No. 861,456. PATENTED JULY 30, 1907.

E. T. GREENFIELD.

CONNECTOR.

APPLICATION FILED OCT. 24, 1906.

Fig. 1

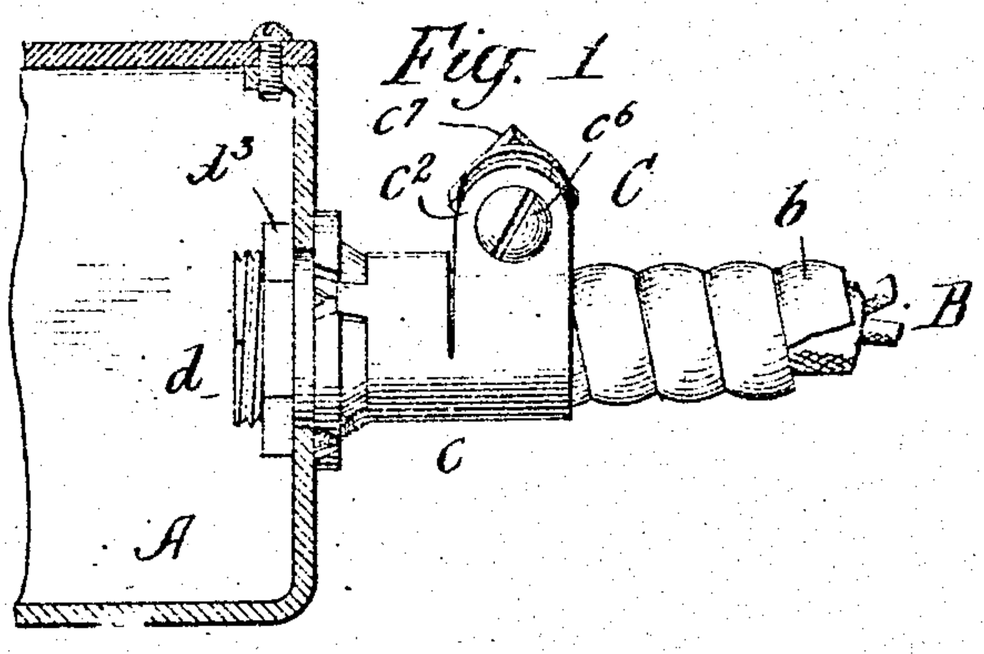


Fig. 5,

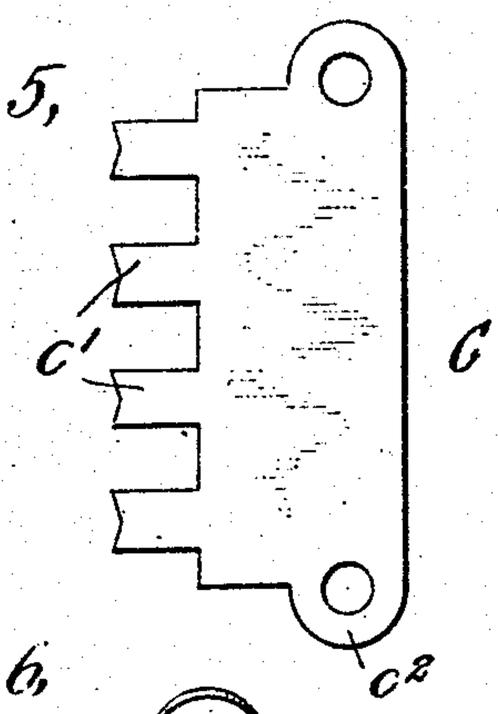


Fig. 2,

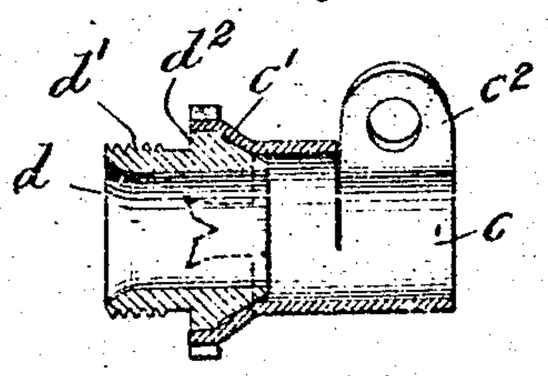


Fig. 6,

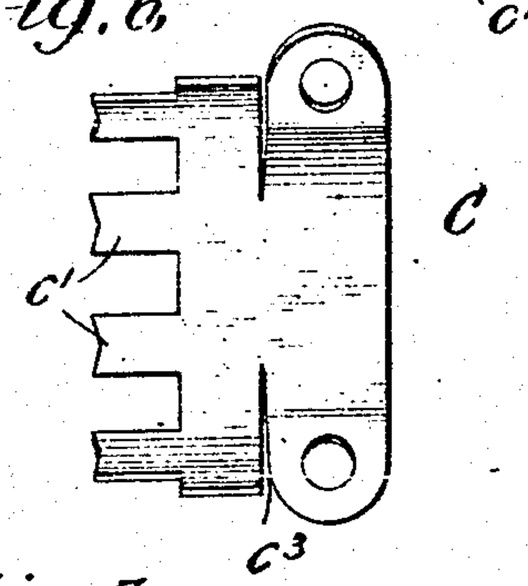


Fig. 3,

