July 12, 1932. H. SADACCA 1,867,381

CIRCUIT TAP CONNECTION

Filed Dec. 29, 1926

Fig. 1.

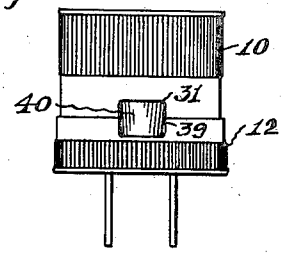
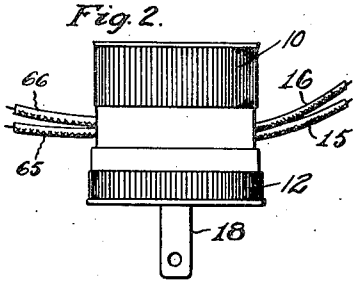


Fig. 2.



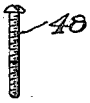


Fig. 7

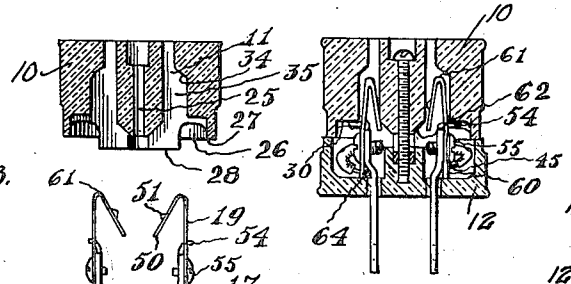


Fig. 4.

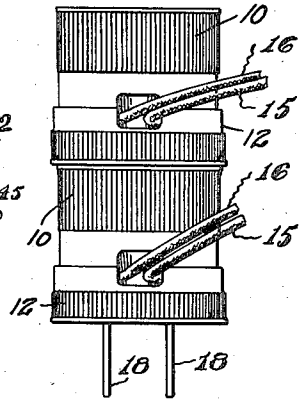
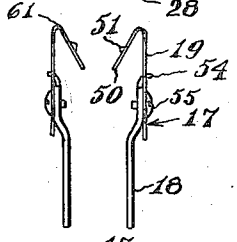
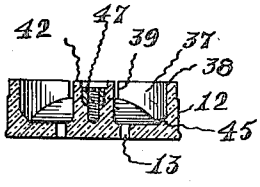


Fig. 3.





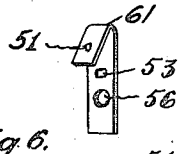


Fig. 6.

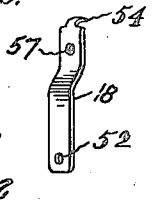


Fig. 5.

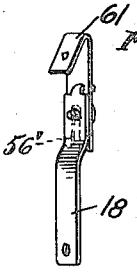


Fig. 8

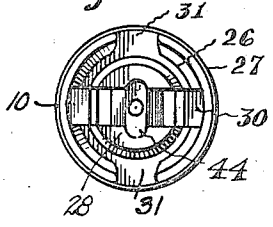
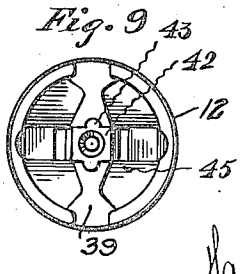


Fig. 9



INVENTOR

Henri Sadacca,

BY

Harold D. Penner, ATTORNEY

Patented July 12, 1932 1,867,381

UNITED STATES PATENT OFFICE

HENRI SADACCA, OF CITY ISLAND, NEW YORK, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE MONOWATT ELECTRIC CORPORATION, OF BRIDGEPORT, CONNECTICUT, A CORPORATION OF CONNECTICUT

CIRCUIT TAP CONNECTION

Application filed December 29, 1926. Serial No. 157,850.

My present invention relates to electrical connections or current taps for taping electric current sources for any purpose, but preferably for connecting, to electrical current sources, a plurality of multiple light circuits for decorative and other purposes employing small amounts of current and wherein great flexibility in making connections is desired.

Some of the advantages of my construction relate to the simplicity of the parts utilized and the small number thereof substantially only a four-part assembly being utilized.

