering tip or socket
H01R

11/18 . . . End pieces terminating in a probe
11/20 . . . End pieces terminating in a needle point or analogous contact for penetrating insulation or cable strands
11/22 . . . End pieces terminating in a spring clip
11/24 . . . with gripping jaws, e.g. crocodile clip
11/26 . . . End pieces terminating in a screw clamp, screw or nut
11/28 . . . End pieces consisting of a ferrule or sleeve
11/28/1 . . . [for connections to batteries]
11/28/2 . . . [comprising means for facilitating engagement or disengagement, e.g. quick release terminal]
11/28/3 . . . [Bolt, screw or threaded ferrule parallel to the battery post]
11/28/4 . . . [comprising means for preventing corrosion, e.g. covers, enclosures filled with gel]
11/28/5 . . . [Battery post and cable secured by the same locking means]
11/28/6 . . . [having means for improving contact between battery post and clamping member, e.g. uneven interior surface]
11/28/7 . . . [Intermediate parts between battery post and cable end piece]
11/28/8 . . . [Interconnections between batteries]
11/28/9 . . . [characterised by the shape or the structure of the battery post]
11/30 . . . End pieces held in contact by a magnet
11/32 . . . End pieces with two or more terminations

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)

12/50 . . . Fixed connections
12/51 . . . for rigid printed circuits or like structures
12/51/5 . . . [Terminal blocks providing connections to wires or cables]
12/52 . . . connecting to other rigid printed circuits or like structures
12/52/3 . . . [by an interconnection through aligned holes in the boards or multilayer board]
12/52/6 . . . [the printed circuits being on the same board (with plated through holes H05K 3/42)]
12/53 . . . connecting to cables except for flat or ribbon cables
12/55 . . . characterised by the terminals
12/57 . . . surface mounting terminals
12/58 . . . terminals for insertion into holes
12/58/5 . . . [Terminals having a press fit or a compliant portion and a shank passing through a hole in the printed circuit board]
12/59 . . . for flexible printed circuits, flat or ribbon cables or like structures
12/59/2 . . . [connections to contact elements]
12/59/4 . . . [for shielded flat cable]

12/59/6 . . . [Connection of the shield to an additional grounding conductor, e.g. drain wire]
12/59/8 . . . [Each conductor being individually surrounded by shield, e.g. multiple coaxial cables in flat structure]
12/61 . . . connecting to flexible printed circuits, flat or ribbon cables or like structures
12/61/3 . . . [by means of interconnecting elements]
12/61/6 . . . [having contacts penetrating insulation for making contact with conductors, e.g. needle points]
12/62 . . . connecting to rigid printed circuits or like structures
12/63 . . . connecting to another shape cable
12/65 . . . characterised by the terminal
12/67 . . . insulation penetrating terminals
12/67/5 . . . [with contacts having at least a slotted plate for penetration of cable insulation, e.g. insulation displacement contacts for round conductor flat cables]
12/68 . . . comprising deformable portions
12/69 . . . deformable terminals, e.g. crimping terminals
12/70 . . . Coupling devices
12/70/05 . . . [Guiding, mounting, polarizing or locking means; Extractors (for printed circuit boards H05K)]
12/70/11 . . . [Locking or fixing a connector to a PCB]
12/70/17 . . . [Snap means]
12/70/23 . . . [integral with the coupling device]
12/70/29 . . . [not integral with the coupling device]
12/70/35 . . . [involving non-elastic deformation, e.g. plastic deformation, melting (H01R 12/7064 takes precedence)]
12/70/41 . . . [Gluing or tapping]
12/70/47 . . . [with a fastener through a screw hole in the coupling device]
12/70/52 . . . [characterised by the locating members]
12/70/58 . . . [characterised by the movement, e.g. pivoting, camming or translating parallel to the PCB]
12/70/64 . . . [Press fitting]
12/70/7 . . . [Soldering or welding]
12/70/76 . . . [for connection between PCB and component, e.g. display]
12/70/82 . . . [Coupling device supported only by cooperation with PCB]
12/70/88 . . . [Arrangements for power supply]
12/70/94 . . . [with switch operated by engagement of PCB]
12/71 . . . for rigid printing circuits or like structures
12/71/2 . . . [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)]
12/71/4 . . . [with contacts abutting directly the printed circuit; Button contacts therefore provided on the printed circuit]
12/71/6 . . . [Coupling device provided on the PCB]
12/71/8 . . . [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
12/72/1 . . . [cooperating directly with the edge of the rigid printed circuits]
groups H01R 12/70 or H01R 24/00 - H01R 33/00

