

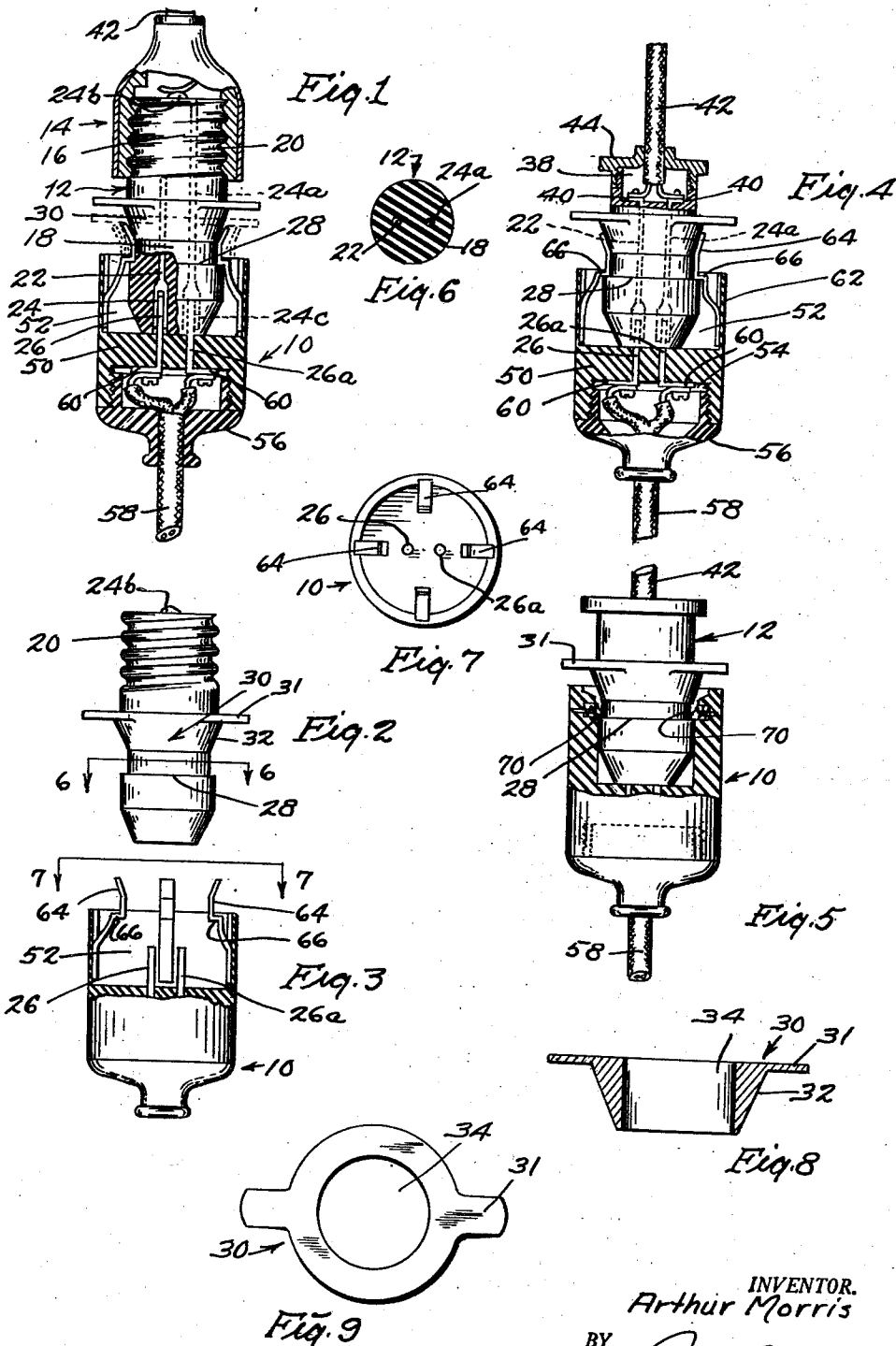
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A. MORRIS

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ELECTRICAL SOCKET AND ADAPTER

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INVENTOR.
Arthur Morris
BY *Robert L. Woolley*
his atty

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ELECTRICAL SOCKET AND ADAPTER

Arthur Morris, Los Angeles, Calif.

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2 Claims. (Cl. 173-343)

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As indicated by the title, the present invention relates to sockets and adapters for electrical circuits. A common type of electrical circuit connector is that of the screw type, in which an internally threaded female socket is so arranged as to receive a male adapter having like threads upon the exterior thereof. The other of the two prevailing types of connector and socket, comprises an arrangement in which the socket is provided with metallic recesses in which metallic prongs are insertable or withdrawable by a push and/or pull action. The above referred to types of connector have generally served well, but are of course subject to certain limitations and handicaps, among which may be mentioned that in the first mentioned type of connector considerable time is involved in screwing the several parts together to make connection, whereas in the last mentioned type, the connected elements are very apt to become disjoined upon the occasion of a minor pull upon either of the cords leading to the connector.

In view of the foregoing and other considerations as will subsequently appear, it is a prime object of the present invention to provide a more simple, reliable and efficient electrical connector than is now available.

Another object of the invention is to provide an electrical connector which is readily joined and which after being joined cannot become disengaged by application of a longitudinal pull thereon.

A further object of the invention is to provide an electrical connector wherein a male and female element are joinable by a mere sliding movement, but which are disconnectable upon lateral movement of a holding dog which forms an element of the construction thereof.

A still further object of the invention is to provide in an electrical connector, latch means to hold a connector and adapted in closed position and which are disjoinable upon manual movement of a slidable ring.

A still further object of the present invention is to provide an electrical connector which is devoid of screw and slip joint means of disconnection.

