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.
[for cylindrical elongated bodies, e.g. cables having circular cross-section (H01R 4/01 takes precedence)]

{comprising a U-shaped wire-receiving portion}

{combined with a U-shaped insulation-receiving portion}

{using a body comprising a plurality of cable-accommodating recesses or bores}

{combined with soldering or welding}

{having an uneven wire-receiving surface to improve the contact}

using a crimping sleeve (H01R 4/01 takes precedence)

{having an uneven wire-receiving surface to improve the contact}

{with transversal grooves or threads}

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 and H01R 4/2407 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.

actuated by clamping screws

WARNING

Group H01R 4/2408 is impacted by reclassification into groups H01R 4/2406 and H01R 4/2407.

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

actuated by insulated cams or wedges

WARNING

Group H01R 4/2412 is impacted by reclassification into groups H01R 4/2406 and H01R 4/2407.

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

the contact members having insulation-cutting edges, e.g. of tuning fork type

the contact members being plates having a single slot

Flat plates, e.g. multi-layered flat plates

mounted in an insulating base

one part of the base being movable to push the cable into the slot

Curved plates

tube-shaped

the contact members having additional means acting on the insulation or the wire, e.g. additional insulation penetrating means, strain relief means or wire cutting knives

the additional means having two or more slotted flat portions

WARNING

Group H01R 4/245 is impacted by reclassification into groups H01R 4/2452 and H01R 4/2456.

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

in serial configuration, e.g. opposing folded slots

WARNING

Group H01R 4/2452 is incomplete pending reclassification of documents from group H01R 4/245.

Groups H01R 4/245 and H01R 4/2452 should be considered in order to perform a complete search.

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.
4/245 . . . . forming a slotted bight

**WARNING**

Group **H01R 4/2455** is incomplete pending reclassification of documents from group **H01R 4/244**. Groups **H01R 4/244** 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 4/244**. 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 4/401**)

4/28 . . . . Clamped connections, spring connections (made by means of terminals specially adapted for contact with, or insertion into, printed circuits **H01R 12/00**)

4/30 . . . . utilising a screw or nut clamping member (**H01R 4/50** takes precedence; utilising a clamping member acted on by screw or nut **H01R 4/38**: for coaxial cables **H01R 9/0521**)

4/301 . . . . [having means for preventing complete unscrewing of screw or nut]

4/302 . . . . [having means for preventing loosening of screw or nut, e.g. vibration-proof connection]

4/304 . . . . [having means for improving contact]

4/305 . . . . [having means for facilitating engagement of conductive member or for holding it in position]

4/307 . . . . [characterised by the thread of the screw or nut]

4/308 . . . . [Conductive members located parallel to axis of screw]

4/32 . . . . Conductive members located in slot or hole in screw

4/34 . . . . Conductive members located under head of screw

4/36 . . . . Conductive members located under tip of screw

4/363 . . . . [with intermediate part between tip and conductive member]

4/366 . . . . [intermediate part attached to the tip of the screw]

4/38 . . . . utilising a clamping member acted on by screw or nut (**H01R 4/50** takes precedence)

4/40 . . . . Pivotal clamping member

4/42 . . . . Clamping area to one side of screw only

4/44 . . . . Clamping areas on both sides of screw

4/46 . . . . Clamping area between two screws placed side by side

4/48 . . . . utilising a spring, clip, or other resilient member (**H01R 4/52** takes precedence)

4/4809 . . . . [using a leaf spring]

4/4818 . . . . [adapted for axial insertion of a wire end]

4/4827 . . . . [with an opening in the housing for insertion of a release tool]

4/4836 . . . . [with integral release means]

4/4845 . . . . [insertion of a wire only possible by pressing on the spring]

4/4854 . . . . [using a wire spring]

4/4863 . . . . [Coil spring]

4/4872 . . . . [axially compressed to retain wire end]

4/4881 . . . . [using a louver type spring]

4/489 . . . . [spring force increased by screw, cam, wedge, or other fastening means]

