Nov. 11, 1941. O. S. FLATH 2,262,226

CONDUCTOR AND TRACK WIRE CONNECTOR FOR SIGNAL SYSTEMS

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Fig. 1.

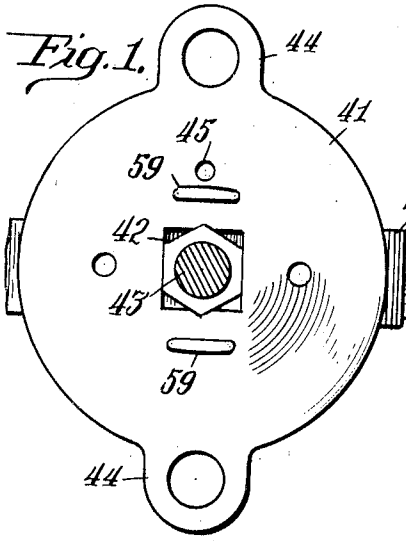


Fig. 2.

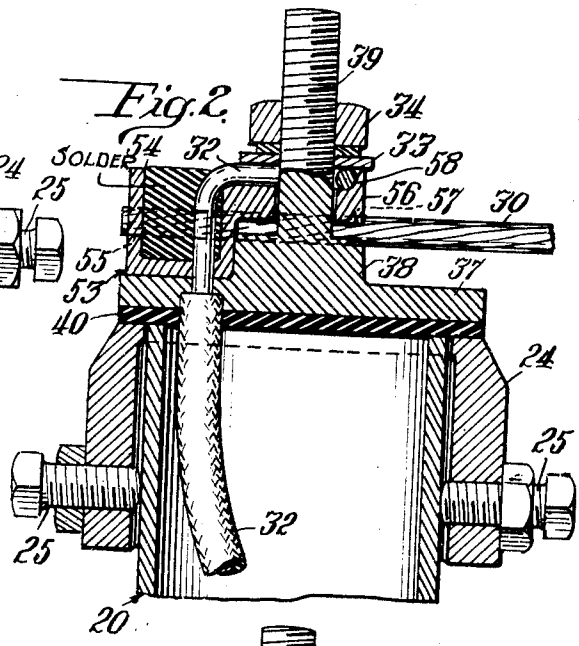


Fig. 4.

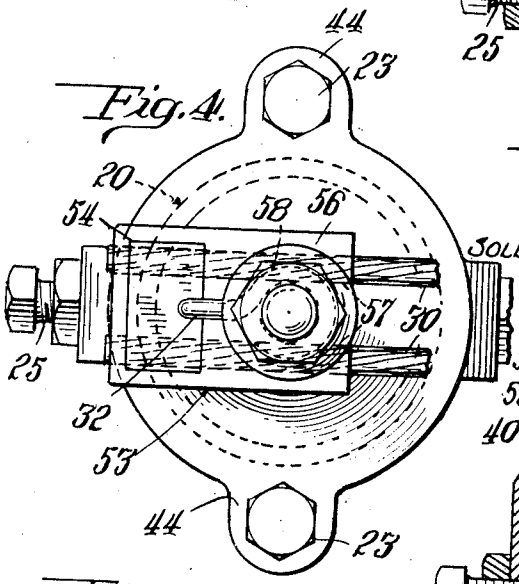


Fig. 3.

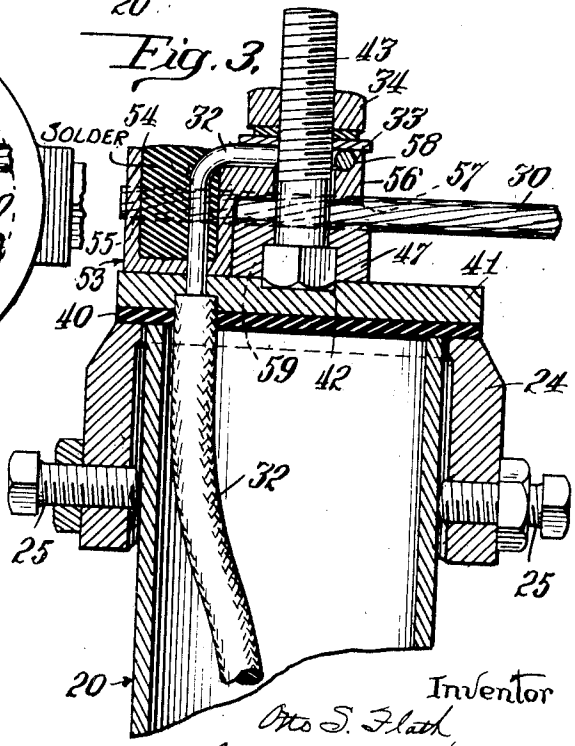
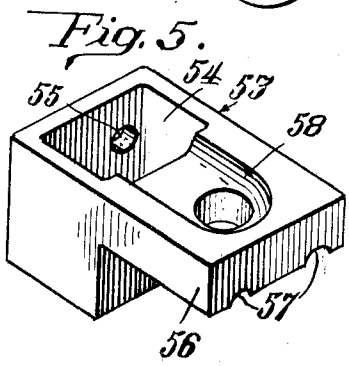


Fig. 5.



