

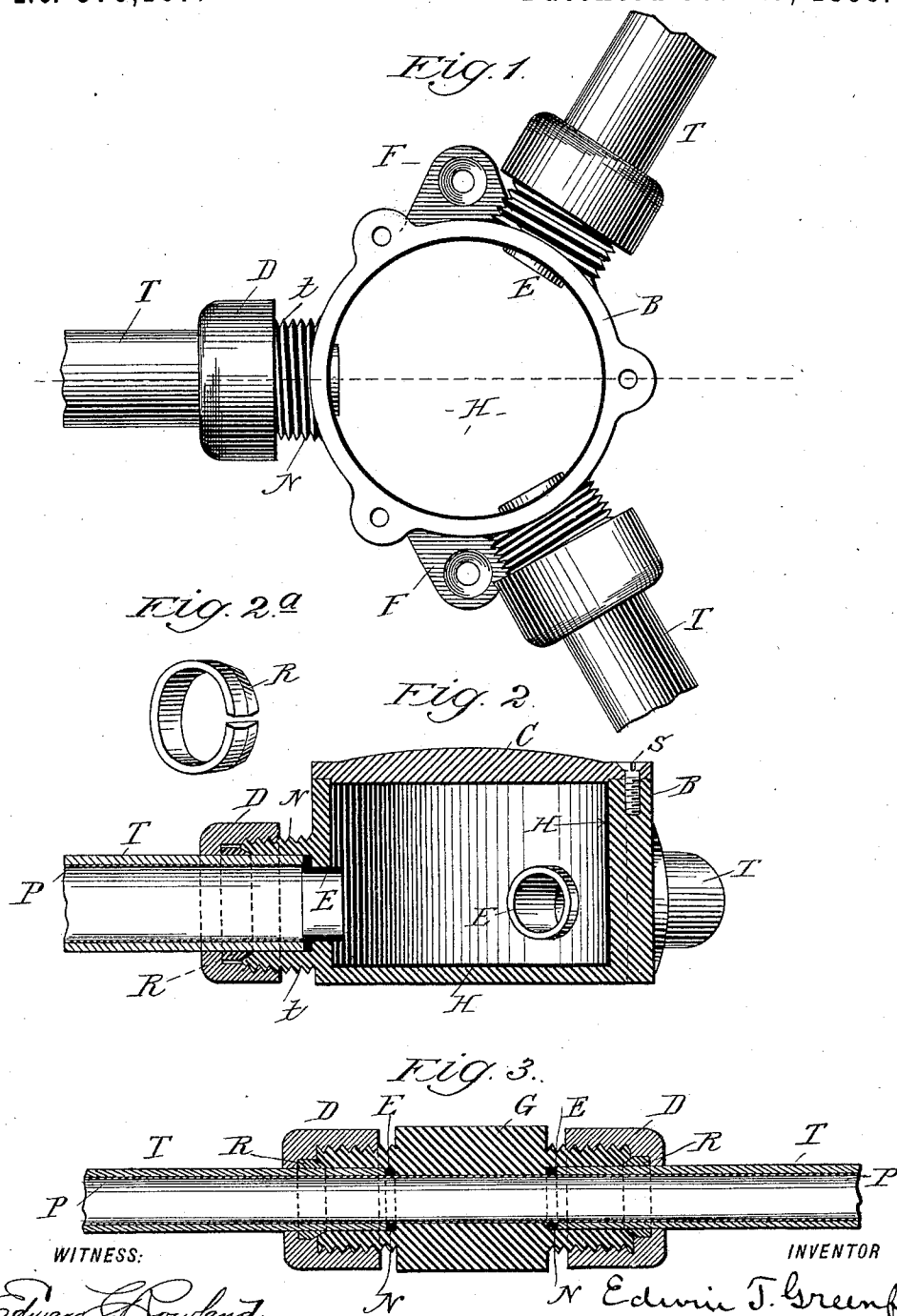
(No Model.)

E. T. GREENFIELD.

METALLIC JUNCTION BOX AND MEANS FOR UNITING METAL CONDUIT
TUBES THERETO.

No. 570,167.

Patented Oct. 27, 1896.



WITNESS:
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UNITED STATES PATENT OFFICE.

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METALLIC JUNCTION-BOX AND MEANS FOR UNITING METAL CONDUIT-TUBES THERETO.

SPECIFICATION forming part of Letters Patent No. 570,167, dated October 27, 1896.

Application filed April 6, 1896. Serial No. 586,428. (No model.)

To all whom it may concern:

Be it known that I, EDWIN T. GREENFIELD, a citizen of the United States, residing at New York, in the county of New York and State
5 of New York, have made a new and useful Improvement in Metallic Junction-Boxes and Means for Uniting Metal Conduit-Tubes Thereto, of which the following is a specification.

10 My invention has for its objects, first, to increase the efficiency of junction-boxes of the type named, and, second, to diminish the expense of the structure of such boxes and their attachments.

15 My invention will be fully understood by referring to the accompanying drawings, in which—

Figure 1 represents in plan view the interior of an electrical junction-box provided
20 with my improved means for attaching three radiating conduit-tubes thereto. Fig. 2 is a sectional view of the same, taken on line *xx*, Fig. 1. Fig. 2^a is a detail perspective view of one of the split locking-rings for locking
25 the parts together, and Fig. 3 is a longitudinal sectional view illustrating the application of my improved means of uniting conduit-tubes to junction-boxes as applied to
30 the joining together of a pair of conduit-tubes.

