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L. REICHOLD

SPRING SOCKET TERMINAL

Filed Nov. 26, 1926

FIG. 1.

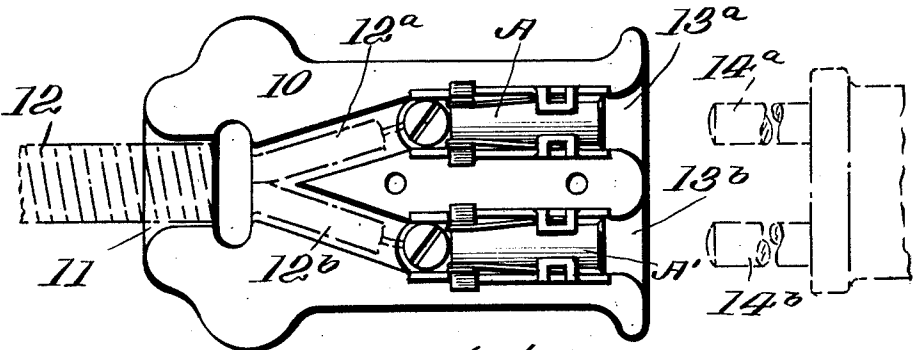


FIG. 2.

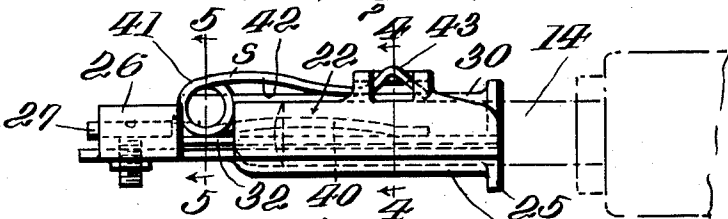


FIG. 3.

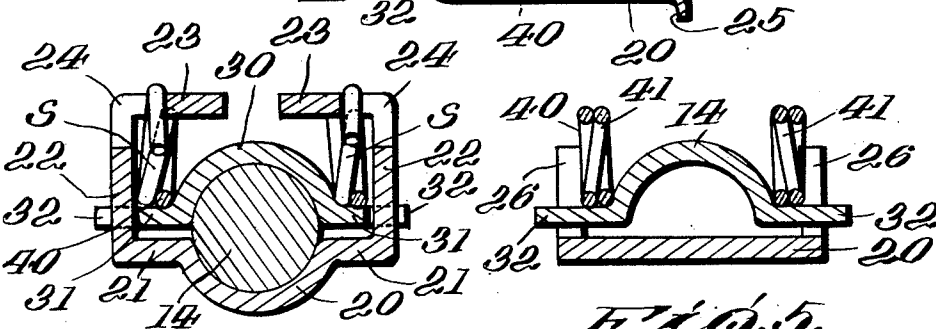
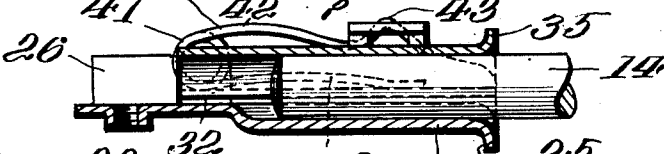


FIG. 4.

FIG. 5.

Inventor
Ludwig Reichold

By Stuart W. T. Marm

Attorneys.

UNITED STATES PATENT OFFICE.

LUDWIG REICHOLD, OF WINSTED, CONNECTICUT, ASSIGNOR TO THE FITZGERALD MANUFACTURING COMPANY, OF TORRINGTON, CONNECTICUT, A CORPORATION OF CONNECTICUT.

SPRING SOCKET TERMINAL.

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This invention relates to a spring connector or socket terminal for use in connection with jacks for electric circuits, and is particularly adapted for use with the quick detachable jack and plug connections for portable electrical utensils.

The connector of this invention is characterized by the small number of parts employed and the ease with which they may be formed and assembled and the security and firmness with which these parts of the jack engage and retain the pin of the plug.