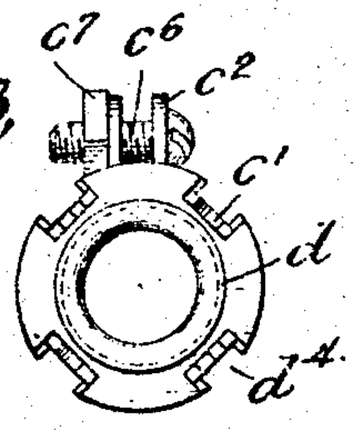


Fig. 7,

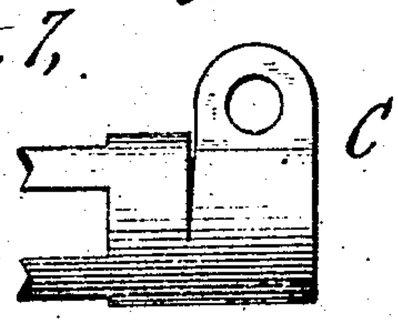


Fig. 11,

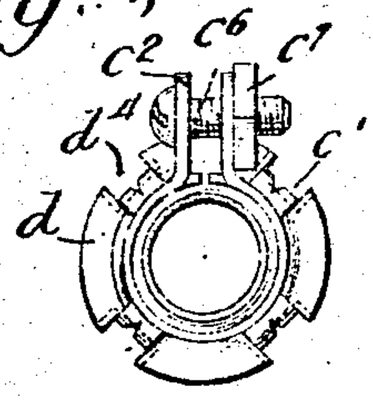


Fig. 9,

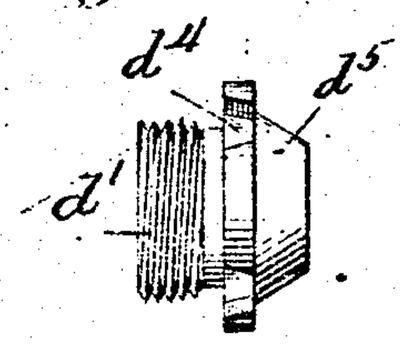
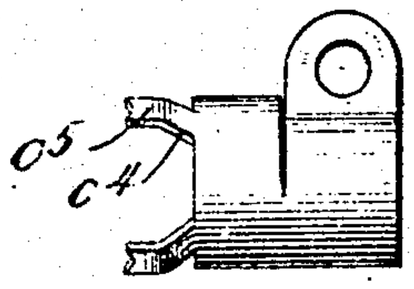


Fig. 8,



WITNESSES:

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EDWIN T. GREENFIELD, OF KIAMESHA, NEW YORK.