A still further object of the invention is to provide an electrical connector the elements of which are joinable in a slip fit, but which are not releasable upon application of an oppositely directed force.

A still further object of the invention is to provide an electrical connector which will not become disengaged when subjected to longitudinally directed pressure and/or vibration.

Other objects, features and advantages of the invention may appear from the accompanying drawing, the detailed specification, and the subjoined claims.

In the drawing:

Figure 1 is a view of the socket and adapter of this invention in which certain portions thereof are broken away to facilitate illustration thereof.

Figure 2 is a view of threaded connector adapted for use in conjunction with many like threaded sockets, but in which the opposite end thereof is adapted to be joined with a type of socket contemplated in the present invention.

Figure 3 is a view showing the socket of this invention, with portions of the case thereof broken away to facilitate illustration.

Figure 4 is a view partially in section showing the socket of this invention and showing an adapter therefor in partial side elevation.

Figure 5 is a view showing modified form of socket in which spring pressed latches are adapted to engage and hold an adapter in union therewith.

Figure 6 is a transverse sectional view taken substantially on line 6-6, Figure 2.

Figure 7 is also a plan view of the socket, taken as shown along line 7-7, Figure 3.

Figure 8 is a transverse sectional view showing the finger actuated cam employed in connection with the adapter of this invention as a means of releasing the springable fingers in the companion socket; and,

Figure 9 is a plan view thereof.

In the drawing the reference character 10 indicates the socket of this invention and the numeral 12 is indicative of the adapter employed in conjunction therewith. Due to the fact that many screw sockets of the old type 14 are currently in use, I have shown a modification of the adapter 12, in that it is shown as being provided with threads 16 so that the adapter of my invention may be used in conjunction with the common type of screw socket. This modification is shown in Figures 1 and 2, while Figures 4 and 5 show an adapter which follows the theory of my invention without reference to currently used screw thread sockets.

The adapter 12 shown in Figures 1 and 2 comprises a body portion 18 formed of a suitable insulating material such as certain of the plastic materials now available in commercial quantities, and as shown is fitted with a metallic screw thread shell 20 which is electrically connected with a lead 22 the free end of which is enlarged and has a socket-like recess 24 therein to receive a prong 26 which extends thereinto from the socket 10, as will be more particularly pointed out as this description is developed. The body portion 18 is formed with an annular shoulder 28, while intermediately of the shoulder 28 and the threaded shell 20, a finger actuated slidable cam 30 is positioned, and which as shown in Figure 8 comprises an annulus having inclined exterior

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sides 32 which in fact constitute a cam surface, while the central opening 34 therein is cylindrical and is adapted to encircle that portion of the adapter which lies between the shoulder 28 and the threaded shell 20 and is slidable longitudinally thereof in response to finger pressure. A second lead, or lead 24a is electrically connected with a contact point 24b, and extends through the adapter to a recessed free end portion 24c whereby connection with a second prong 26a extending from the socket 10 may be had.

The adapter shown in Figures 4 and 5 follows the previously described construction, except that the shell 20 is eliminated and the corresponding end thereof is recessed at 38 to receive the terminals 40 of the leads 24 and 24a, and which terminals are adapted to be conventionally joined with an incoming or outgoing electric cord 42. A screw cap 44 is provided to close the recess 38 and to provide an anchorage for the cord 42.

The socket 10 is formed with a body portion 50 having a recess 52 in its one end and a threaded recess 54 in the other of the ends thereof and which as shown, is adapted to receive a similarly threaded cap 56 as a means of anchoring the other of the cords, or cord 58, the bare end of the wires of which are secured to the ends 60 of the prongs 26 and 26a. The recess 52 has cylindrical sides 62, upon the inner face of which I secure a plural number of springable fingers 64, the intermediate portion of which is formed with a right angled bend 66 which is adapted, as shown in the drawing, to engage and to rest upon the shoulder 28 when the adapter and socket are joined, but which are outwardly movable under pressure of the cam face 32 when the cam structure 30 is finger pressed to the position shown in dotted lines in Figure 1, thereby releasing the adapter and socket of an otherwise positive locked union which experience has shown will not be otherwise broken by such force as vibration, forcible blows, or a pulling force directed longitudinally of the assembly.

In Figure 5 I show a modified form of socket construction which in general follows the previously described arrangement, excepting, in that instead of the springable fingers 64 as a means to hold the adapter and socket in joined connection, I here show a plural number of spring pressed latches 70 as a releasable means to hold the

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adapter and socket in union, for as shown the latch 70 when in functioning position rests upon the shoulder 28 in like manner to the grip afforded by the bend 66 in the fingers 64, and are retracted upon moving the cam 30 downwardly so that the cam face 32 slides against the inclined face of the latch 70. It is believed this modification of the general construction herein shown needs no further amplification, let it suffice to state that it is simple, reliable, and efficient in operation, and affords a variation from the previously described and generally preferred construction.

I claim:

1. In an electrical connector comprising an adapter and a socket, in combination, a shoulder on said adapter, repressible means in said socket, said last mentioned means being adapted to engage and rest upon said shoulder when said adapter and socket are in union, a cam, said cam being finger actuated and slidably positioned on said adapter and being adapted to engage and repress said repressible means whereby said adapter and socket may be disengaged, and means in said adapter and socket to conduct electrical energy therethrough upon connection with an exterior power source.

2. In an electrical connector, an adapter and a socket in combination, an annular shoulder in said adapter and electrical leads extending through said adapter, a socket, retractable springs in said socket to engage said shoulder, finger actuated spreading means to repress said springs whereby said adapter and socket may be disjoined, and electrical leads extending through said socket, said leads in their adjacent ends being adapted to be in slidable contact and having their opposite ends in connection with an exterior power source.

ARTHUR MORRIS.

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