Oct. 26, 1948. D. E. COLE 2,452,184

CONNECTOR

Filed Oct. 25, 1945

Fig. 1.

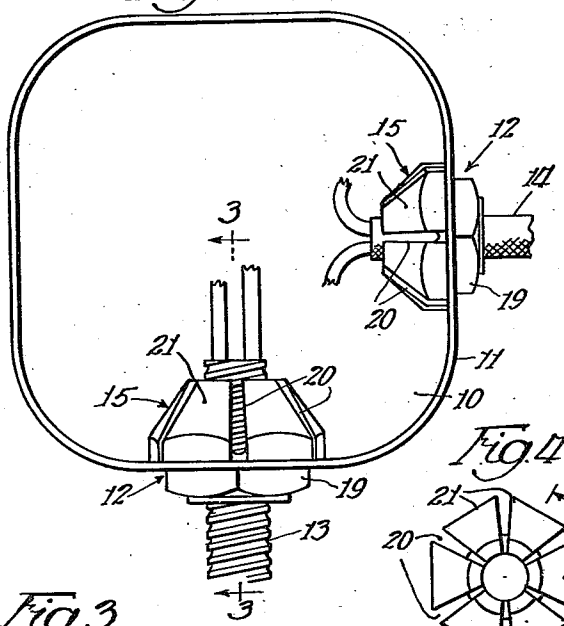


Fig. 2.

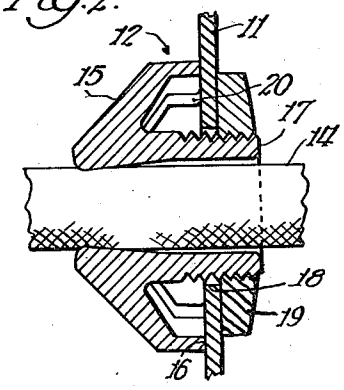


Fig. 4

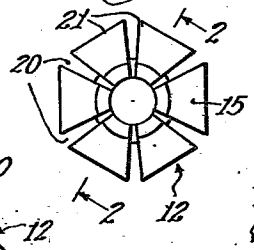


Fig. 5

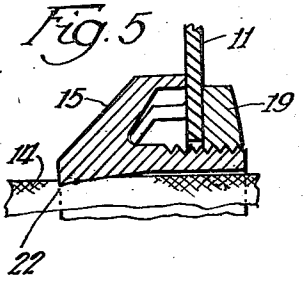


Fig. 3

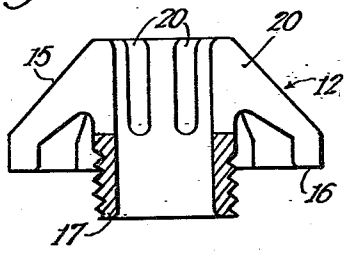


Fig. 6.

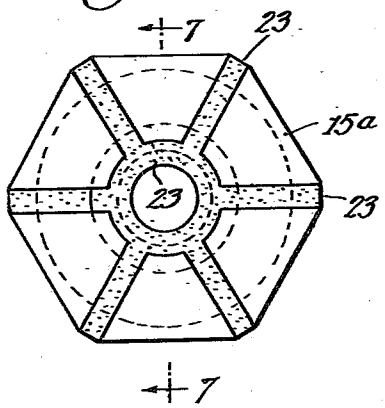
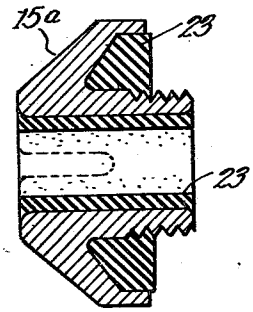


Fig. 7



Inventor
Dalton E. Cole

By: Shiewshie Attys

Witness:
V. Siljander

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CONNECTOR

Dalton E. Cole, Chicago, Ill.

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7 Claims. (Cl. 285—6.5)

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This invention relates to connectors and more particularly it relates to a device for anchoring an element such as an electric conduit, an electric conductor or the like to a support such as an outlet box or junction box or the like.

One of the objects of this invention is the provision of a connector which may be easily and securely fastened to the support with the connected element gripped by the device, whereby it is securely anchored to the support.

Another object is to provide a two part connector with the body portion of one part disposed at one side of the wall of the support and the other part disposed on the opposite side of the wall, with the two parts partly gripping the wall and one of the parts tightly gripping the connected element.

Another object is to provide a two part connector, one part of which is formed with jaws for engaging the element connected to the support, and the other part having a threaded connection with the first part whereby when the two parts are screwed up tightly with the wall of the support interposed between them the jaws are swung into gripping engagement with the connected element.

Other objects and advantages will appear in the course of this specification, and with all of said objects and advantages in view, this invention consists in the several novel features hereinafter fully set forth and claimed.