4/50 . . . . utilising a cam, wedge, cone or ball [also combined with a screw]

4/5008 . . . . [using rotatable cam]

4/5016 . . . . [using a cone]

4/5025 . . . . [combined with a threaded ferrule operating in a direction parallel to the conductor]

4/5033 . . . . [using wedge or pin penetrating into the end of a wire in axial direction of the wire]

4/5041 . . . . [using a tapered groove]

4/505 . . . . [using an excentric element]

4/5058 . . . . [using a ball]

4/5066 . . . . [mounted in an insulating housing having a cover providing clamping force]

4/5075 . . . . [having an uneven wire receiving surface to improve the contact]

4/5083 . . . . [using a wedge]

4/5091 . . . . [combined with a screw]

4/52 . . . . which is spring loaded

4/54 . . . . [Bayonet or keyhole]

4/56 . . . . one conductor screwing into another

4/58 . . . . characterised by the form or material of the contacting members (**H01R 4/01** takes precedence)

4/60 . . . . Connections between or with tubular conductors (**H01R 4/56** takes precedence)

4/62 . . . . Connections between conductors of different materials; Connections between or with aluminium or steel-core aluminium conductors (**H01R 4/68** takes precedence)

4/625 . . . . [Soldered or welded connections]

4/64 . . . . Connections between or with conductive parts having primarily a non-electric function, e.g. frame, casing, rail
9/00 Structural associations of a plurality of mutually-insulated electrical connecting elements, e.g. terminal strips or terminal blocks; Terminals or binding posts mounted upon a base or in a case; Bases therefor

9/03 Connectors arranged to contact a plurality of the conductors of a multiconductor cable, e.g. tapping connections

9/031 for multiphase cables, e.g. with contact members penetrating insulation of a plurality of conductors (insulation penetrating contact members in general H01R 4/24)

9/032 for shielded multiconductor cable (coaxial cables with one conductor surrounded by shield H01R 9/05; flat shielded cables H01R 12/594)

WARNING

Groups H01R 9/032-H01R 9/038 are no longer used for the classification of new documents as from January 1, 2011.

The content of these groups is being reclassified into groups H01R 13/658 - H01R 13/659.

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

9/034 connection of the shield to an additional grounding conductor

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

9/04 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)
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

End pieces terminating in an eye, hook, or fork

End pieces terminating in a needle point or analogous contact for penetrating insulation or cable strands

End pieces consisting of a ferrule or sleeve

End pieces consisting of a screw clamp

End pieces terminating in a soldering tip or socket

End pieces terminating in a probe

End pieces terminating in a spring clip

End pieces terminating in a screw clamp, screw or nut

End pieces consisting of a ferrule or sleeve

Hook in the form of a screw clamp

End pieces terminating in a soldering tip or socket

End pieces terminating in a probe

End pieces terminating in a needle point or analogous contact for penetrating insulation or cable strands

End pieces consisting of a ferrule or sleeve

[for connections to batteries]

[comprising means for facilitating engagement or disengagement, e.g. quick release terminal]

[Bolt, screw or threaded ferrule parallel to the battery post]

[comprising means for preventing corrosion, e.g. covers, enclosures filled with gel]

[Battery post and cable secured by the same locking means]

[having means for improving contact between battery post and clamping member, e.g. uneven interior surface]

[Intermediate parts between battery post and cable end piece]

[Interconnections between batteries]

[characterised by the shape or the structure of the battery post]

