May 7, 1929. H. F. VAUGHN ET AL 1,711,912

ELECTRICAL INSTALLATION ASSEMBLAGE AND CONDUCTOR CLAMP

Original Filed Nov. 18, 1926 2 Sheets-Sheet 1

Fig. 1.

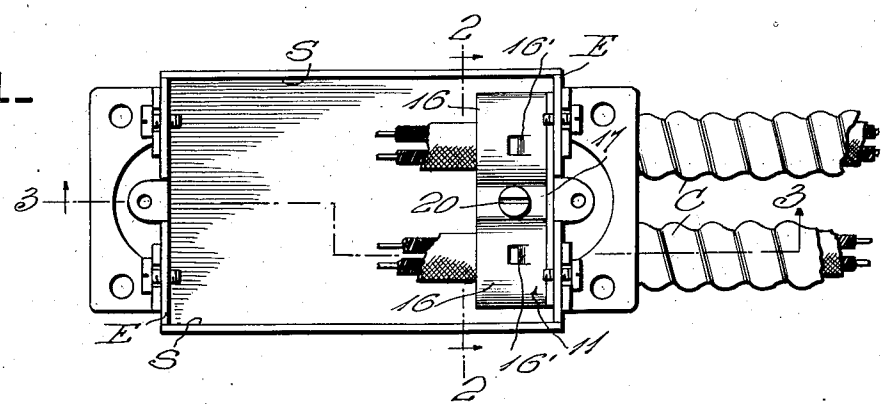


Fig. 2.

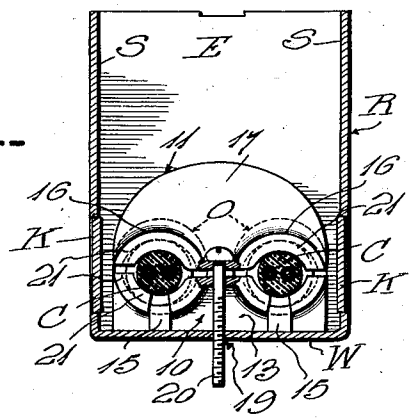
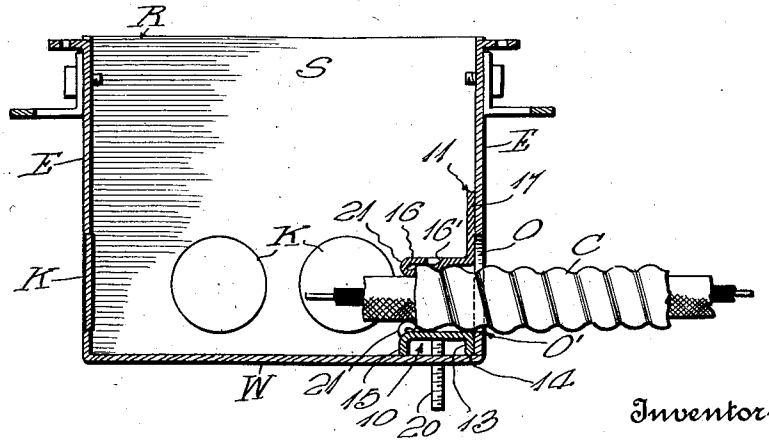


Fig. 3.



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ELECTRICAL INSTALLATION ASSEMBLAGE AND CONDUCTOR CLAMP

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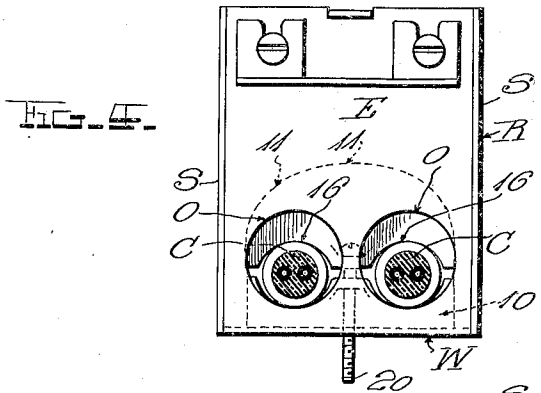


Fig. 4.

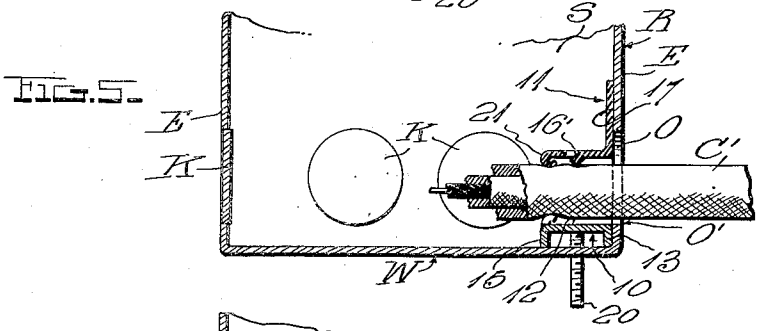


Fig. 5.