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CONDUCTOR AND TRACK WIRE CONNECTOR FOR SIGNAL SYSTEMS

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5 Claims. (Cl. 174—75)

My invention relates more especially to connectors whereby the current conducting cables or conductors, which are generally disposed in trunking along the right-of-way, are mechanically and electrically connected with the wires which lead to and are suitably secured to the rails of the track for use in railway signalling. The current conducting cable at the location of the track wires generally is brought upwardly in a suitable standard or riser of any suitable material, usually consisting of a metallic conduit or pipe.

The invention has for its object the provision of connectors whereby the conductor and track wires will be firmly held in electrical relation against accidental rupture and the electrical relation maintained under the adverse weather conditions encountered, while at the same time providing connectors which enable installation and maintenance to be readily accomplished.

The invention also has for its object the provision of a structure wherein the wire clamping elements are all threaded on a single upstanding threaded pin or bolt arranged in non-rotating intimate relation with the base portions of the connectors so as to withstand the strains encountered during the tight screwing down of the nut members through the use of wrenches; the intimate relation being effected either by constituting the bolt portion an integral part of the yoke or base portion of the connectors or by a partial embedment of the bolt in the yoke and base portion.

A further object of the invention is to provide a wire end receiving and solder receiving element adapted to be readily applied to the upstanding pin or bolt member of the conductors and also adapted to function as a wire clamping element.

The foregoing objects or purposes, as well as the advantages, of my invention will all be readily comprehended from the detailed description of the accompanying drawing, wherein:

Figure 1 is a top plan view of the base plate member, employed in Figure 3.

Figure 2 is a vertical sectional view of a cable outlet or riser with my improved connector means.

Figure 3 is a similar view illustrating a modified assembly.

Figure 4 is a plan view of the structures shown in Figures 2 and 3.

Figure 5 is a perspective view of the combination solder holding and wire clamping element employed in Figures 2, 3 and 4.

The invention, in its various forms, for purposes of exemplification has been shown applied to metallic conduits or risers, the upper ends whereof are indicated at **20**; it will, however, be understood that my improved connectors in the forms disclosed in Figures 1 and 2 are adapted for use on a horizontally disposed trunking without need of alteration.

In the embodiment shown in Figures 2 and 4, the connector comprises the main plate or base member **37** of suitable dimensions and preferably of approximate circular form with laterally disposed ears or lobes **44** at diametrically opposite points (see Figure 4); the lobes being provided with suitable openings to receive the fastening elements or bolts **23** which are adapted in this instance—to screw into tapped holes formed in the registering ears of a riser encircling collar **24**, which in turn may be secured to the upright or riser by set-bolts **25**. The bolts **23** are preferably insulated from the plate or base member **37** by suitable insulating washers.

The plate or base member **37** is centrally provided on its upper face with an enlargement or boss **38** and an integral upstanding threaded pin portion **39**.

The base member **37** has an opening for passage of the cable wire **32** and the enlargement or boss **38** on opposite sides of the pin portion **39** (threaded to receive the nut **34**) is preferably provided with arcuate grooves to receive the track wires **30, 30**, which are clamped in place by my improved combination solder holding and wire clamping member **53** of the construction shown in Figure 5 consisting of the solder holding portion **54** whose opposite side walls are apertured as shown at **55** for passage of the track wires therethrough and the bottom of this solder holding portion is also apertured to register with the aperture in the base member **37** for passage of the unsheathed portion of the conductor wire **32**. One wall of the solder holding portion at its upper end is provided with the laterally disposed plate portion **56** recessed on its lower face at **57** to fit over the track wires **30** while the upper face is provided with the recess **58** for reception of the upper end of the cable wire **32** and this portion is apertured for passage of the pin **39** therethrough. After the wires have been inserted in place the chambered portion **54** is then filled with a solder which may contain a suitable flux whereby the respective wires are not only additionally held in place but further electrical relation between the wires provided. The solder holding portion **54** of the element is of predetermined depth to permit a wire clamping

relation to be effected between the portion **56** of element **53** and the boss **38**, as shown in Figure 2, and with the solder holding portion **54** arranged flush with one side of the boss **38**. It is apparent that element **53** will be held against any rotative movement when the nut **34** is screwed down on the pin **39** with the washers **33** therebeneath, thus relieving the wires of any twisting strains.