End pieces held in contact by a magnet

End pieces with two or more terminations

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)
12/7035 . . . . (involving non-elastic deformation, e.g. plastic deformation, melting (H01R 12/7064 takes precedence))
12/7041 . . . . (Gluing or taping)
12/7047 . . . . (with a fastener through a screw hole in the coupling device)
12/7052 . . . . (characterised by the locating members)
12/7058 . . . . (characterised by the movement, e.g. pivoting, camming or translating parallel to the PCB)
12/7064 . . . . (Press fitting)
12/707 . . . . (Soldering or welding)
12/7076 . . . . (for connection between PCB and component, e.g. display)
12/7082 . . . . (Coupling device supported only by cooperation with PCB)
12/7088 . . . . (Arrangements for power supply)
12/7094 . . . . (with switch operated by engagement of PCB)
12/71 . . . . (for rigid printing circuits or like structures)
12/712 . . . . (co-operating with the surface of the printed circuit or with a coupling device exclusively provided on the surface of the printed circuit (H01R 12/72 takes precedence))
12/714 . . . . (with contacts abutting directly the printed circuit; Button contacts therefore provided on the printed circuit)
12/716 . . . . (Coupling device provided on the PCB)
12/718 . . . . (Contact members provided on the PCB without an insulating housing (contacts for abutting H01R 12/714))
12/72 . . . . (coupling with the edge of the rigid printed circuits or like structures)
12/721 . . . . (cooperating directly with the edge of the rigid printed circuits)
12/722 . . . . (coupling devices mounted on the edge of the printed circuits)
12/724 . . . . (containing contact members forming a right angle)
12/725 . . . . (containing contact members presenting a contact carrying strip, e.g. edge-like strip)
12/727 . . . . (Coupuling devices presenting arrays of contacts)
12/728 . . . . (Coupling devices presenting arrays of contacts)
12/73 . . . . (coupling devices presenting an insulating housing on the edge of the PCB)
12/732 . . . . (Printed circuits being in the same plane)
12/735 . . . . (Printed circuits including an angle between each other)
12/737 . . . . (Printed circuits being substantially perpendicular to each other (for printed connections H05K 3/366))
12/75 . . . . (connecting to cables except for flat or ribbon cables)
12/77 . . . . (for flexible printed circuits, flat or ribbon cables or like structures)
12/771 . . . . (Details)
12/772 . . . . (Strain relieving means)
12/774 . . . . (Retainers)
12/775 . . . . (Ground or shield arrangements)
12/777 . . . . (Coupling parts carrying pins, blades or analogous contacts (H01R 12/78, H01R 12/79 take precedence))

12/778 . . . . (Coupling parts carrying sockets, clips or analogous counter-contacts (H01R 12/78, H01R 12/79 take precedence))
12/78 . . . . (connecting to other flexible printed circuits, flat or ribbon cables or like structures)
12/79 . . . . (connecting to rigid printed circuits or like structures)
12/81 . . . . (connecting to another cable except for flat or ribbon cable)
12/82 . . . . (connected with low or zero insertion force)
12/83 . . . . (connected with pivoting of printed circuits or like after insertion)
12/85 . . . . (contact pressure producing means, contacts activated after insertion of printed circuits or like structures)
12/853 . . . . (Fluid activated)
12/856 . . . . (activated by shape memory material)
12/87 . . . . (acting automatically by insertion of rigid printed or like structures)
12/88 . . . . (acting manually by rotating or pivoting connector housing parts)
12/89 . . . . (acting manually by moving connector housing parts linearly, e.g. slider)
12/91 . . . . (allowing relative movement between coupling parts, e.g. floating or self aligning (for coupling devices not specially adapted for printed circuits, flat or ribbon cables, or like generally planar structures, H01R 13/6315 takes precedence))