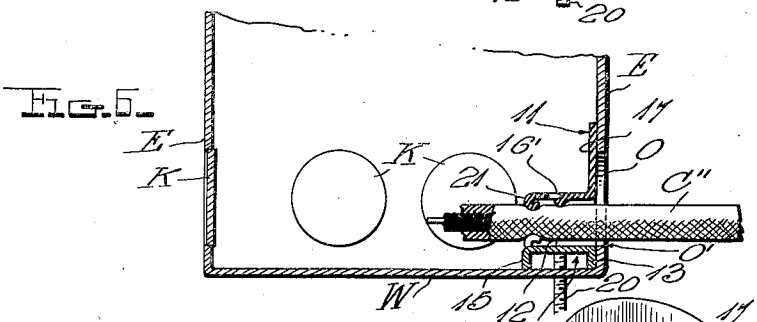


Fig. 6.

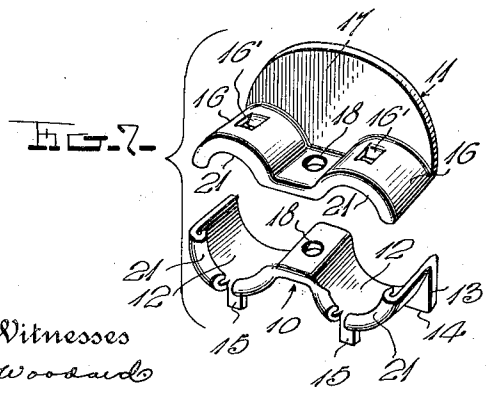


Fig. 7.

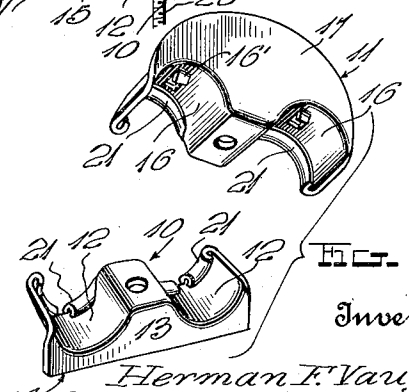


Fig. 8.

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UNITED STATES PATENT OFFICE.

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ELECTRICAL INSTALLATION ASSEMBLAGE AND CONDUCTOR CLAMP.

Application filed November 18, 1926, Serial No. 149,198. Renewed March 22, 1929.

The invention relates to the anchorage of armored conductors to switch boxes, outlet boxes and other receptacles used in electrical installation. Such receptacles are commonly provided with knockouts to form conductor-receiving openings at the most advantageous locations, and it is customary to provide clamps for holding the conductors against edge walls of their receiving openings, but if the conductors be provided with non-metallic armor, these edge walls have a tendency to cut such armor. It is the principal object of the present invention to provide an improved construction whereby each conductor is held between complementary relatively stationary and movable clamp sections, the stationary section being provided with receptacle-abutting means which holds it in such relation with the receptacle as to prevent the edge of the conductor-receiving opening from engaging the armor in a way liable to injure the same.

A still further object is to make provision whereby a single screw-threaded fastener will hold the two clamp sections in conductor-clamping relation and will also secure them in fixed relation with the receptacle.

Yet another aim is to provide a construction which is exceptionally simple and inexpensive and may therefore be easily manufactured and sold at small cost, yet will be highly practical and efficient, and will permit quick and easy clamping of one or more conductors to a receptacle.

With the foregoing in view, the invention resides in the novel subject matter hereinafter described and claimed, the description being supplemented by the accompanying drawings.

Fig. 1 is an elevation looking into a receptacle equipped with the improved clamping means and showing two metallic-armored conductors held by said means.

Figs. 2 and 3 are respectively a transverse and a longitudinal sectional view as indicated by the correspondingly numbered lines of Fig. 1.

Fig. 4 is an end elevation of the parts shown in Figs. 1, 2 and 3, the conductors being in section.

Figs. 5 and 6 are views similar to Fig. 3 but illustrating the manner in which conductors of different diameters and having non-metallic armors may be held by the improved clamping means.

Fig. 7 is a perspective view showing the two clamp sections in juxtaposition.

Fig. 8 is a view similar to Fig. 7 but looking in different directions at the clamp sections.

The receptacle herein disclosed, is of conventional form and is denoted in a general way by the reference character R, said receptacle having the usual back wall W, end walls E and side walls S, the numerous walls being provided with knockouts K, any of which may be removed to form openings O to receive the requisite number of conductors. In Figs. 1 to 4, the conductors C are provided with twisted metal armors, in Fig. 5, the conductors C′ are provided with non-metallic armors known as loom, and in Fig. 6, smaller conductors C″ are shown, having non-metallic armors. Our invention is well adapted to the securing of any of these common types of conductors to the receptacle R, and the construction is such that the clamping means will in no manner injure the armor. Moreover, this construction will effectively clamp the conductors regardless of their size and will effectively close the portions of the openings O, unoccupied by the conductors.

