Feb. 16, 1937. J. K. DOBBS 2,070,566

SELF CUTTING WIRE CONNECTION

Filed March 7, 1936

Fig. 1.

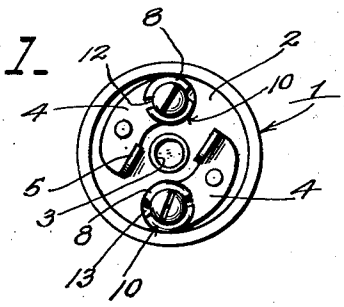


Fig. 2.

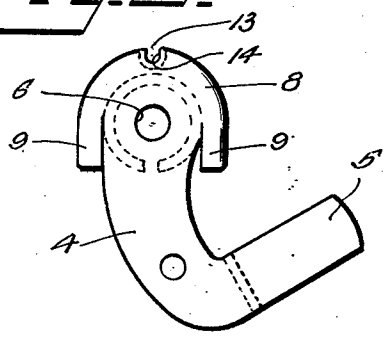


Fig. 3.

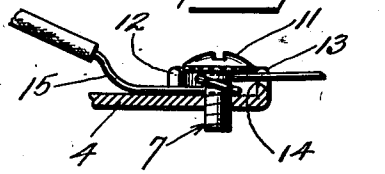


Fig. 4.

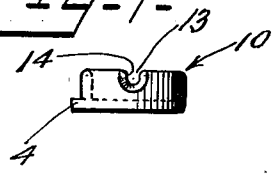
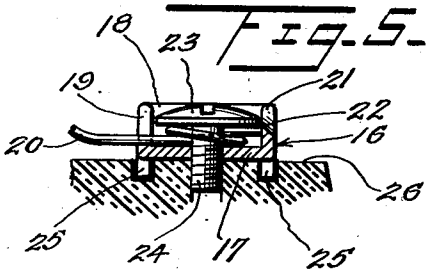


Fig. 5.



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SELF CUTTING WIRE CONNECTION

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7 Claims. (Cl. 173—259)

This invention relates to the class of electric terminals and pertains particularly to an improved means for effecting the attachment of electric wires to electrical fixtures.

In electrical fixtures of the type commonly employed, such as plug-in terminals, switch connections, and the like, it is important that the ends of attached wires be prevented from projecting beyond the screws by which they are secured to the fixture, otherwise short circuits are apt to occur. The primary object of the present invention therefore is to provide an improved wire connection which in addition to securely holding a wire in electrical connection with a terminal, will cut off the end of the wire which ordinarily would project beyond the securing screw, when the screw is tightened up into position.

Another object of the invention is to provide an improved wire connection of the above described character which may be readily stamped out with a metallic piece forming a part of an electric connection plug or which may be formed as a unitary article for use upon panels or in other locations where electric wires are to be attached to terminal screws.

A still further object of the invention is to provide a self-cutting wire connection which is so formed that it co-acts with the head of a securing screw to effect the cutting off of an end portion of the wire so that after the screw is tightened up no projecting parts are left, and which also acts to hold the wire so that the same will not turn around with the screw as the latter is tightened up.

The invention will be best understood from a consideration of the following detailed description taken in connection with the accompanying drawing forming part of this specification, with the understanding, however, that the invention is not confined to any strict conformity with the showing of the drawing but may be changed or modified so long as such changes or modifications mark no material departure from the salient features of the invention as expressed in the appended claims.

In the drawing:

Figure 1 is a view in plan of the face of a plug-in electric connection of the type commonly attached to the end of an electric cord for connection with an outlet wall receptacle, the connection embodying the present invention being shown in association with this unit.

Fig. 2 is a view in plan of one of the metallic elements forming a part of the unit illustrated in Fig. 1 and showing the present invention formed in blank in association therewith.

Fig. 3 is a view in section of a connection of the type embodying the present invention showing the manner of connecting a wire therewith.

Fig. 4 is a view in elevation of the connection.

Fig. 5 is a sectional view of a modified form of the invention.

Referring more particularly to the drawing wherein like numerals of reference indicate corresponding parts throughout, the numeral 1 generally designates a plug-in electric unit of the type having a recessed face 2 and a central opening 3 through which an electric cord is extended. These units 1 normally have two arcuate plates each of which is indicated by the numeral 4, each having a terminal portion 5 which constitutes a prong for extension into an outlet receptacle. Each plate 4 is secured in the bottom of the recess 2 and at the opposite end from the prong 5 an opening 6 is formed through which a wire securing screw 7 is adapted to be threaded into the body of the device 1.

In carrying out the present invention, the end of the plate 4 which has the opening 6 therein, is formed in blank, as shown in Fig. 2, with a semi-circular portion 8 terminating in the end ears 9, and this portion 8 with the ears 9 is turned upwardly and the ears turned inwardly into spaced end relation to form the upstanding circular wall 10 concentric with the opening 6. The wall thus forms with the encircled portion of the plate 4, a cup-like receptacle into which the head 11 of the wire securing screw is adapted to fit snugly.

The ends of the portions 9 are in spaced relation as previously stated, to form the recess 12, and these portions 9 are resilient and normally bear against the edge of the screw head 11 when the latter is disposed within the area defined by the wall or flange portion 8 and the ears 9, thereby maintaining the screw head in firm contact with the area of the wall 10 to form with the edge 14 an effective cutting combination.

The edge of the portion 8 preferably opposite the recess 12 has a notch 13 cut thereinto and the top of this notch is beveled so that there is thus formed at the inner side a cutting edge 14.