13/00  Details of coupling devices of the kinds covered by
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  Resilently-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  Resilently-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 24/02)]
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
Means for preventing access to live contacts

- Comprising integral flexible contact retaining fingers
- Comprising two or more integral flexible retaining fingers acting on a single contact
- Securing in base or case composed of a plurality of insulating parts having at least one resilient insulating part
- Securing by a separate resilient retaining piece supported by base or case, e.g. collar (or metal contact-retention clip)
- by resilient locking means on the contact members; by locking means on resilient contact members
- by stamped-out resilient tongue snapping behind shoulder in base or case
- by separate resilient locking means on contact member, e.g. retainer collar or ring around contact member
- Securing a plurality of contact members by one locking piece (or operation)
- Insertion of locking piece perpendicular to direction of contact insertion
- [comprising a temporary and a final locking position]
- Insertion of locking piece from the front
- [comprising a temporary and a final locking position]
- Insertion of locking piece from the rear
- [comprising a temporary and a final locking position]

Means for preventing access to live contacts (making use of a switch actuated by engagement of counterpart H01R 13/7036)

- Dummy plugs
- Shutter or cover plate
- Shutter or cover plate opened by engagement of counterpart
- [Rotating shutter]
- [Laterally sliding shutter]
- [Inwardly pivoting shutter]
- [Covers sliding or withdrawing in the direction of engagement]

Bases; Cases

- Identification means, e.g. labels, tags, markings (H01R 9/2475, H01R 9/2683 take precedence)
- Formed as an integral body (H01R 13/514 takes precedence)
- [comprising an integral hinge or a fragile part]

Composed of different pieces (H01R 13/514 takes precedence)

- [one or more pieces being of resilient material]
- [different pieces being moulded, cemented, welded, e.g. ultrasonic, or swaged together]
- [different pieces being assembled by press-fit]
- assembled by snap action of the parts
- assembled by (a separate) clip or spring
- assembled by screw or screws
- composed as a modular blocks or assembly, i.e. composed of co-operating parts provided with contact members or holding contact members between them

Means for holding or embracing insulating body, e.g. casing (hoods)

- for holding or embracing several coupling parts, e.g. frames
- Dustproof, splashproof, drip-proof, waterproof, or flameproof cases
- (Sealing means between parts of housing or between housing part and a wall, e.g. sealing rings)
- [Sealing means between cable and housing, e.g. grommet (H01R 13/5221 takes precedence)]
- [having at least two cable receiving openings]
- [Sealing between contact members and housing, e.g. sealing insert]
- [Covers]
- [characterised by the sealing material, e.g. gels or resins]
- [Sealing means between coupling parts, e.g. interfacial seal]
- [having cable sealing means]
- [for medical use]
- [with evacuation of penetrating liquids]
- for use under water
- Flameproof cases (H01R 13/70 takes precedence)

- Bases or cases for heavy duty; Bases or cases (for high voltage) with means for preventing corona or arcing
- Bases, cases made for use in extreme conditions, e.g. high temperature, radiation, vibration, corrosive environment, pressure (H01R 13/52 takes precedence)
- Means for preventing chafing or fracture of flexible leads at outlet from coupling part
- (Bending-relieving)
- (Torsion-relieving)
- (Traverse cable outlet or wire connection)
- 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)
- [comprising a separate cable clamping part (H01R 13/5841 takes precedence)]
- [formed by a metallic element crimped around the cable (H01R 4/185 takes precedence)
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 43/20)]

13/62905 . . . [comprising a camming member (H01R 13/6293 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 gears]

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]

13/6298 . . . [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; coaxed connectors specially adapted for high frequency H01R 24/40)