A preferred form of construction is herein disclosed, and will be rather specifically described, with the understanding however that within the scope of the invention as claimed, numerous variations may be made. The conductor clamping means is preferably of dual form, but is not necessarily restricted to such form.

10 and 11 designate relatively movable clamp sections disposed within the receptacle R, the section 10 being disposed in the angle between the wall W and one of the right angularly disposed walls provided with the openings O. This section 10 is formed with curved seats 12 to engage the conductors and to substantially follow the edge portions of the openings O, toward the wall W, and said section 10 is provided with receptacle-engaging means facing in the opposite direction from the seats 12, to abut the wall W to hold said section in the requisite relation with said edges of the openings.

In the preferred form of construction, the clamp section 10 is elongated and is formed near its ends with depressions which extend transversely of the section from edge to edge thereof, providing the seats 12. At one edge of the section 10, the latter is provided with a longitudinal flange 13 preferably having a

straight free edge 14 to contact with the wall W. At the other longitudinal edge of the section 10, the latter is provided with legs 15 which project in the same direction as the flange 13, that is, in the opposite direction from that in which the seats 12 face. The legs 15 are also intended to abut the wall W as seen clearly in the drawings, and by having the section 10 rest solidly upon these legs and the flange 13, it is held in the desired relation with the receptacle R, when the clamp is engaged with the conductors.

The movable clamp section 11 is very similar to the clamp member disclosed in our U. S. Patent 1,611,499 dated December 21, 1926. This clamp section embodies two curved conductor-engaging portions 16 opposed to the seats 12, and said section also embodies a portion 17 to close the portions of the openings O, unoccupied by the conductors.

The two sections 10 and 11 are formed with alined openings 18, which openings are in alinement with an opening 19 in the wall W, so that a single screw 20 may be passed through said openings 18 and 19 for drawing the two clamp sections 10 and 11 into conductor-clamping position and for holding the receptacle-abutting means 13—15 tightly seated against the wall W, as well as retaining the clamp portions 13 and 17 against the wall through which the openings O are formed, it being of course understood that the openings 18 are smooth-walled, whereas the wall of the opening 19 is threaded for engagement with the screw 20.

When the device is installed, in the manner described and illustrated in the accompanying drawings, the conductors cannot engage the edge portions O′ of the openings O, toward the wall W, in any manner tending to injure the conductor armor, and regardless of the nature of such armor, the conductors will be effectively clamped in a non-injurious manner.

To engage twisted metallic armors of the conductors, the clamp portions 16 are preferably formed with inwardly stamped tongues 16′, and in order to protect the insulation of the conductors against injury by the usual ragged ends of the metallic armors, the clamp sections 10 and 11 preferably have inturned edges or beads 21 to abut the armor and engage the insulation as shown. These beads 21 perform the additional function of anti-slippingly engaging conductors having non-metallic armors, as will be clear from Figs. 5 and 6, and even though the tongues 16′ may come in contact with these armors, the main gripping function is performed by the beads and the curved portions 12—16, and hence, it is not necessary that the detents 16′ shall hold the conductors against longitudinal movement, so that said detents have no tendency to cut the armors.

For ease of manufacture, both clamp sections 10 and 11 are preferably formed from metal stampings, as will be clear from the drawings, but it is to be understood that said clamp sections could be formed in any other suitable way.

It will be seen from the foregoing that we have devised an exceptionally simple, inexpensive and practical means for clamping different kinds and sizes of conductors to the receptacle without danger of injury; the portions of the openings O unoccupied by the conductors will be effectively closed by the portion 17, and that the abutting relation of this portion and the flange 13 with the wall in which the openings are formed, effectively resists any outward pull upon the conductors.

We claim:

1. A conductor clamp section comprising an elongated member having spaced depressions extending transversely from edge to edge in one of its sides, providing conductor-engaging seats facing in one direction, one of said edges having a longitudinal flange projecting in the opposite direction and provided with a free edge to abut a wall of a receptacle when the clamp section is in use in the latter, the other of said edges having legs projecting from the central portions of said depressions and in the same direction as said flange to abut the above-named receptacle wall and the last named edge having conductor-engaging stops on opposite sides of said legs.

2. In a conductor clamp section, a sheet metal stamping having a body portion formed with a transverse depression providing a conductor seat facing in one direction, one end of said seat having a central leg bent in the opposite direction to abut a receptacle in which the clamp section is used, said end of said seat being rolled inwardly at opposite edges of said leg to provide rounded conductor-engaging ribs and means on said body portion to co-operate with said leg in supporting the section in a receptacle.

3. In a conductor clamp section, a sheet metal stamping having a body portion formed with a transverse depression providing a conductor seat facing in one direction, one end of said seat having a central leg bent in the opposite direction to abut a receptacle in which the clamp section is used, said end of said seat being rolled inwardly at opposite edges of said leg to provide rounded conductor-engaging ribs, the edge of said body portion opposite said leg having a longitudinal flange bent in the same direction as said leg to also abut the receptacle.

In testimony whereof we have hereunto affixed our signatures.

HERMAN F. VAUGHN.
RAYMOND R. TERPENING.