

Aug. 14, 1951

I. A. PAIGE
OUTLET BOX CONNECTOR
Filed March 25, 1949

2,564,341

Fig. 1

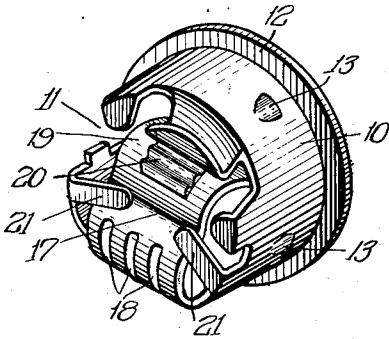


Fig. 2

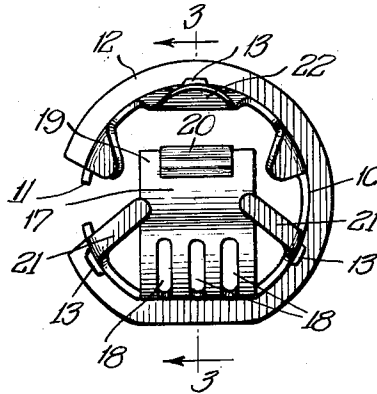


Fig. 4

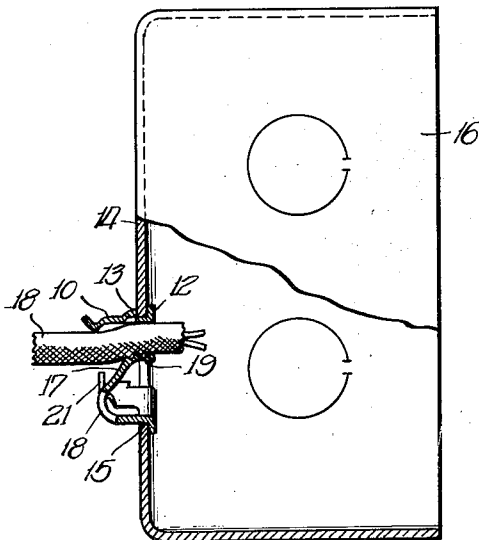
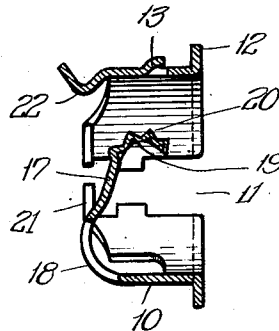


Fig. 3



INVENTOR.
Isaac A. Paige,
BY
Cromwell, Trust & Warden
attys.

UNITED STATES PATENT OFFICE

2,564,341

OUTLET BOX CONNECTOR

Isaac A. Paige, Chicago, Ill.

Application March 25, 1949, Serial No. 83,447

4 Claims. (Cl. 285—6.5)

1

This invention relates to improvements in a connector for use in securing an electrical conduit or cable in a knockout hole in an electrical outlet box.

It is a general object of the invention to provide a simple one-piece connector member for the purpose described which is so constructed that the electrician or other user may quickly and easily secure the connector to the conduit and to the outlet box.

It is a further object of the invention to provide a connector of the type described which comprises an integral one-piece tube-like spring metal member adapted to be radially contracted to permit insertion in the outlet box and retain the same therein and which is provided with a radially inwardly and axially forwardly directed spring finger for engagement with a conduit passed through the connector to resiliently retain the conduit in position in the connector.

It is another object of the invention to provide a connector of the type described comprising a one-piece tube-like section of resilient material which is longitudinally slotted to permit radial contraction for insertion in the knockout hole of the outlet box, which includes a radially inwardly and axially forwardly extending resilient finger or tongue adapted to engage a conduit passed through the connector and radially directed stop members extending inwardly of the resilient finger and limiting the rearward movement of the same when axial force is applied to the conduit to thereby prevent withdrawal of the conduit from the connector.

These and other objects and advantages will be apparent from a consideration of the preferred form of the invention which is shown by way of illustration in the accompanying drawings, wherein:

Fig. 1 is a perspective view of a one-piece connector embodying the principles of the invention;

Fig. 2 is an end elevation of the connector;

Fig. 3 is a cross-section taken on the lines 3—3 of Fig. 2; and

Fig. 4 is a view partially in section showing the connector installed in the knockout hole of an outlet box and securing an electrical conduit therein.

Referring to the drawings, the illustrated connector comprises a tubular section 10 constructed of spring material such as, for example, spring steel. The section 10 is provided with a slot 11 extending the full length of the section which is of sufficient width to permit substantial contraction of the section by gripping or squeezing the

2

same between the jaws of a pair of pliers or the like.

The forward edge of the section 10 is bent outwardly to provide an end abutment flange or shoulder 12. A plurality of projecting dimples or tongues 13 are struck outwardly in spaced circumferential relation around the periphery of the section 10 at a sufficient distance from the shoulder 12 to accommodate the edge of the wall 10 14 around the knockout hole 15 when the connector is installed in a conventional outlet box 16.

The section 10 is provided with a reversely bent strip-like finger or tongue portion 17 which extends radially inwardly and axially forwardly from the other end of the connector. The strip portion 17 is preferably an extension of the wall of the section 10 and is integral therewith as illustrated. It is curved or bent inwardly and forwardly of the section to provide a resilient retaining finger or tongue for engaging the surface of a conduit 18 when the latter is inserted in or passed through the section 10. The finger 17 is relatively wide and extends transversely of the section 10. It is weakened by slots 18 at the bottom where it connects with the wall of section 10 25 to insure that it will bend or spring about a point adjacent the same. At its inner end the finger 17 is provided with a rounded or curved portion 19, and on the upper surface of the same ridge formations or corrugations 20 are provided to bite into the surface of the conduit and insure non-slipping engagement with the same.