13/00 Details of coupling devices of the kinds covered by groups H01R 12/70 or H01R 24/00 - H01R 33/00
13/005 . . . . (Electrical coupling combined with fluidic coupling)
13/02 . . . . Contact members
13/025 . . . . (formed by the conductors of a cable end)
13/03 . . . . (characterised by the material, e.g. plating, or coating materials)
13/035 . . . . (Plated dielectric material)
13/04 . . . . (Pins or blades for co-operation with sockets)
13/05 . . . . (Resilient pins or blades (carrying separate resilient parts H01R 13/15))
13/052 . . . . (co-operating with sockets having a circular transverse section)
13/055 . . . . (co-operating with sockets having a rectangular transverse section)
13/057 . . . . (co-operating with sockets having a square transverse section)
13/08 . . . . (Resiliently-mounted rigid pins or blades)
13/10 . . . . (Sockets for co-operation with pins or blades)
13/11 . . . . (Resilient sockets (carrying separate resilient parts H01R 13/15))
13/111 . . . . (co-operating with pins having a circular transverse section)
13/112 . . . . (forked sockets having two legs)
13/113 . . . . (co-operating with pins or blades having a rectangular transverse section)
13/114 . . . . (co-operating with pins or blades having a square transverse section)
13/115 . . . . (U-shaped sockets having inwardly bent legs, e.g. spade type)
13/14 . . . . (Resiliently-mounted rigid sockets)
13/15 . . . . (Pins, blades or sockets having separate spring member for producing or increasing contact pressure)
H01R

13/17 . . . . with spring member on the pin
13/18 . . . . with the spring member surrounding the socket
13/187 . . . . with spring member in the socket
13/193 . . . Means for increasing contact pressure at the end of engagement of coupling part { e.g. zero insertion force or no friction }
13/20 . . . Pins, blades, or sockets shaped, or provided with separate member, to retain co-operating parts together
13/207 . . . . by screw-in connection
13/213 . . . . by bayonet connection
13/22 . . . Contacts for co-operating by abutting
13/24 . . . resilient; resiliently-mounted
13/2407 . . . [characterized by the resilient means]
13/2414 . . . . . . (conductive elastomers)
13/2421 . . . . . . (using coil springs)
13/2428 . . . . . . (using meander springs)
13/2435 . . . . . . [with opposite contact points, e.g. C beam]
13/2442 . . . . . . [with a single cantilevered beam]
13/245 . . . . . . [by stamped-out resilient contact arm]
13/2457 . . . . . . (consisting of at least two resilient arms contacting the same counterpart)
13/2464 . . . . . . [characterized by the contact point]
13/2471 . . . . . . (pin shaped)
13/2478 . . . . . . (spherical)
13/2485 . . . . . . (for contacting a ball)
13/2492 . . . . . . (multiple contact points)
13/26 . . . Pin or blade contacts for sliding co-operation on one side only {(for modular jack type connectors H01R 24/62)}
13/28 . . . Contacts for sliding cooperation with identically-shaped contact, e.g. for hermaphroditic coupling devices (H01R 24/84 takes precedence)
13/33 . . . Contact members made of resilient wire
13/35 . . . for non-simultaneous co-operation with different types of contact member, e.g. socket co-operating with either round or flat pin
13/40 . . . Securing contact members in or to a base or case; Insulating of contact members
13/405 . . . . . . Securing in non-demboltable 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]
Means for facilitating engagement or disengagement of coupling parts, e.g. aligning or disengagement of mating connectors, e.g. recess provided to this purpose on the Printed circuit boards, flat or ribbon cables, means for preventing incorrect coupling of mating connectors.

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; coaxed connectors specially adapted for high frequency H01R 24/40)

WARNING

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

13/6461 . . .  Means for preventing cross-talk

13/6463 . . .  using twisted pairs of wires

13/6464 . . .  by adding capacitive elements

13/6466 . . . .  on substrates, e.g. PCBs [Printed Circuit Boards]

13/6467 . . . .  by cross-over of signal conductors

13/6469 . . . .  on substrates

13/6471 . . . .  by special arrangement of ground and signal conductors, e.g. GSGS [Ground-Signal-Ground-Signal]

13/6473 . . . .  Impedance matching

13/6474 . . . .  by variation of conductive properties, e.g. by dimension variations

13/6476 . . . .  by making an aperture, e.g. a hole

13/6477 . . . .  by variation of dielectric properties

13/648 . . .  Protective earth or shield arrangements on coupling devices, {e.g. anti-static shielding} (coaxially arranged shields H01R 24/38)

13/6485 . . .  [Electrostatic discharge protection (in general H05F 1/00, for electric apparatus H05K 9/0067)]

13/652 . . .  with earth pin, blade or socket

13/655 . . .  with earth brace

13/658 . . .  High frequency shielding arrangements, e.g. against EMI [Electro-Magnetic Interference] or EMP [Electro-Magnetic Pulse] (coaxial coupling devices specially adapted for high frequency H01R 24/40; for flat or ribbon cable connectors H01R 12/774; for coaxial cable H01R 9/005)

WARNING

Groups H01R 13/658 – H01R 13/6599 are incomplete pending reclassification of documents from groups H01R 9/032 – H01R 9/038.