The foregoing also results in greater economy of manufacturing costs, while preserving the safety features needed when such devices are used by non-technical purchasers.

When my device is in use, there are no exposed metallic current conducting means to cause injury to the user, whether one or a plurality of devices are connected in the circuit, and the connections may be made quickly and conveniently without danger while the associated taps are in or out of circuit.

Provision is also made whereby the conductive terminal members within the insulator elements perform the function of acting as individual lamp series circuit terminals, multiple connectors for additional series circuits, but, also owing to their conformation, and the contours of the seats therefor within the insulator housing, the assembly of these together, automatically lock the terminal members in practically immovable operative position, thereby obviating fastening means other than a simple insulator housing screw fastening means.

In general, my device in its more elaborate form comprises a connection adapted to be superposed upon similar connections for connecting in as many circuits as desired, each connection comprising a body member and a cover member. The body member is provided on its inner face with a notched outer wall, and has longitudinal socket openings passing therethrough. The cover or retaining member is disposed on said inner face and is also provided with an outer wall having notches supplementing the notches of the body member to form outlets for conductors, said retaining member having also blade receiving openings alined with said socket openings. The circuit conductors for the lamps to be lighted are passed in through said outlets and connected to conducting members comprising blades projected from said blade receiving openings and spring contact pieces in said socket opening adapted to press against a blade of an adjacent connection. The end connection may be connected to an ordinary socket connected by a cord to a current source.

Another object of the invention is to provide a device of this kind which is easy to connect with similar connections and which will not accidentally become disconnected.

Another object of the invention is to provide a device of this kind in which the conductor blades and contacts are efficiently held in proper position.

Another object of the invention is to provide an apparatus or device of this kind which may be easily and quickly assembled for use and which will not accidently become disassembled.

The invention also contemplates a connector for the purposes above referred to wherein the conducting members and the insulating body member and retaining member are so designed that the conducting parts are accommodated within and by the insulating parts, and fixedly secured in place by the attachment of the retaining member and body member together.

Other objects of the invention are to improve generally the simplicity and efficiency of such devices and to provide a device or apparatus of this kind which is durable and reliable in use, and economical to manufacture.

Still other objects of the invention will appear as the description proceeds; and while herein details of the invention are described and claimed, the invention is not limited to these, since many and various changes may be made without departing from the scope of the invention as claimed in the broader claims.

The inventive features for the accomplish-

ment of these and other objects are shown herein in connection with the improved connections shown in the accompanying drawing.

In the accompanying drawing, showing by way of example, one of many possible embodiments of the invention,

Fig. 1 is a front view of my device;

Fig. 2 is a side view thereof;

Fig. 3 is a disassembled group view of the various parts of assembly, in position for assembly, some parts being in section;

Fig. 4 shows a multiple connection for two series circuits;

Fig. 5 is a perspective view of a terminal member assembled;

Fig. 6 shows the details, in perspective, disassembled;

Fig. 7 is an axial vertical sectional view, partly in elevation, showing the connection assembled;

Fig. 8 is an inner face view of the body member; and

Fig. 9 is an inner face view of the cover member.

Each connection comprises a body member 10 provided with longitudinal socket openings 11 (Fig. 3) pasing therethrough, and a retaining member 12 on said body member provided with blade receiving openings 13 alined with said socket openings. The circuit conductors 15 and 16 (Fig. 2) are connected to conducting members 17 (Fig. 3) comprising blades 18 projected from said blade receiving openings 11 and contact portions 19 in said socket openings adapted to be engaged by blades of adjacent connections.

The socket or body member 10 is substantially cylindrical and of suitable insulating material and is provided with a countersunk axial bore 25 (Fig. 3), an annular groove 26 around its inner end face forming an outer wall 27 and a central boss 28 higher than the outer wall. Its inner face is also provided with a wide shallow diametrically transverse groove 30 (Fig. 8) disposed across said boss and the bottom of the annular groove and terminating at the inner face of the wall midway between notches 31.

The socket openings 11 are of elongated cross-section and intersect the margin of said boss and said transverse groove and each has in its outer face a beveled shoulder 34 (Fig. 3) forming a reduced outer end and providing an enlarged inner portion 35.