The section 10 is provided with radially inwardly extending stop or abutment members 21 which project rearwardly of the finger 17 and provide a limit or stop for any rearward movement of the finger 17, thus insuring that the conduit 18 will not be withdrawn when axial force is applied to the same because of rearward movement of the finger 17. The stop members 21 limit the rearward movement of the finger 17 in such a manner as to prevent any substantial movement of the finger in that direction.

The section 10 is provided at its rearward edge in opposed relation to the end 19 of the finger 17 with a ridge-like formation 22 formed by an extension of the wall of the section 10 which is bent radially inwardly and then outwardly. The ridge formation 22 engages the surface of the conduit 18 opposite the corrugations 20 on the finger 17 and cooperates with the same to hold the conduit 18 in clamping engagement between the finger 17 and the portions of the section opposite the same.

The connector is adapted to be first positioned

in the outlet hole 15 by contracting the section 10 with a pair of pliers or similar tool and inserting the contracted connector in the hole 15 with the tongues or dimples 13 engaging the outer surface of the wall 14 and the flange 12 engaging the inner surface of the same after the connector has been released and allowed to expand in the hole. The conduit 18 is then inserted by moving the same in an axial direction through the section 10 against the resilient pressure of the spring finger 17. When inserted the desired distance to bring the free end of the conduit 18 within the outlet box 16 any axial force applied to the conduit 18 in the direction to withdraw the same from the connector is resisted by the resiliency of the finger 17 and upon predetermined movement of the finger 17 the stop member 21. The movement of the finger 17 in the direction of the withdrawal of the conduit 18 tends to clamp the conduit more tightly between the end of the finger 17 and the opposite wall portions of the connector.

While specific materials and details of construction have been referred to in describing the illustrated form of the invention, it will be understood that other materials and other details of construction may be resorted to within the spirit of the invention.

I claim:

1. A connector for securing an electrical outlet conduit in a hole in an outlet box, comprising a one-piece hollow tube-like section of thin resilient sheet metal, said section being provided with a slot of substantial width extending longitudinally throughout the length of the section, said section being resiliently contractible to reduce the circumference thereof for insertion and expansion in the hole, said section having formed integrally with one end thereof a reversely bent tongue of substantial width which extends radially and axially within the body of said section, said tongue having a curved inner end adapted to be positioned with the outer curved surface thereof in resilient clamping engagement with one side of a conduit inserted in the section, and a reversely bent ridge forming extension on said one end arranged in opposed relation to said tongue for clamping engagement with the opposite side of said conduit.

2. A connector for securing an electrical outlet conduit in a hole in an outlet box, comprising a one-piece hollow tube-like section of thin resilient sheet metal, said section being provided with a slot extending longitudinally throughout the length of the section, the edges of the section which define the slot being substantially spaced apart to render the section resiliently contractible to reduce the circumference thereof for insertion and expansion in the hole, said section having formed integrally with one end thereof a reversely bent tongue of substantial width which extends radially and axially within the body of said section, said tongue having a curved inner end for resilient clamping engagement with a conduit inserted within the section, said tongue having weakened portions adjacent the edge of said section and said section having spaced outwardly directed abutments adjacent the other

end thereof for engagement with the opposite sides of the hole of the outlet box to prevent endwise movement of the section subsequent to its insertion and expansion in the hole.

3. A connector for securing an electrical outlet conduit in a hole in an outlet box, comprising a one-piece hollow tube-like section of thin resilient sheet metal, said section being provided with a slot extending longitudinally throughout the length of the section, the edges of the section which define the slot being substantially spaced apart to render the section resiliently contractible to reduce the circumference thereof for insertion and expansion in the hole, said section having formed integrally with one end thereof a reversely bent tongue of substantial width which extends radially and axially within the body of said section, said tongue having a curved inner end for resilient clamping engagement with a conduit positioned in the section and permitting ready insertion of the conduit from one end of the section and said section having formed integral therewith longitudinally spaced outwardly directed abutments adjacent the other end thereof for engagement with the opposite sides of the hole of the outlet box to prevent endwise movement of the section subsequent to its insertion and expansion in the hole.

4. A connector for securing an electrical outlet conduit in a hole in an outlet box, comprising a one-piece hollow tube-like section of thin resilient sheet metal, said section being provided with a slot extending longitudinally throughout the length of the section, the edges of the section which define the slot being substantially spaced apart to render the section resiliently contractible to reduce the circumference thereof for insertion and expansion in the hole, said section having formed integrally with one end thereof a reversely bent tongue of substantial width which extends radially inwardly and axially forwardly within the body of said section, said tongue having a curved inner end provided with corrugations on the outer surface thereof for resiliently clamping a conduit within the section and permitting ready insertion of the conduit from one end of the section into clamped engagement with said tongue, said section having integrally formed stop members which project radially inwardly of the same end thereof into the path of rearward movement of said tongue and said section also having formed integral therewith longitudinally spaced outwardly directed abutments adjacent the other end thereof for engagement with the opposite sides of the hole of the outlet box to prevent endwise movement of the section subsequent to its insertion and expansion in the hole.

ISAAC A. PAIGE.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
2,457,235	Hoehn	Dec. 28, 1948
2,466,504	Stoyer	Apr. 5, 1949