The invention is clearly illustrated in the drawing accompanying this specification, in which:

Fig. 1 is a front elevation of a junction box illustrating two of the connectors secured upon one of its walls;

Fig. 2 is an enlarged detail longitudinal section taken through one of the connectors and showing its application to the wall of a support;

Fig. 3 is an enlarged detail section through the body portion of one of the connectors seen in Fig. 1, the line of section being indicated at 3—3 in Fig. 1;

Fig. 4 is an end elevation of the body portion of one of the connectors seen in Fig. 1;

Fig. 5 is a fragmental longitudinal section showing a slightly modified form of the invention;

Fig. 6 is an end elevation upon an enlarged scale of the body portion of a modified form of connector, and

Fig. 7 is a vertical cross section taken on the line 7—7 of Fig. 6.

Referring to said drawing and first to Figures 1 to 4 inclusive, the reference character 10 designates a support, here shown in the form of an

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outlet or junction box, to the wall 11 of which two of the connectors 12 are fastened, one serving to anchor an armored cable 13 to the box, and one serving to anchor an electrical conductor 14 to the box.

The connectors shown in Fig. 1 are similar in construction, one being slightly larger than the other to accommodate it to an armored cable 13 which is of a diameter slightly greater than that of the electrical conductor 14. The description of one connector will therefore suffice for both.

The body portion 15 of each connector is preferably of a truncated cone shaped form, the base of which terminates in an annular bearing face or shoulder 16 which is adapted to abut against one face of the wall 11. The body portion of the connector is recessed inwardly from the bearing face end and from the middle portion of the body portion extends a screw threaded nipple 17 which projects beyond the plane of the annular bearing face 16 and is adapted to extend through a hole 18 in the wall 11 to receive a clamping member 19, here shown in the form of a nut.

The conical part of the body portion is slotted radially as at 20 to provide segments 21, said slots extending from the threaded nipple which is not slotted throughout the greater portion of its length, and forms the connecting medium between the segments 21. The hole in the nipple is extended through the conical part of the body portion and is of a diameter to permit the free insertion of an armored cable, an electrical conductor or other element through the body portion and, except when in use, said hole is cylindrical. The corners formed between the wall of the hole and the end faces of the segments are desirably rounded off as seen in Figs. 2 and 3.

In anchoring an element such as an armored cable, electric conductor or the like to a support, the threaded nipple is inserted through the selected hole in the support and the clamp nut partially screwed up on the threaded nipple. The end of the element to be anchored to the support is then inserted through the nipple and into the interior of the support for a sufficient distance to make the necessary connections therein. The nut is then screwed up tight against the wall. Inasmuch as the body portion of the connector bears against the wall at its peripheral portion only, the continued tightening up of the nut draws the nipple and therewith the apex end of the segments in the direction of the wall, thereby causing the apex ends of the segments to converge toward the element, thereby impinging up-

on the element and indenting it slightly thus effectively anchoring the element to the support so that it cannot be pulled away therefrom.

In the form of the invention illustrated in Fig. 5, the parts are substantially the same as those of the corresponding parts seen in Figs. 1 to 4, except that the corners formed between the internal walls of the nipple portion and the end faces of the segments are pointed or sharpened as at **22**, and they cut into the connected element when the nut is screwed up tightly.

In the form of the invention illustrated in Figs. 6 and 7, the construction of the body portion **15***a* of the connector is substantially the same as that shown in Figs. 1 to 4 inclusive, except that the tapered faces are flat, and a rubber or other elastic filler **23** is filled in the slots between the segments and in the recess at the back of the body portion and the bore through the nipple and body portion is lined with similar material, thereby providing a seal between the support and connector. When the clamping nut is applied, this resilient or plastic material will be deformed by the pressure exerted to close or fill in all the holes or dents, whereby moisture, gas or air escape. In the case where both units may be metallic as well as the conduit, this resilient or plastic element may be made of an electrical insulating material which will further serve the purpose of becoming an electrical insulator. When this resilient material is introduced it will permit reasonable movement of the conductor, cable, conduit or other element due to expansion, contraction or other vibration without affecting the seal.

The body portion of the connector may be formed of metal or other resilient material such as plastic.

The use of this device is not necessarily restricted to the use of, or application to, the anchoring electrical conductors, but may be applied to many other uses such as holding or clamping of hollow pipes for fuel lines, water lines, gas lines, etc., through the holding of rods, bars or shafts, clamping of cords, cables or ropes, or for holding any device in locked or anchored location.

Having thus described my invention, it is obvious that various immaterial modifications may be made in the same without departing from the spirit of my invention; hence, I do not wish to be understood as limiting myself to the exact form, construction, arrangement and combination of parts herein shown and described or uses mentioned.