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

13/6581 . . .  Shield structure

13/6582 . . .  with resilient means for engaging mating connector

13/6583 . . . .  with separate conductive resilient members between mating shield members

13/6584 . . . .  formed by conductive elastomeric members, e.g. flat gaskets or O-rings

13/6585 . . . .  Shielding material individually surrounding or interposed between mutually spaced contacts

13/6586 . . . .  for separating multiple connector modules

13/6587 . . . .  for mounting on PCBs

13/6588 . . . .  with through openings for individual contacts

13/6589 . . . .  with wires separated by conductive housing parts

13/659 . . . .  with plural ports for distinct connectors

13/6591 . . . .  Specific features or arrangements of connection of shield to conductive members

13/6592 . . . .  the conductive member being a shielded cable

13/6593 . . . .  the shield being composed of different pieces

13/6594 . . . .  the shield being mounted on a PCB and connected to conductive members

13/6595 . . . .  with separate members fixing the shield to the PCB

13/6596 . . . .  the conductive member being a metal grounding panel

13/6597 . . . .  the conductive member being a contact of the connector

13/6598 . . . .  Shield material

13/6599 . . . .  Dielectric material made conductive, e.g. plastic material coated with metal

13/66 . . .  Structural association with built-in electrical component (coupling devices having concentrically or coaxially-arranged contacts H01R 24/38)

13/6608 . . .  {with built-in single component (H01R 13/68, H01R 13/70 take precedence)}

13/6616 . . .  {with resistor}

13/6625 . . .  {with capacitive component}

13/6633 . . .  {with inductive component, e.g. transformer}

13/6641 . . .  {with diode (H01R 13/7175)}

13/665 . . .  {with built-in electronic circuit (H01R 13/70, H01R 13/719 take precedence)}
13/6668 . . . the fuse being removable
13/6688 . . . . 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 ferrie filters
13/7195 . . . with planar filters with openings for contacts
13/7197 . . . with filters integral with or fitted onto contacts, e.g. tubular filters
13/72 . . . Means for accommodating flexible lead within the holder
13/73 . . . Means for mounting coupling parts to apparatus or structures, e.g. to a wall
13/74 . . . Means for mounting coupling parts in openings of a panel
13/741 . . . . [using snap fastening means]
13/743 . . . . . [integral with the housing]
13/745 . . . . . . [separate from the housing]
13/746 . . . . . [using a screw ring]
13/748 . . . . . . [using one or more screws (H01R 13/746 takes precedence)]

24/00 Two-part coupling devices, or either of their cooperating parts, characterised by their overall structure (contact members H01R 13/02; securing contact members in or to a base or case or insulating of contact members H01R 13/40; bases or cases H01R 13/46; means for supporting coupling part when not engaged H01R 13/60; means for facilitating engagement or disengagement of coupling parts or for holding them in engagement H01R 13/62; means for preventing, inhibiting or avoiding incorrect coupling H01R 13/64)

NOTE

In this group, it is desirable to add the indexing codes of groups H01R 2101/00 - H01R 2107/00