In the use of the present device the electric wire 15 which is to be attached by the screw 7, has a portion of its end turned or wrapped about the screw and the free end of the wire is fixed in the notch 13 while the opposite side portion of the wire is disposed in the recess 12. It will thus be seen that when the screw 7 is driven in so as to move the head 11 down and into the cup-like area defined by the portions 8 and 9, the edge of the head will bear down against the free end portion of the wire and force it against the cutting edge 14 so as to sever from the main body portion of the wire that part of the end lying in and beyond the notch 13.

While the device has been described in association with the terminal plate 4 and prong 5 of a plug-in electrical fixture, it will be obvious that it may be formed as an integral part of any

other one of the numerous parts of electrical fixtures which normally have current conducting wires attached thereto, and it will also be apparent that the connection may be used independently of any element of an electrical fixture, as illustrated in the modified form in Fig. 5, where the device is shown as comprising a cup-like receptacle indicated generally by the numeral 16, having a bottom 17 and a circular upstanding wall 18 with a recess 19 at one side of the wall for bringing the wire 20 into the receptacle, and a notch 21 formed in the edge of the wall with its surface beveled to form the cutting edge 22 against which the end of the wire is forced by the head 23 of the screw 24. In this form the bottom 17 of the receptacle may be provided with means such as the lugs 25, for effecting the connection of the device with the face of a panel 26, so as to prevent the device from turning with the screw 24. It will thus be seen that with this modified form a wire end may be secured to the face of a panel or to any other surface where a securing screw is used, and in addition to having the extended portion of the end cut off so that the wire will end within the receptacle, it will be held by means of the recess 19 against turning with the screw.

The recess or opening 12 in which the wire 15 lies, as illustrated in Fig. 3, will prevent to some extent the turning of the wire with the screw 7 through frictional contact with the sides of the opening, and in addition it will be apparent that this opening will also prevent the wire being wound up on the screw where the wire is insulated, for the reason that the cut end of the insulation will be drawn up against the outer side of the wall portions 9. The opening 12 is of sufficient width only to receive the screw but cannot receive the insulation material, and for this reason it will effectively operate to prevent the wire being drawn into the area defined by the wall 10.

From the foregoing it will be apparent that by the use of the device embodying the invention, the attachment of wires to electrical fixtures will be greatly facilitated, and also the possibility of causing short circuits because of the engagement of an extended end of a wire with some outside metallic part, will be avoided, because the end of the wire will be confined within the receptacle which is closed by the head of the wire securing means.

What is claimed, is:

1. In a wire connection, a wire securing screw having a head, a receptacle-like body arranged concentric with the screw head and adapted to receive the same when the screw is tightened up, cutting means forming part of the body against which the excess of the terminal of a wire wrapped about the screw is pressed by the screw head as the screw head is moved into the receptacle, and receiving means in the body for the wire.

2. In a wire connection, a wire securing screw having a head, a receptacle having a bottom and an upstanding wall, the bottom being apertured for the passage of the screw therethru into a support for the receptacle, and the wall being arranged concentric with the head to receive the same, cutting means forming a part of said wall whereby a wire end will be severed by the compression of the same between the screw head and said means, and receiving means in the body for the wire.

3. In a wire connection, a wire securing screw having a head, a receptacle-like body having a bottom with a central aperture for the passage of the screw, an upstanding wall defining a circular area substantially equal to the circular area of the screw head, the screw head being designed to snugly fit into the receptacle, means for holding the wire against turning when the same is wound about the screw and the latter is tightened, and means for effecting the severance of the terminal portion of the wire when the screw head is moved into the receptacle.

4. In a wire connection, a wire securing screw having a head, a receptacle-like body having a bottom with a central aperture for the passage of the screw, an upstanding wall defining a circular area substantially equal to the circular area of the screw head, the screw head being designed to snugly fit into the receptacle, means for holding the wire against turning when the same is wound about the screw and the latter is tightened, and a wire receiving notch formed in the edge of the receptacle wall having a sharpened cutting edge against which the terminal portion of a secured wire is forced by the screw head as it moves into the receptacle.

5. In a wire securing connection, a wire securing screw having a head, a receptacle-like body having a bottom provided with a central aperture for the passage of the screw, an upstanding wall defining a circular area sufficient to snugly receive the screw head, said wall having a wire receiving recess therein, a wire receiving notch in the wall having a sharpened edge against which a portion of the end of the wire is adapted to be forced by the screw head as the latter enters the receptacle, and means forming a part of the receptacle for preventing turning of the receptacle with the screw as the latter is tightened up.

6. In a wire securing connection, a wire securing screw having a head, a receptacle-like body having a bottom provided with a central aperture for the passage of the screw, an upstanding wall defining a circular area sufficient to snugly receive the screw head, said wall having a wire receiving recess therein, a wire receiving notch in the wall having a sharpened edge against which a portion of the end of the wire is adapted to be forced by the screw head as the latter enters the receptacle, said wire receiving recess extending to the bottom of the wall, and said wall being separate throughout a portion of its circumferential extent and from each side of the recess from the said bottom to form resilient inward pressing fingers adapted to engage the edge of said screw head to force the same firmly against the inner side of the wall adjacent the area in which the wire receiving notch is formed.

7. In a wire connection, a wire securing screw having a head, a receptacle having a bottom and an upstanding wall, the bottom being apertured for the passage of the screw and the wall being arranged concentric with the head to receive the same wire holding means preventing a wire on the screw from turning therewith, a wire receiving recess in the edge of said receptacle wall, and a cutting edge formed at the bottom of said recess for severing a wire forced thereagainst by the screw head.

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