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. GS [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 100, for electric apparatus H05K 90067) }
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 }
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
13/65912 . . . . { for shielded multiconductor cable ( coaxial cables with one conductor surrounded by shield H01R 9/05; flat shielded cables H01R 12/594) }
13/65914 . . . . { Connection of shield to additional grounding conductors }
13/65915 . . . . { Twisted pair of conductors surrounded by shield }
13/65917 . . . . { Connection to shield by means of resilient members }
13/65918 . . . . { wherein each conductor is individually surrounded by shield }
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 }
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
24/48 . . . . . . comprising protection devices, e.g. overvoltage protection
24/50 . . . . . mounted on a PCB [Printed Circuit Board]
24/52 . . . . . mounted in or to a panel or structure
24/525 . . . . . . . . . (Outlets)
24/54 . . . . . Intermediate parts, e.g. adapters, splitters or elbows
24/542 . . . . . . . . . (Adapters)
24/545 . . . . . . . . . (Elbows)
24/547 . . . . . . . . . (Splitters)
24/56 . . . . . . . . specially adapted to a specific shape of cables, e.g. corrugated cables, twisted pair cables, cables with two screens or hollow cables
24/562 . . . . . . . . . [Cables with two screens]
24/564 . . . . . . . . . [Corrugated cables]
24/566 . . . . . . . . . [Hollow cables]
24/568 . . . . . . . . . [Twisted pair cables]
24/58 . . . . . Contacts spaced along longitudinal axis of engagement
24/60 . . . . . Contacts spaced along planar side wall transverse to longitudinal axis of engagement
24/62 . . . . . Sliding engagements with one side only, e.g. modular jack coupling devices
24/64 . . . . . . for high frequency, e.g. RJ 45
24/66 . . . . . with pins, blades or analogous contacts and secured to apparatus or structure, e.g. to a wall
24/68 . . . . . mounted on directly pluggable apparatus
24/70 . . . . . with additional earth or shield contacts
24/76 . . . . . with sockets, clips or analogous contacts and secured to apparatus or structure, e.g. to a wall
24/78 . . . . . with additional earth or shield contacts
24/84 . . . . . Hermaphroditic coupling devices
24/86 . . . . . Parallel contacts arranged about a common axis
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)

Coupling parts adapted 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)

Coupling parts supported only by co-operation with counterpart

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 H01R 33/92)

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)

with counterpart

Coupling parts supported only by co-operation 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

Single-pole devices, e.g. holder for supporting one end of a tubular incandescent or neon lamp

Two-pole devices

with two current-carrying pins, blades or analogous contacts, having their axes parallel to each other

(for supporting starter switches)

for supporting tubular fluorescent lamp

having contacts on one side only

for a plurality of lamps

characterised by the contacts

characterised by the lamp holding means

(with axially resilient member)

with lamp rotating means

characterised by the mounting means

for mounting in an opening of a structure

composed of different pieces

integral with starter holding structure (H01R 33/065 for starters only)

for baseless lamp bulb

having only abutting contacts

having concentrically or coaxially arranged contacts

secured to structure or printed circuit board

for screw type base, e.g. for lamp

secured to structure or printed circuit board

for bayonet type base

secured to structure or printed circuit board

Three-pole devices

Devices having four or more poles {, e.g. holders for compact fluorescent lamps

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

the parallel terminal pins having a circular disposition

the terminals being connected to individual wires

the wires being connected using screw, clamp, wrap or spring connection

the wires being connected using solder

the terminals being collectively connected, e.g. to a PCB

socket snap fastened in an opening of a PCB

the terminal pins having a non-circular disposition

characterised by keying or marking means

having additional guiding, adapting, shielding, anti-vibration or mounting means

having multiple positions or sockets, e.g. stacked sockets while mounting

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

Short-circuiting members for bridging contacts in a counterpart

(for short-circuiting bus-strips)
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 35/00])
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
43/025 . . . [with mandrels actuated in axial direction to the wire]
43/027 . . . [fluid actuated hand crimping tools]
43/028 . . . [Power-driven hand crimping tools]
43/045 . . . with contact member feeding mechanism
43/048 . . . Crimping apparatus or processes (H01R 43/042 takes precedence)
43/042 . . . [combined with contact member manufacturing mechanism]
43/044 . . . [for eyelet contact members]
43/046 . . . [with force measuring means]
43/048 . . . [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
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