24/005 . . . [requiring successive relative motions to complete the coupling, e.g. bayonet type]
24/20 . . . Coupling parts carrying sockets, clips or analogous contacts and secured only to wire or cable
24/22 . . . . with additional earth or shield contacts
24/28 . . . Coupling parts carrying pins, blades or analogous contacts and secured only to wire or cable
24/30 . . . . with additional earth or shield contacts
24/38 . . . having concentrically or coaxially arranged contacts
24/40 . . . specially adapted for high frequency
24/42 . . . . comprising impedance matching means or electrical components, e.g. filters or switches
24/44 . . . . comprising impedance matching means
24/46 . . . . comprising switches
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
24/54 . . . {Outlets]
24/56 . . . Intermediate parts, e.g., adapters, splitters or elbows
24/56 . . . {Adapters}
24/56 . . . {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
24/56 . . . {Cables with two screens}
24/56 . . . {Corrugated cables}
24/56 . . . {Hollow cables}
24/56 . . . {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

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 33/98)

25/003 . [the coupling part being secured only to wires or cables]
25/006 . {the coupling part being secured to apparatus or structure, e.g., duplex wall receptacle]
25/14 . Rails or bus-bars constructed so that the counterparts can be connected thereto at any point along their length (supporting elements for lighting devices, displaced along guiding elements and making electrical contact with conductors running along the guiding elements E21V 21/35)

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

25/161 . . {Details}
25/162 . . . {Electrical connections between or with rails or bus-bars (rails having primarily a non electrical function H01R 4/64)]

25/164 . . . {Connecting locations formed by flush mounted apparatus]
25/165 . . . {Connecting locations formed by surface mounted apparatus]
25/167 . . . {Connecting locations formed by staggering mounted apparatus]
25/168 . . . {the connecting locations being situated away from the rail or bus-bar]

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)

27/02 . . for simultaneous co-operation with two or more (dissimilar) counterparts

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]

31/00 Coupling parts supported only by co-operation with counterpart

31/005 . . {Intermediate parts for distributing signals]
31/02 . . Intermediate parts for distributing energy to two or more circuits in parallel, e.g. splitter (with a holder adapted for supporting apparatus to which its counterpart is attached H01R 33/92)
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)
31/065 . . . {with built-in electric apparatus]
31/08 . Short-circuiting members for bridging contacts in a counterpart
31/085 . . . {Short circuiting bus-strips]

33/00 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

33/02 . . Single-pole devices, e.g. holder for supporting one end of a tubular incandescent or neon lamp
33/05 . Two-pole devices
33/06 . . . with two current-carrying pins, blades or analogous contacts, having their axes parallel to each other