Prior to my invention it was old in the art to make metallic junction-boxes provided with tubular necks adapted to receive interiorly the ends of tubular conduits. It
35 has been customary in the use of such junction-boxes to unite such tubular conduits thereto in various ways, but not, however, with such security as would prevent them from being drawn out of the necks under undue strain. It is true that such a union
40 might be effected by providing female screw-threads for the inner surfaces of the projecting necks of such boxes and corresponding male screw-threads upon the outer surfaces
45 of the ends of the conduit-tubes; but such methods of union have heretofore been rejected owing to the expense of screw-threading the parts. It was with a view of providing a means of uniting these parts securely
50 together in a cheap and efficient manner that my present invention was devised, and

I will now proceed to describe the same, referring to the drawings in detail.

I cast junction-boxes B of soft metal in molds, under air-pressure, in a manner well
55 understood by those skilled in metal working, said junction-boxes being provided with any desired number of necks N N N, cast integral with the boxes and screw-threaded on their outer surfaces, the screw-threads being formed, preferably, during the process of casting. These junction-boxes are then lined
60 with paper H, treated with insulating material, or any preferred insulating-lining may be used and applied in any manner by those
65 skilled in the art.

F F represent lugs which are provided with screw-holes for securing the box to the wall or ceiling.

C represents a detachable cap adapted to
70 be secured to the top of the box by screws or in any preferred manner.

T T T represent armored conduit-tubes provided with insulating-linings P, the ends of said tubes being adapted to fit snugly
75 within the inner surfaces of the necks N N N.

R represents a split ring of metal adapted to fit snugly upon the outer surface of the tubes T, said split ring being cone-shaped at one end and adapted to fit in the corresponding cone-shaped outer ends of the necks N
80 N N.

D represents a screw-threaded locking-collar which is adapted to fit over the ends of the tubes T so that its inner surface will
85 abut against the base of the split ring R, said locking-collar, with its screw-threads, being cast under pressure in the same manner as was the box B.

E represents a flanged thimble of insulating material adapted to fit in the inner end of the neck N so that its free end extends into the junction-box slightly beyond the insulating-lining H thereof.

In uniting the parts together the thimbles
95 E are inserted in the manner shown in Fig. 2 into the necks N of the junction-box, and the ends of the tubes T are inserted against the flanged ends of said thimbles, the locking-collars D and rings R having first been slipped
100 upon said tubes. The locking-collars are then turned through the agency of a pipe-

wrench into locking position, the screw-threads *t* on the collars *N* and the corresponding screw-threads in the locking-collars causing the wedge-shaped rings to force the tubes *T* firmly home against the flanges of the thimbles *E*. With such an arrangement the wedge action of the rings *R* causes the inner ends of the tubes *T* to be as firmly united to the junction-boxes as would be possible with screw-threads. In place of the rings *R*, I might use simple wedges disposed at various points around the tubes *T*.

In Fig. 3 I have shown the application of my improved locking means for uniting two armored tubes *T T* together through the agency of a locking-joint *G* and the locking-collars *D D* and locking-rings *R R*, *E E* being insulating gaskets or rings adapted to complete the insulation between the insulating-lining *P P* of the tubes and the corresponding insulating-lining of the locking-joint *G*.

My claims hereinafter made are designed to cover also the application of this feature to uniting pipes or tubes together, as well as to the union of tubes to junction-boxes. This invention also has equal utility in connection with concentric systems of conductors in which the outer tube *T* and the junction-box *B* constitute a part of the electrical conducting system.

In the event of the use of my invention with concentric systems of conductors the outer ends of the tubes *T* and the inner surfaces of the integral necks *N* should be preferably electroplated with copper, and the split ring *R* should be of copper or other good conducting metal. I should prefer also to have the locking-collar *D* in that event of copper, for the purpose of increasing the conductivity of the system. When used in connection with concentric systems, the lining *II* and thimbles *E* might, if preferred, be done away with, the interior or concentric conductor being a well-insulated conductor.

Having thus described my invention, what

I claim, and desire to secure by Letters Patent of the United States, is—

1. A junction-box provided with an integral screw-threaded neck, a screw-threaded locking-collar and means for firmly gripping or holding a tube in place in alinement with said neck, said gripping means being adapted to exert a wedging action between the neck and the locking-collar, substantially as described.

2. A junction-box provided with an integral screw-threaded neck, in combination with a tube adapted to fit snugly within said neck, and a cone-shaped ring for gripping or holding the tube and the neck firmly together, substantially as described.

3. A junction-box provided with a series of integral screw-threaded necks, a series of tubes adapted to fit each snugly within one of said necks, and a locking-collar and wedging means for each neck adapted to unite said neck and tube together, substantially as described.

4. A junction-box provided with one or more exteriorly-screw-threaded necks, in combination with a screw-threaded locking-collar and a cone-shaped split ring for grasping or holding a pipe or tube in alinement with said neck, substantially as described.

5. A metallic junction-box provided with an insulating-lining and a series of hollow screw-threaded necks, an insulating-thimble for each neck extending within the box, an armored conduit-tube adapted to fit within each neck, a screw-threaded locking-collar for each neck, and a locking device controlled thereby, all of said parts being so arranged that when the collars are screwed home the parts are rigidly united together, substantially as described.

In testimony whereof I have hereunto subscribed my name this 4th day of April, 1896.

EDWIN T. GREENFIELD.

Witnesses:

C. J. KINTNER,
W. T. RUETE.