The retaining cover member 12 is provided at its inner face with a wide annular groove 37 forming an outer wall 38 having notches 39 supplementing the notches 31 of the body member to form outlets 40 (Fig. 1) for the conductors 15, 16.

A central lug 42 on said inner face is fitted in said transverse groove 30 and has projections 43 (Fig. 9) fitting in recesses 44 (Fig. 8) in the sides of the transverse groove, to key the members together. Said retaining member has deep depressions 45 surrounding the blade openings to form a clearance for the conductors 15, 16 around the openings and conducting members 17. An internally threaded bushing 47 embedded axially in said key lug 42 receives a screw 48 in said bore 25 to hold said members together.

The contact 19 is a U-shaped spring piece disposed in the enlarged portion 35 of the socket opening and comprises a short arm 50 adapted to press against the outer face of a blade of an adjacent connection and provided with an outpressed projection 51 (Fig. 6) engaging in an end perforation 52 of the blade. The long arm of the contact piece is engaged against the outer face of the offset portion of the blade and provided with a rectangular opening 53 receiving a laterally turned end 54 of the blade. A screw 55 passing through perforations 56 and 57 in the contact and blade holds the contact and blade rigidly together, the perforation 57 being threaded. If desired, the long arm of the contact 19 may be provided with a slot 56′ (Fig. 5) instead of a perforation 56, for ease of assembly.

The laterally turned end 54 (Fig. 7) is adapted to engage against the bottom of the transverse groove 30 of the body member and the free end 60 of the long arm of the contact being slightly projected from the offset portion, is adapted to engage the bottom of the depression 45 of the retaining member 12, thereby to hold the conducting member against excessive longitudinal movement in either direction. The yoke end 61 (Fig. 7) of the spring contact being curved is adapted to cam against the beveled face 34 between the socket opening and transverse groove when being assembled in the socket.

The circuit wires 15, 16 have their inner ends disposed in said clearance of the depressions 45 and soldered to the inner face of the blades at the offset 64 as shown at the left of Fig. 7 or secured under the head of the screw 55 as shown at the right of Fig. 7. The conductors 15, 16 are each carried out either outlet opening 40 and are adapted to receive one or more lamps or other devices in circuit therein.

Conductors 65, 66 additional to the conductors 15, 16 may be brought in through the opposite opening 40, as in Fig. 2, and secured to the members 17, thus making the connection into a three-way outlet, the conductors 15, 16 and 65, 66 being two outlets, the socket openings 11 and contacts 19 being the third outlet of the three-way outlet, the blades 18 cooperating with said outlets to form a four-way connection. Therefore when two connections are superposed as in Fig. 4, a five-way outlet or a six-way connection can be formed, and by superposing

a large number of connections after the manner of Fig. 4, any number of outlets may be obtained.

It will be noted that the contact assembly shown in Figure 3 may be secured to the wires and then inserted into the body member, also that the assembly may be completed by the mere placing of the cover or retaining member 12 in place and inserting the bolt 48. The device is characterized by the absence of any means for securing the contacts directly to either of the insulating body parts. Certain features of the present disclosure are suitable for employment in modified forms of connections, such as connectors with no male blade contacts. The same body member and spring contacts are employed. The blades 18 are cut off and the holes 13 omitted.

I claim as my invention:

1. In an electrical connector, the combination of a body portion of insulating material provided with an annular groove in its inner end forming an outer wall and having a pair of diametrically opposite notches in said outer wall and a central boss extending beyond the level of said wall, said inner end also being provided with a relatively wide shallow groove disposed across said boss and the bottom of said annular groove and provided at the mid part of its side walls with a pair of positioning recesses, longitudinal socket openings extending through said body member, a retaining member secured to the inner end of said body member and provided on its inner surface with an annular groove forming an outer wall, notches formed therein complementary to the notches in the body member to form wire outlets, a central key lug on said retaining member adapted to engage said positioning recesses of the body member, and conducting members each comprising a blade disposed in and projecting outside a blade receiving opening in said retaining member and a contact portion disposed in a corresponding socket opening of said body member.