33/065 . . . {for supporting starter switches]
33/08 . . for supporting tubular fluorescent lamp
33/0809 . . . . {having contacts on one side only]
33/0818 . . . . {for a plurality of lamps]
33/0827 . . . . {characterised by the contacts]
33/0836 . . . . {characterised by the lamp holding means]
33/0845 . . . . {with axially resilient member]
33/0854 . . . . {with lamp rotating means]
33/0863 . . . . {characterised by the mounting means]
33/0872 . . . . {for mounting in an opening of a structure]
33/0881 . . . . {composed of different pieces]
33/089 . . . . {integral with starter holding structure (H01R 33/065 for starters only)]
33/09 . . . for baseless lamp bulb
33/18 . . having only abutting contacts
33/20 . . having concentrically or coaxially arranged contacts
33/205 . . [secured to structure or printed circuit board]
33/22 . . for screw type base, e.g., for lamp
33/225 . . [secured to structure or printed circuit board]
33/46 . . for bayonet type base
33/465 . . [secured to structure or printed circuit board]
33/72 . . Three-pole devices
33/74 . . Devices having four or more poles, e.g., holders for compact fluorescent lamps
33/76 . . Holders with sockets, clips, or analogous contacts adapted for axially-sliding engagement with parallelly-arranged pins, blades, or analogous contacts on counterpart, e.g., electronic tube socket
33/7607 . . [the parallel terminal pins having a circular disposition]
33/7614 . . [the terminals being connected to individual wires]
33/7621 . . [the wires being connected using screw, clamp, wrap or spring connection]
33/7628 . . [the wires being connected using solder]
33/7635 . . [the terminals being collectively connected, e.g., to a PCB]
33/7642 . . [socket snap fastened in an opening of a PCB]
33/765 . . [the terminal pins having a non-circular disposition]
33/7657 . . [characterised by keying or marking means]
33/7664 . . [having additional guiding, adapting, shielding, anti-vibration or mounting means]
33/7671 . . [having multiple positions or sockets, e.g., stacked sockets while mounting]
33/7678 . . [having a separated part for spark preventing means]
33/7685 . . [having internal socket contact by abutting]
33/7692 . . [for supporting a tubular fluorescent lamp [for two-pole devices H01R 33/06]]
33/88 . adapted for simultaneous co-operation with two or two more identical counterparts
33/90 . adapted for co-operation with two or two more dissimilar counterparts
33/92 . Holders formed as intermediate parts for distributing energy in parallel through two or two more counterparts at least one of which is attached to apparatus to be held
33/94 . Holders formed as intermediate parts for linking a counter-part to a coupling part
33/942 . . [for tubular fluorescent lamps]
33/945 . Holders with built-in electrical component
33/9453 . . [for screw type coupling devices]
33/9456 . . [for bayonet type coupling devices]
33/95 . with fuse; with thermal switch
33/955 . . with switch operated manually and independent of engagement or disengagement of coupling
33/9555 . . [for screw type coupling devices]
33/96 . with switch operated by engagement or disengagement of coupling
33/962 . . [for screw type coupling devices]
33/965 . Dustproof, splashproof, drip-proof, waterproof, or flameproof holders
33/9651 . . [for screw type coupling devices]
33/9653 . . [neither pole becoming electrically connected until the coupling parts are substantially engaged]
33/9655 . . [for bayonet type coupling devices]
33/9656 . . [neither pole becoming electrically connected until the coupling parts are substantially engaged]
33/9658 . . [for tubular fluorescent lamps]
33/97 . Holders with separate means to prevent loosening of the coupling or unauthorised removal of apparatus held
33/971 . . [for screw type coupling devices]
33/973 . . [for bayonet type coupling devices]
33/975 . Holders with resilient means for protecting apparatus against vibrations or shocks
33/9753 . . [for screw type coupling devices]
33/9756 . . [for bayonet type coupling devices]
35/00 Flexible or turnable line connectors [i.e. the rotation angle being limited] (rotary current collectors, distributors H01R 39/00)
35/02 Flexible line connectors [without frictional contact members]
35/025 . [having a flexible conductor wound around a rotation axis]
35/04 . Turnable line connectors with limited rotation angle [with frictional contact members]
39/00 Rotary current collectors, distributors or interrupters
39/02 Details [for dynamo electric machines [for current collectors not particularly for dynamo electric machines H01R 39/60, H01R 39/64]]
39/022 . [characterised by the materials used, e.g., ceramics]
39/025 . . [Conductive materials]
39/027 . . [Insulating materials]
39/04 . Commutators wherein the segments are formed by extensions of dynamo-electric machine winding H02K)
39/045 . . [the commutators being made of carbon]
39/06 . . other than with external cylindrical contact surface, e.g., flat commutators
39/08 . Slip-rings
39/085 . . [the slip-rings being made of carbon]
39/10 . . other than with external cylindrical contact surface, e.g., flat slip-rings
39/12 . . using bearing or shaft surface as contact surface
39/14 . Fastenings of commutators or slip-rings to shafts
39/16 . . by means of moulded or cast material applied during or after assembly
39/18 . Contacts for co-operation with commutator or slip-ring, e.g., contact brush
39/20 . . characterised by the material thereof
39/22 . . incorporating lubricating or polishing ingredient
39/24 . . Laminated contacts; Wire contacts, e.g., metallic brush, carbon fibres
39/26 . . Solid sliding contacts, e.g., carbon brush
39/27 . . . End caps on carbon brushes to transmit spring pressure
39/28 . . Roller contacts; Ball contacts
39/30 . . Liquid contacts
39/32 . . Connections of conductor to commutator segment
Connections of conductor to slip-ring