What I claim as new and desire to secure by Letters Patent is:

1. A device of the kind described for anchoring an element to an apertured supporting member, with the element extended through the aperture in said supporting member, comprising a unit having a hole extending axially through the same of a size to permit insertion of the element therethrough, and having one end reduced to provide a nipple of a size to be insertable through the aperture in said supporting member and to provide a flat shoulder adjacent the juncture of the nipple, said unit having a plurality of axially extending slots extending from the adjacent shoulder to the smaller end of the unit and providing segmental jaws capable of flexing on the nipple, a second unit adjustably mounted on the reduced end of the first unit and operative to draw the shoulder of the first unit into engagement with the supporting member a distance sufficient to contract the slotted end of the first unit to engage the element positioned in the hole.

2. A device of the kind described for anchoring an element to an apertured supporting member, with the element extended through the aperture in the supporting member, consisting of a recessed body portion having an annular flat shoulder and a nipple extending from the body of a size to project through said aperture, the body portion and nipple having a tubular bore of a size to permit the insertion of the element therethrough, said body portion being tapered adjacent its juncture with the nipple to its end, and having radially extending slots intercepting the bore to provide a plurality of segmental jaws capable of flexing on the nipple, and means for drawing the annular shoulder of the body portion into contact with the supporting member, actuated to contract the jaws at their free ends and clamp the element in place.

3. A connector adapted to anchor an element to an apertured supporting member, comprising two cooperative units, one comprising a tapered body portion having an annular flat shoulder at the base, adapted to engage one side of the supporting member, said body portion being formed with a screw threaded nipple extending axially of the body portion and beyond the base thereof and adapted to extend through the aperture to the supporting member, said body portion and its nipple having a hole extending therethrough of a diameter to permit insertion of the element therethrough, and said tapered body portion having radially extending slots extending to said nipple with segments of the body portion disposed between the slots and capable of flexing on the nipple, and the second unit comprising a nut threaded upon said nipple and adapted to bear against the opposite side of the supporting member, said nut when screwed up tight functioning to contract the free ends of the segments upon the element.

4. A connector adapted to anchor an element to an apertured supporting member, comprising two cooperative units, one comprising a tapered recessed body portion having an annular flat shoulder at its base adapted to engage one side of the supporting member, said body portion being formed with a screw threaded nipple extending axially of the body portion and beyond the base thereof and adapted to extend through the aperture of the supporting member, said body portion and its nipple having a hole therein of a diameter permitting the insertion of the element therethrough, and said tapered body portion having radially extending slots extending to the nipple providing resilient jaws between the slots capable of flexing on the nipple, and the second unit comprising a nut threaded upon said nipple and adapted to bear against the opposite side of the supporting member, said nut when screwed up tight functioning to contract the free ends of the jaws upon the element.

5. A connector adapted to anchor an element to an apertured supporting member, comprising two cooperative units, one comprising a radially slotted tapered body portion having an annular flat shoulder at its base forming a flat seating face adapted to engage one side of the supporting member, there being a recess extending inward from said shoulder, said body portion being formed with a screw threaded nipple extending axially of the body portion, said body portion and its nipple having a hole therein of a diameter permitting the element to be inserted therethrough, a filler of yieldable material in the slots,

in the recess, and lining the wall of the hole in the body and nipple, and the second unit comprising a nut threaded upon said nipple and adapted to bear against the opposite side of the supporting member, said nut when screwed up tight functioning to contract the free ends of the jaws upon the element and to compress the yieldable material.

6. A connector adapted to anchor an element to an apertured supporting member, comprising two cooperative units, one comprising a radially slotted tapered body portion having an annular flat shoulder at its base forming a flat seating face adapted to engage one side of the supporting member, said slotted tapered body portion providing segmental jaws, and there being a recess extending inward from said shoulder, said body portion being formed with a screw threaded nipple extending axially of the body portion, said body portion and its nipple having a hole therein of a diameter permitting the element to be inserted therethrough, a filler of yieldable insulating material in the slots, in the recess, and lining the wall of the hole in the body and nipple, and the second unit comprising a nut threaded upon said nipple and adapted to bear against the opposite side of the supporting member, said nut when screwed up tight functioning to contract the free ends of the jaws upon the element and to compress the yieldable material.

7. A connector adapted to anchor a conductor or cable to an apertured outlet box, comprising two cooperative units, one comprising a tapered

recessed body portion having an annular flat shoulder at the base adapted to engage one side of the outlet box, said body portion being formed with a threaded nipple extending axially of the body portion and beyond the base thereof, and adapted to extend through the aperture in the outlet box, said body portion and its nipple having a hole extending therethrough of a diameter to permit insertion of the conductor or cable therethrough, and said tapered body portion having radially extending slots extending from the base to the nipple, with segments of the body portion disposed between the slots capable of flexing on the nipple, and the second unit comprising a nut threaded upon said nipple and adapted to bear against the opposite side of the outlet box, said nut when screwed up tight functioning to contract the smaller ends of the segments upon the conductor or cable.

DALTON E. COLE.

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