One form of the invention is shown on the drawings by way of illustration, in which:

Figure 1 is a view of a part of the insulating sleeve of a double jack, showing two jack terminals according to the present invention.

Fig. 2 is a side elevation of one of the terminals.

Fig. 3 is a longitudinal section through such a terminal.

Fig. 4 is a section on line 4—4 of Fig. 2, on an enlarged scale.

Fig. 5 is a section on line 5—5 of Fig. 2, on an enlarged scale.

According to the present invention, the jack element for the quick detachable connection is formed of five parts only in the illustrative form, comprising a base, a cooperating plate, two springs, and a binding screw. The arrangement of the base and plate and the cooperation of the spring therewith, is of great importance in connection with the present invention: both the base and plate being symmetrical with respect to the median plane.

As shown on the drawings, a split insulating sleeve has one member 10 formed with a channel 11 for the reception of the conducting cord 12 whose two conductor wires 12^a and 12^b pass severally through branches of the channel to be secured to the respective individual jack element A, A' according to the present invention. At its other end, the insulating member 10 has two separate apertures 13^a and 13^b to receive the cooperating plug elements 14^a and 14^b of the mating structure, in well known manner. The position and location of the jack elements A and A' within the insulating member 10 is shown in Fig. 1, in which it will be seen that they are retained within

an enlarged portion of the passage communicating between the branches 12^a and 12^b and the apertures 13^a and 13^b which receive the respective plugs. These two units A, A' are alike, and a description of one of them will be sufficient.

As shown in Figs. 2 to 5, a base member 20 is formed with a longitudinal arch to present a groove to guide and fit one of the plug pins 14^a or 14^b which is designated as 14 in these figures. Extending from this arch, as shown in Fig. 4, the member 20 has a flat flange 21 at each side of the arch, and thereafter an upstanding wall 22 which terminates with an inwardly bent guard 23, these guards projecting toward each other. The walls and guards 22, 23 each have a slot 24 therein extending past the angle which joins these portions. The base 20 has a bell lip 25 at the end for receiving the plug member 14, to guide this plug into its proper position. Each wall 22 terminates at a distance from the conductor at an edge which extends substantially at right angles to the flange or floor 21, 21 of the base. A further pair of upwardly bent lugs 26 are provided in substantially the same plane as the walls 22, and each present a forward edge in parallelism to the rear edge of the respective wall 22.

Between the lugs 26 at the rear or conductor end of the unit is located the binding screw 27. The respective conductor wire is wrapped about this screw and tightened in the customary manner, the wire being held beneath the screw by means of the lugs 26.

The cooperating member 30 likewise is formed by stamping an arch to present a groove to accommodate the plug pin 14, and has the outwardly bent flat flanges 31 which in the assembled condition of the device are substantially parallel to the similar flanges 21 of the base, and rest thereagainst under the impulse of the spring members S, S: when a plug 14 is introduced between the arches 20, 30, the plug lifts the cooperating plate away from the base against the action of these spring members S, S and the flanges 31 are again brought into parallelism but at a spaced relationship to the flanges 21: at all times being guided by the walls 22 against lateral movement. At its rear or conductor end, the cooperating plate 30 is provided with outwardly extending lugs 32, 32 which pro-

ject between the aforesaid edges of the lugs 26 and the walls 22 of the base 20, and are guided thereby so that the cooperating member is prevented from moving longitudinally forwardly and backwardly with regard to the base, but is permitted a free movement of relative separation therefrom for the purpose of accommodating the plug pin. The front of the cooperating plate 30 has a guiding bell 35.