Connections of cable or wire to brush

Brush holders

[characterised by the application of pressure to brush]

[characterised by the electrical connection to the brush holder]

[Means for mechanical fixation of the brush holder]

[Electrically insulated bolts]

[characterised by the material of the brush holder]

wherein the brush is fixedly mounted in the holder

enabling brush movement within holder during current collection

cartridge type

with self-recoiling spring

Devices for lifting brushes

Devices for shifting brushes

Auxiliary means for improving current transfer, or for reducing or preventing sparking or arcing

by air blast; by surrounding collector with non-conducting liquid or gas

Barriers placed between brushes

by use of magnets

by use of impedance between brushes or segments

Devices for lubricating or polishing slip-rings or commutators during operation of the collector

Means structurally associated with the current collector for indicating condition thereof, e.g. for indicating brush wear

Means structurally associated with the brushes for interrupting current (H01R 39/58 takes precedence)

Devices for interrupted current collection, e.g. commutating device, distributor, interrupter (self-interrupters H01H, e.g. H01H 51/34)

with more than one brush co-operating with the same set of segments

Devices for uninterrupted current collection

[through ball or roller bearing]

[through an electrical conductive fluid]

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 50/00)

Devices for interrupted current collection, e.g. distributor (electrically-operated selector switches H01H 67/00)

Apparatus or processes specially adapted for manufacturing, assembling, maintaining, or repairing of line connectors or current collectors or for joining electric conductors (of trolley lines B60M 1/28)

[Maintenance of line connectors, e.g. cleaning]

[for making dustproof, splashproof, drip-proof, waterproof, or flameproof connection, coupling, or casing]

[for elastomeric connecting elements]

for connecting unstripped conductors to contact members having insulation cutting edges

[Handtools]

for soldered or welded connections

[Ultrasound-, H.F.-, cold- or impact welding]

[Resistance welding (H01R 43/0228 takes precedence)]

[Laser welding (H01R 43/0228 takes precedence)]

without preliminary removing of insulation before soldering or welding

for applying solder (H01R 43/0228 takes precedence)

comprising means for controlling the temperature, e.g. making use of the curie point

for simultaneous welding or soldering of a plurality of wires to contact elements

for soldering or welding connectors to a printed circuit board

for positioning or holding parts during soldering or welding process

for connecting conductors by clips

(by using explosive force)

for wrapping or unwrapping wire connections

for unwrapping

for forming connections by deformation, e.g. crimping tool

Hand tools for crimping

[combined with other functions, e.g. cutting]

[operated by an explosive force]

[with more than two radially actuated mandrels]

[with mandrels actuated in axial direction to the wire]

[fluid actuated hand crimping tools]

[Power-driven hand crimping tools]

with contact member feeding mechanism

Crimping apparatus or processes (H01R 43/042 takes precedence)

[combined with contact member manufacturing mechanism]

[for eyelet contact members]

[with force measuring means]

[with crimp height adjusting means]

with wire-insulation stripping

with wire-feeding mechanism

with contact member feeding mechanism

Crimping mandrels

for crimping apparatus with more than two radially actuated mandrels

Manufacture of commutators

in which segments are not separated until after assembly

Manufacture of slip-rings

Manufacture of brushes

Maintenance of current collectors, e.g. reshaping of brushes, cleaning of commutators

for manufacturing contact members, e.g. by punching and by bending

for manufacturing bases or cases for contact members

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

2101/00 One pole
2103/00 Two poles
2105/00 Three poles
2107/00 Four or more poles

2201/00 Connectors or connections adapted for particular
applications
2201/02 . for antennas
2201/04 . for network, e.g. LAN connectors
2201/06 . for computer periphery
2201/08 . for halogen lamps
2201/10 . for dynamoelectric machines
2201/12 . for medicine and surgery
2201/14 . seismic connectors
2201/16 . for telephony
2201/18 . for television
2201/20 . for testing or measuring purposes
2201/22 . for transformers or coils
2201/24 . for radio transmission
2201/26 . for vehicles