Sept. 7, 1937. N. CHIRELSTEIN 2,092,527

ELECTRIC PLUG

Filed March 23, 1935

Fig:1.

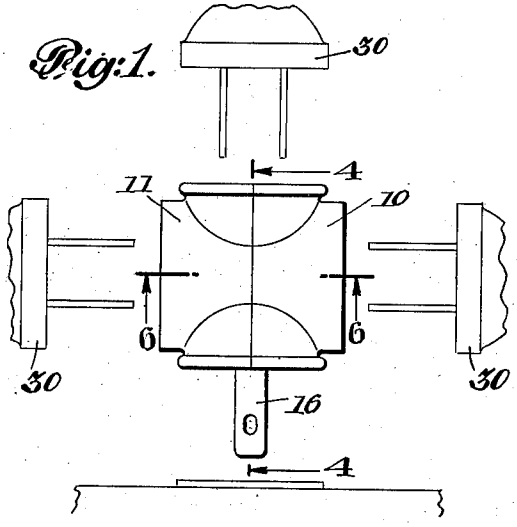


Fig:4

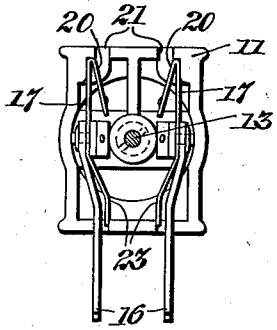


Fig:2.

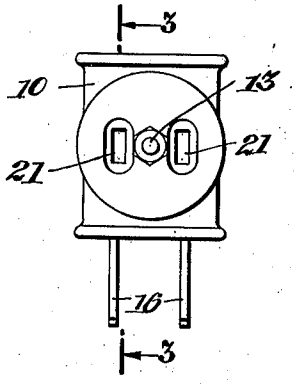


Fig:5.

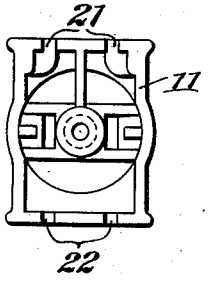


Fig:3.

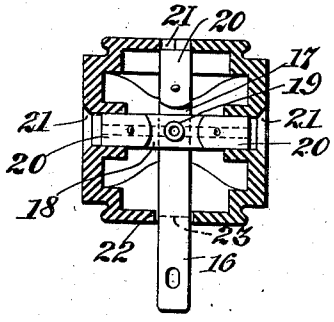
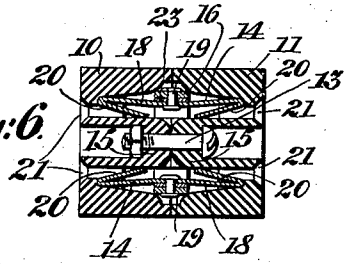


Fig:6.



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Patented Sept. 7, 1937 2,092,527

UNITED STATES PATENT OFFICE

2,092,527

ELECTRIC PLUG

Nathan Chirelstein, Newark, N. J.

Application March 23, 1935, Serial No. 12,616

4 Claims. (Cl. 173—334)

My invention relates to electrical coupling devices of the type which is popularly termed a cube tap.

This type of coupling comprises a casing of insulating material, in which is located electrical conductors comprising contact members, and a pair of prongs which extend therefrom to serve as contact members and coupling with a female socket plug, or outlet from a source of supply.

This type of plug is designed to receive a plurality of male plugs, the prongs of which extend thru the casing from different directions and engage in coupled relation with the female contacts in the cube casing.

When the prongs of a male plug are inserted in coupling relation with the contact terminals in the cube casing from a side thereof, the conductors and other terminals within the cube casing are subjected to strain and are apt to become permanently bent and distorted to a degree that will prevent the proper coupling of a second male plug, often to such an extent that said second plug's prongs cannot be inserted in the casing.

Also the prongs of the cube tap may become displaced and out of alignment, extending at an angle to each other, to a degree that makes their insertion in an outlet difficult.

The object of my invention is to provide a cube tap in which is embodied means for holding the conducting terminals firmly in their normal positions in the casing and also support the prongs in yielding parallel relation to each other, which means shall be very simple and inexpensive.

Referring to the drawing which forms a part of this specification;

Fig. 1 is a side elevational view of a cube tap embodying my improved features of construction and illustrates a plurality of attachment plugs in position for insertion into the respective receptacles of the cube tap.

Fig. 2 is an elevational view of the device taken at a right angle to Figure 1.

Fig. 3 is a sectional view taken on line 3—3 of Figure 2.

Fig. 4 is a sectional view taken on line 4—4 of Figure 1, or Figure 3, being one of the half portions of the housing with the conducting parts assembled therein.

Fig. 5 is a view of the casing half portion similar to Figure 4, the conducting parts having been removed to more clearly disclose the recessing of the interior walls of the casing to receive said parts and to form abutments which serve to hold such parts in assembled position.