CONNECTOR.

No. 861,458. Specification of Letters Patent. Patented July 30, 1907.

Application filed October 24, 1906. Serial No. 340,401.

To all whom it may concern:

Be it known that I, EDWIN T. GREENFIELD, a citizen of the United States, residing at Kiamesha, in the county of Sullivan and State of New York, have invented certain new and useful Improvements in Connectors, of which the following is a specification.

This invention relates to connectors for electric conductors adapted for such uses as the connection of a conductor to the wall of a junction box through an opening in which the conductor extends to the interior of the box.

The object of the invention is to provide a connector for securing a conductor to the wall of a junction box or other support and holding it firmly thereto against all the strains to which the conductor is subjected, which is so constructed that the materials therefor are of low cost and can be shaped and assembled at a minimum expense of time and labor. This object is attained by forming the major part of the connector from a sheet-metal blank which may be stamped from a sheet of metal, as by a punch-press, and bent to the desired shape rapidly and at small expense. This part is provided at one end with a clamping device which may be tightened up to grip a conductor extending therethrough and at the other with means for securing it to a suitable attaching device.

The attaching device may be of any suitable form depending to some extent on the use to which the complete connector is to be put; it is preferably a metal casting, hollow to permit the conductor to pass therethrough, and having notches to receive integral projections on the sheet-metal part to secure the two parts together.

I have illustrated the preferred embodiment of my invention in the accompanying drawings in which

Figure 1 is an elevation of the connector shown as securing a conductor to a junction box wall, Fig. 2 is a section of the connector, Figs. 3 and 4 are views of opposite ends thereof, Figs. 5 to 8, inclusive, are views of the sheet-metal part illustrating the steps in the manufacture thereof and Fig. 9 is a view of the attaching device.

Referring to the drawings, A indicates a junction box having an opening in the side wall thereof through which the end of a conductor B is to be carried to the interior of the box, the conductor being provided preferably with an armoring *b* of spirally-formed metallic strip. The conductor is secured to the wall of the box by a connector C consisting of a sheet-metal part *c* and an attaching device *d* secured together as hereinafter described. The device *d* is a hollow casting and of any suitable size and shape; the form shown in the drawing may be employed or the device may be of considerable length and be curved intermediate its ends. At its rear end it has a threaded portion d' and a shoulder d^2 adjacent thereto so that this threaded end may be inserted through the opening in the wall of the box until the shoulder engages the wall and a nut d^3 screwed thereon to secure the connector to the box.

The part *c* is formed from a sheet-metal blank which is stamped out to a generally rectangular shape and curled to cylindrical form. The preferred shape of the blank is shown in Fig. 5, integral projections c' being provided along one edge and integral ears c^2 with openings therethrough at the ends of the opposite edge. The blank thus formed is cut inwardly from the inner edges of the ears c^2 as at c^3, the ends of the blank curled upwardly and the ears c^2 bent at an angle to the body of the blank, all as shown in Fig. 6 and all of which may be performed in a single operation. The curling of the blank is then continued until the latter is of cylindrical form, the edges of the blank being brought together and the ears c^2 lying parallel and separated by a short space, as shown in Fig. 7. The projections c' are provided for securing the part to the attaching device and for this purpose they may, in a succeeding operation, be bent outwardly at an incline to the axis of the connector, forming the part c^4, and then inwardly, forming the parts c^5 paralleling the axis of the connector. For convenience in assembling the parts the extreme ends of the projections c' may be notched, as shown, forming two teeth thereon.

The shoulder d^2 above referred to is preferably formed by providing a peripheral flange on the attaching device and in this flange is cut a number of notches d^4 equal to the number of projections c', the side walls of these notches being inclined as shown in Figs. 1 and 9. The outer end of the attaching device is preferably beveled off at d^5 at an incline to the axis corresponding to the inclination of the portions c^4 of the projections c'.