2. In an electrical connector, the combination of a body member provided with a pair of longitudinal socket openings passing therethrough, a retaining member secured to said body member and provided with blade receiving openings aligned with said socket openings and with a wide annular groove, a blade projecting from one of said socket openings and having its inner end outwardly offset, and a U-shaped contact piece in said socket opening comprising an arm adapted to press against a blade of an adjacent connection, and a long arm secured against the offset portion of the blade, the free end of the long arm engaging the bottom of said groove, said members being formed to provide lateral outlet openings.

3. In an electrical connector, the combination of a body member provided with longitudinal socket openings passing therethrough and on its inner end with a transverse groove, a retaining member secured to said body member and provided on the inner end with depressions, and blade receiving openings therein aligned with said socket openings, a pair of connecting conducting members each comprising a blade projecting through one of said blade receiving openings and having its inner outwardly offset end provided with an outwardly turned projection, and its outer end adapted to be received in the socket of the body portion of an adjacent connection, and a U-shaped spring contact piece disposed in the socket opening and comprising a short arm adapted to press against the outer face of a blade of an adjacent connection and provided with an outpressed projection engaging in the end perforation of such blade, and a long arm secured against the outer face of the offset portion of the blade and provided with a rectangular opening receiving said laterally turned end, the laterally turned end engaging against the bottom of the transverse groove of the body member, the free end of the long arm being slightly projected from the offset portion and engaging the bottom of the depression of the retaining member, thereby to hold the conducting member against longitudinal movement, said members being formed to provide lateral outlets.

4. In an electrical connector, the combination of a body member provided on its inner end with a transverse groove, said body member having a pair of longitudinal socket openings passing therethrough and intersecting said transverse groove, a retaining member secured to said inner end and provided with blade receiving openings aligned with said socket openings, a blade projecting from one of said socket openings and having its inner end outwardly offset and provided with an outwardly laterally turned end, and a U-shaped contact piece in said socket comprising an arm adapted to press against a blade of an adjacent connection, and a long arm secured against the offset portion of the blade and provided with an opening receiving said laterally turned end, said laterally turned end engaging against the bottom of said transverse groove, said members being formed to provide outlet openings.

5. In an electrical connector, the combination of a body member provided on its inner end with a transverse groove, said body member having a pair of longitudinal socket openings passing therethrough and intersecting said transverse groove, a retaining member secured to said inner face and provided with blade receiving openings aligned with said socket openings and with a wide annular groove, a blade projecting from one of said socket openings and having its inner end outwardly offset and provided with an outward-

ly laterally turned end, and a U-shaped contact piece in said socket comprising an arm adapted to press against a blade of an adjacent connection, and a long arm secured against the offset portion of the blade and provided with an opening receiving said laterally turned end, said laterally turned end engaging the bottom of said transverse groove, the free end of the long arm engaging the bottom of the annular groove of said retaining member, said members being formed to provide lateral outlet openings.

6. In an electrical connector, the combination of a body member provided on its inner end with a transverse groove, said body member having a pair of longitudinal socket openings passing therethrough and intersecting said transverse groove, the inner face of each socket opening having a beveled face extending into the transverse groove, a retaining member secured to said inner end and provided with blade receiving openings aligned with said socket openings, a blade projecting from one of said socket openings and having its inner end outwardly offset, a U-shaped contact piece in said socket opening comprising an arm adapted to press against the blade of an adjacent connection, and a long arm secured against the offset portion of the blade, the upper portion of the spring contact being curved and adapted to cam against the beveled face when being assembled in the socket, said members being formed to provide outlet openings, and conductors secured to the conducting members and each carried out through one of said outlet openings.

7. In an electrical connector, the combination of an insulating body formed with socket openings and with a lateral outlet opening, conducting members extending within the body and each comprising a spring contact portion in the socket openings, a rigid projecting blade portion having the spring contact portion secured thereto by a screw, and circuit wires having their inner ends secured under the heads of the screws and each carried out of the outlet opening.

Signed at New York, in the county of New York and State of New York, this 23rd day of December, A. D. 1926.

HENRI SADACCA.