The springs S, S are provided with the long downward arms 40 which extend along the upper surface of the flat flanges 31 of the cooperating flange, and each is guided between the respective wall 22 of the base plate and the arch of the cooperating plate 30: this portion of the spring is thus prevented from moving laterally. Intermediate its ends, each spring is preferably bent into a complete convolution 41, and then further bent until its other arm 42 extends forwardly in substantial parallelism to the lower arm 40, and at this end is bent upwardly and then downwardly to form a cusp 43 which projects into the respective slot 24, and thereby is held against a movement in a plane at right angles to the axis of the plug pin 14. The spring tends to force this cusp 43 upward into the slot 24, and owing to the angle of the cusp, this spring is held likewise against a movement parallel to the axis of the plug pin 14 during the normal operation of the device. It is preferred that the loop 41 and the gap between the wall 22 and lug 26 should correspond in location, so that a part of the loop may be received within this gap, whereby space is conserved in the width of the device as a whole.

When the separate parts have been prepared, the device may be assembled in the following manner: The front or plug inlet end of the cooperating plate 30 is slipped beneath the guards 23 of the base, and the cooperating plate is pushed forwardly until its lugs 32 slip into the gap between the wall 22 and lugs 26 of the base. A spring S is then placed with its long arm 40 pressing loosely upon the top of a flange 31, and the spring is compressed until its cup 41 slips beneath the respective inwardly projecting guard 23 of the base: the spring is then moved until its cusp snaps into position in the slot 24. A similar operation is performed with the other spring S. The binding screw 27 may be inserted either before or after the above assembly. The device is now complete and ready for assembly in the insulating member 10 and for connection to the terminals of the conductors 12.

The device is dismounted in a similar manner by compressing the springs until the cusps slip out of the slots and the spring may be disengaged from the projecting guards 23.

It is obvious that the invention is not limited to the specific form of execution repre-

sented, but that it may be modified within the scope of the appended claims.

I claim:

1. A socket terminal comprising a base having lateral upstanding walls and an inwardly bent guard in spaced relationship to the base, said guard having an aperture, a cooperating plate guided by said walls, interengaging means on said base and plate to prevent relative longitudinal movement, and a spring having its end engaged in said aperture and adapted to resiliently force said plate toward said base.

2. A socket terminal comprising a base having lateral upstanding walls and inwardly bent guards in spaced relationship to the base, lugs on said base having their front edges in spaced parallel relationship to the rear edges of said walls to form gaps, a cooperating plate guided by said walls, lugs on said plate located in said gaps to prevent longitudinal relative movement of said base and plate, and coil springs having extended ends respectively engaging said plate and guards to force said plate resiliently toward said base.

3. A socket terminal comprising a base having lateral upstanding walls and a lug parallel to and beyond one wall at one end thereof, said wall and lug having parallel adjacent edges and being separated by a gap, a cooperating plate having a lug located in said gap to prevent relative longitudinal movement of said plate and base, resilient means to force said plate toward said base, and a binding screw on said base adjacent said lug, said lug also serving to hold the conducting wire beneath the head of said screw.

4. A socket terminal comprising a base, having lateral upstanding walls and inwardly bent guards, said guards having slots therein, a cooperating plate having an arch to provide a plug-receiving groove and lateral flanges and being guided against lateral movement by said walls, springs having arms resting on said flanges and having cusps to engage in said slots whereby to hold said springs against movement and to force said plate toward said base.

5. A socket terminal comprising a base, a plate and two coil springs, said base having walls to guide said plate against lateral movement, interengaging means on said base and plate to prevent relative longitudinal movement but permitting movement to and from each other into substantially parallel positions, whereby to receive and engage a mating plug, said springs being guided by said plate and walls against lateral movement, and means on said walls to secure said springs against displacement.

6. A socket terminal comprising a base having lateral upstanding walls and lugs parallel to and beyond said walls at one end

thereof, said walls and lugs having parallel adjacent edges and being separated relatively by gaps, a cooperating plate having laterally projecting lugs located in said gaps 5 to prevent relative longitudinal movement of said plate and base; resilient means to force said plate toward said base, and a binding screw on said base between said lugs, the head of said screw extending substantially to said lugs, so that said lugs 10 serve to hold the conducting wire beneath the head of said screw.

In testimony whereof, I affix my signature.

LUDWIG REICHOLD.