As thus constructed, the two parts are assembled by bringing them together with their axes coinciding until the beveled portion d^5 engages the inclined portions c^4 and the ends c^5 of the projections c' lie in the notches d^4. The ends c^5 are then spread to fill the notches d^4, as by striking them centrally with an edged tool, so that they coact with the inclined walls of the notches to form dove-tail joints between the two parts, as shown in Fig. 1. This holds the parts together so firmly that under all the conditions of use of the connector, they will not be pulled loose. A bolt c^6 is then inserted through the openings in the ears c^2 and a nut c^7 screwed up on its threaded end. By tightening this nut the ears c^2 may be drawn together, thus contracting the outer end of the connector until the walls thereof grip and firmly hold a conductor extending through the connector and into the box.

Having described my invention what I claim as new therein and desire to secure by Letters Patent of the United States is:

1. The combination of a junction-box having an opening in a wall thereof and a connector for holding a conductor

with its end extending through said opening consisting of a sheet-metal blank bent to cylindrical form, a hollow metallic attaching device secured to one end of said cylindrical part and formed to facilitate securing it to the wall of said box, and means for contracting the other end of the connector to grip a conductor, substantially as described.

2. The combination of a junction-box having an opening in a wall thereof and a connector holding a conductor with its end extending through said opening consisting of a sheet-metal blank bent to cylindrical form, a hollow metallic attaching device secured to one end of said cylindrical part and formed to facilitate securing it to a wall of said box, integral, outwardly-turned parallel ears at the other end of said cylindrical part, and means coacting with said ears for contracting the end of the connector to grip a conductor, substantially as described.

3. A connector consisting of a sheet-metal blank bent to cylindrical form, integral projections at one end thereof, a hollow metallic attaching device to which said projections are secured having a threaded portion to facilitate securing it to a support, and means for contracting the other end of said cylindrical part to grip a conductor, substantially as described.

4. A connector consisting of a sheet-metal blank bent to cylindrical form, integral projections at one end thereof, a hollow metallic attaching device to which said projections are secured having a threaded end, a nut threaded on said end, integral outwardly-extending parallel ears at the opposite end of the cylindrical part and means coacting with said ears for contracting the end of the connector to grip a conductor, substantially as described.

5. A connector consisting of a sheet-metal blank bent to cylindrical form, means at one end thereof for contracting said end to grip a conductor, integral projections at the opposite end, an attaching device having a threaded end and a peripheral flange on said device having notches therein, said projections extending into said notches and coacting with the walls thereof to secure the attaching device to the sheet-metal part, substantially as described.

6. A connector consisting of a rectangular sheet-metal blank having integral ears at opposite sides thereof with openings therethrough and cuts extending inwardly of the blank from the side of said ears, said blank being curled to cylindrical form and said ears being bent outwardly parallel to each other, means coacting with said ears for moving them relatively, an annular metallic attaching device secured to one end of said cylindrical part and having a threaded portion, and a nut on said threaded portion, securing the connector to a support, substantially as described.

7. A connector consisting of a rectangular sheet-metal blank having integral ears at opposite sides thereof with openings therethrough, cuts extending inwardly of the blank from the side of said ears, and integral projections on a third side of said blank, said blank being curled to cylindrical form, said ears being bent outwardly parallel to each other and said projections serving to secure the connector to a support, and means coacting with said ears for moving them relatively, substantially as described.

8. The combination of a junction-box having an opening in a wall thereof and a connector for holding a conductor with its end entering said opening consisting of a rectangular sheet-metal blank having integral ears at opposite sides thereof with openings therethrough, and cuts extending inwardly of the blank from the side of said ears, said blank being curled to cylindrical form and said ears being bent outwardly parallel to each other; means coacting with said ears for moving them relatively, said connector having a threaded end extending within said opening in the wall of the box, and a nut on said threaded end securing the connector to said wall, substantially as described.

This specification signed and witnessed this 23d day of October, 1906.

EDWIN T. GREENFIELD.

Witnesses:
S. O. EDMONDS,
D. S. EDMONDS.