In Figure 3 I disclose a structure involving a base plate **41** adapted to be secured by suitable bolts (not shown because the sectional view is taken transversely between the points where the bolts would appear) to the collar **24** which in turn is secured to riser **20**; the base plate **41** on its upper face being provided with a socket **42**, as shown in Figure 1, to receive a part of the head of bolt **43**. The remainder of the head of the bolt is located in a suitable angular socket formed in the yoke member **47** whose upper face is provided with transverse grooves on opposite sides of the bolt to receive the track wires **30**; these track wires, in turn, are clamped down in place by the plate portion **56** of the element **53** shown in detail in Figure 5 with its upper face recessed to receive the unsheathed end of conductor wire **32** which extends through a suitable opening in base plate **41** and through an opening in the bottom of the solder box portion **54** of element **53**, with the end of the conductor wire encircled about the bolt in the recess **58** of the element. The conductor wire is then rigidly clamped in place by means of the washers **33** and nut **34** as previously described. After the wires have been put into place as just described, the pocket **54** is then filled with a suitable solder. The apertured side wall of element **53** is arranged flush with a side of yoke member **47** thus preventing any rotative movement of element **53**.

Where element **53** is used with a structure as shown in Figure 3, namely where yoke member **47** is employed, I also prefer to provide the base plate **41** with suitable upstanding ribs, as shown at **59**, **59**, see Figure 1, spaced apart sufficiently to receive the body portion of the yoke member therebetween. With this construction, namely where a yoke member is secured to the base plate by means of bolts or other fastening means, the rotative strains that may be encountered by the yoke member will not be transmitted through the yoke member **47** to its fastening means or bolts but will be transmitted directly to the base plate **41**.

I have disclosed a number of embodiments of the invention which are believed best adapted to present day signalling systems as employed by the railroad systems, but certain modifications may be possible without, however, departing from the spirit of my invention defined by the appended claims.

What I claim is:

1. In a connector of the character described, a conducting element provided at one end with a plate portion having a fastening member receiving opening and a conductor wire receiving surface on its upper face and track wire receiving surfaces on its lower face, the other end of said element being provided with a solder receiving cavity, the bottom whereof has a conductor wire receiving hole while the side wall of the cavity, coincident with the track wire receiving surfaces on the bottom of the plate portion, is provided with a pair of track wire receiving holes.

2. A connector of the character described comprising, in combination with a main member secured to the outlet for the conductor wire of a signalling system and provided on its top with a non-circular boss and an upstanding threaded portion; a conducting member apertured at one end for reception of said upstanding threaded portion while the other end is formed to provide a solder receiving cavity which extends beneath the horizontal plane of the apertured end with a side wall of the cavity in abutting relation with the boss on the main member to prevent rotation of said conducting member, the bottom of said cavity having an opening for passage of the cable-wire while the side wall of the cavity has openings for receiving the ends of the track wires.

3. In a connector of the character described, a conducting member provided with a box-like formation at one end and with a plate portion at the other end extending laterally from the upper part of said box-like formation, said plate portion being apertured to receive a fastening bolt, the box-like formation constituting a solder receiving cavity, the bottom of the cavity having a conductor wire receiving hole, while its sides in a plane beneath that of the plate portion are provided with track wire receiving holes.

4. A connector of the character described comprising, in combination with a base member adapted to be secured at the outlet for the conductor wire of a signalling system and provided with a boss on its upper surface having a vertical side face and track wire receiving surfaces on its upper face; conducting means consisting of a single piece member having a plate portion at one end adapted to extend across said boss and provided with a fastening bolt receiving opening and wire receiving grooves on its lower face coincident with the wire receiving surfaces of the boss for clamping the track wires in place, while the top of the plate portion is provided with a conductor wire receiving surface, the other end of said single piece member being of box-like formation depending beneath the plane of the plate portion and provided with a vertical side wall adapted to cooperate with the vertical side face of said boss to prevent rotative movement of the member, said box-like end constituting a solder-holding cavity whose bottom and side walls are provided with wire receiving openings.

5. In a connector of the character described, a single piece member having a solder receiving cavity at one end provided with conductor and track wire receiving openings and a plate portion disposed laterally from the upper part of one side wall of said cavity, said plate portion having conductor and track wire receiving recesses on its opposite faces and a fastening bolt receiving opening disposed through the recess on the upper face and between the wire receiving recesses on the lower face thereof, the wire receiving recesses on the lower face being substantially in alignment with the track wire receiving openings in the wall of said cavity.

OTTO S. FLATH.