Fig. 6 is a sectional view taken on line 6—6 of Figure 1.

The casing for my improved cube tap is formed of two similar half portions 10 and 11 respectively, which are moulded of insulating material and are adapted to be secured together in assembled relation by the nut and bolt combination 13.

The interior walls of the casing are moulded to form recesses, partitions and abutments to receive and retain similar conductor assemblies 14 which are separated and insulated from each other within the casing by the abutting partition wall sections 15—15, as shown.

Each of the assemblies 14 comprises a male contact prong 16 to which a parallel conductor 17 and a transverse conductor 18 are secured within the casing, as by a rivet 19.

One end of each conductor 17 and both ends of each conductor 18 are bent to form resilient contacts 20—20 etc., properly positioned in relation to the socket openings 21—21 etc. in the casing, whereby prongs of the end plugs 30—30 etc. may be inserted thru the socket openings to engage with the contacts 20.

It will be understood that the conductor assemblies are held in position in the casing entirely by the recesses, slots, partitions and abutments formed in the casing walls and are otherwise unsecured to the casing.

This is usually termed "drop assembly" and one of the conditions attendant upon such methods is that tolerances are necessary to facilitate economical production.

Pressure exerted in coupling and uncoupling the contacting parts tends to cause bending and distortion of the metal parts which is permitted to the extent that these tolerances are necessary for quick assembly.

As thus far described the device is of conventional construction.

I will now describe the features of improvement which are simple and inexpensive, and which obtain the objects of my invention.

The prongs 16 extend exteriorly of the casing and parallel to each other thru slot-like openings 22—22 respectively, which are of a width substantially greater than the thickness of the prongs, and each conductor 17 extends below the rivet 19 and is bent offset from the prong to form a spring finger 23.

When the conductor assemblies, including the spring fingers 23, which are thin relative to the thickness of the prongs, are dropped into the casing and inclosed in position therein, the free end of each finger is compressed in the direction

of its respective prong and abuts the opposite wall adjacent the opening **22**, thereby being retained under compression, and functioning to hold the prong against the opposite wall of the opening and to resiliently nest the other parts of the conductor assembly within the casing.

Viewed in another aspect, each spring finger **23** may be regarded as a lever arm which, by reason of the resilience inherent in the material of which it is made, exerts pressure against the conductor assembly to hold it in position against the interior of the casing walls.

In use, it will be apparent that although the prongs **16** may be forced out of their proper alignment by insertion into a defective receptacle, they will nevertheless be urged by the fingers **23** to resume their proper parallel position upon withdrawal from such receptacle and will continue to be suitable for a proper coupling.

Similarly, the contacts **20** are pressurably held in position in a manner precluding the possibility of their becoming loose with the result that they are at all times situated to properly contact with prongs inserted for engagement with them.

Although I have shown and described the fingers **23** as integral portions of the conductors **17**, the fingers may be formed as independent elements and secured to the prongs, or to either of the conductors in substantially the same relationship and for the same purpose.

I prefer to make the fingers integral with the conductors **17** because it is economical to do so and because the material of the conductors is usually of a weight and character as will afford the proper degree of resilience.

Having thus described my invention I claim:

1. An electric plug construction of the character described comprising a casing made in two duplicate parts, each formed to provide interior recesses and abutments, and openings to receive the prongs of standard attachment plugs, flat resilient coupling conductors located in said recesses between said abutments, a pair of flat prongs connected with said conductors and projecting outwardly from the casing, and spaced to fit into a standard receptacle and spring elements connected therewith within the casing and extending parallel with said prongs with their free ends bearing against the casing adjacent the prongs.

2. An electric plug of the character described comprising a casing of insulating material, electrical conductors in said casing comprising contact terminals, a pair of flat prongs adapted to fit into a standard receptacle and connected with said conductors and extending outwardly beyond the wall thereof, and means within the casing for holding said prongs in their normal position while permitting them to yield under pressure to a different position, said means comprising flat metal spring elements connected at one end with said conductors and their free ends bearing against the casing adjacent said prongs.

3. An electric coupling device of the character described comprising a casing of insulating material having an opening in the wall thereof, and flat blade electrical conducting means carried within the casing and extending exteriorly thereof through said opening, a flat spring member connected at one end to said means within the casing and having its other end free and in abutment with the casing adjacent the margin of said opening, whereby said conducting means is held positioned against the interior walls of the casing.

4. An electric plug of the character described comprising a separable body portion of insulating material, formed with electrical conductors comprising two flat prong blade terminals, and a plurality of pairs of female socket members connected in fixed relation to the prong blades, and two spring members formed integral with one pair of said socket members; said springs bearing against the casing adjacent to the prong blade terminals and serving to resist movement of the prongs from their normal position.

NATHAN CHIRELSTEIN.