Dec. 26, 1950 G. A. MEAD 2,535,150

OUTLET CONNECTOR HEAD

Filed June 21, 1946

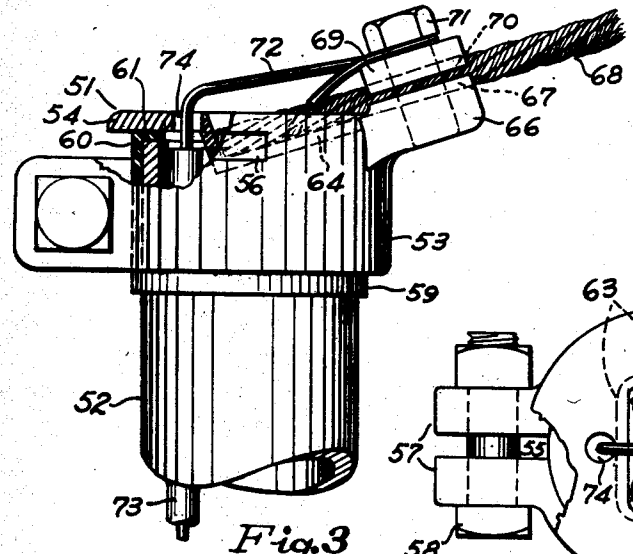


Fig. 3

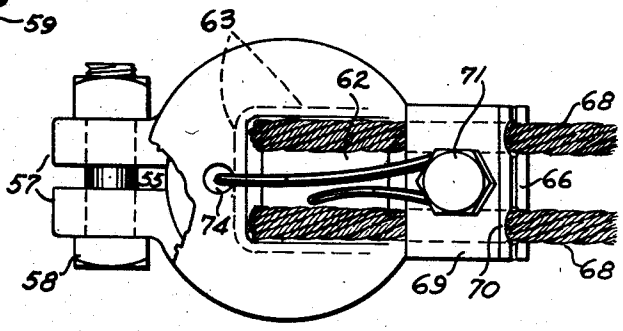


Fig. 4

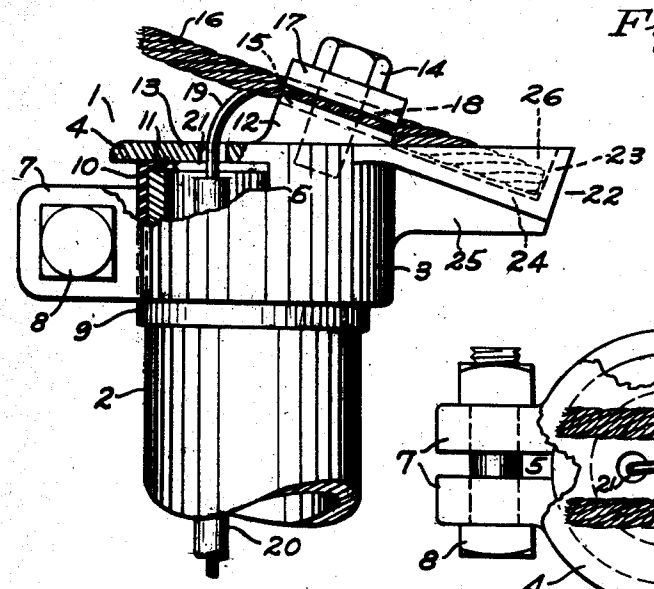


Fig. 1

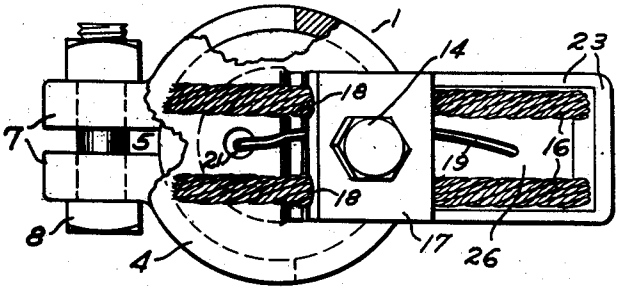


Fig. 2

Inventor

George A. Mead

Patented Dec. 26, 1950 2,535,150

UNITED STATES PATENT OFFICE

2,535,150

OUTLET CONNECTOR HEAD

George A. Mead, Mansfield, Ohio, assignor to The Ohio Brass Company, Mansfield, Ohio, a corporation of New Jersey

Application June 21, 1946, Serial No. 678,216

11 Claims. (Cl. 174—75)

1

My invention relates to parkway cable outlet heads whereby a parkway cable may be connected to track wires which in turn are connected to one or more rails.

The outlet head is usually secured to the upper or outer end of an upright pipe or standard through which the parkway cable is brought to the head whereby connection may be made to the track wires which constitute a part of the signal system and which may be secured to the outlet head.

My invention permits not only securely connecting the parkway cable conductor mechanically to the track wires as by clamping but in addition permits making the connection by means of solder.

Another object of my invention is to permit attaching the track wires to the head and bringing the ends into a solder cavity or receptacle without bending the wires since these wires are very often made of very stiff individual wires as for instance when made of silicon or phosphor copper, etc., and which produces a very stiff and resilient wire or cable.

The conductor of the parkway cable is usually a single wire of copper which is easily bent as required.

My invention resides in the embodiment shown in the accompanying drawing, described in the specification and particularly pointed out in the appended claims: further objects and advantages will be readily recognized from the detailed description and drawing wherein—

Fig. 1 is a side view in partial section of one embodiment of my invention.

Fig. 2 is a top view in partial section of Fig. 1.

Fig. 3 is a side elevation in partial section of another embodiment of my invention.

Fig. 4 is a top plan view in partial section of Fig. 3.

In the embodiment shown in Figs. 1 and 2, a head 1 is provided adapted to be mounted on the upper end of a standard 2. The head comprises a sleeve or collar portion 3 and a body or cover portion 4 closing one end of the sleeve to form an inverted cup shaped member. The sleeve is split on one side forming a slot 5 and is spaced from the body portion 4 for a portion of its circumference forming a slot 6 intersecting the slot 5.

Projecting laterally from the sleeve 3 are spaced lugs 7 which are integral with the sleeve on each side of the slot 5 and the lugs are provided with registering openings through which extend a fastening device such as bolt and nut 8.

2

The construction of the head as above described permits adjusting the diameter of the opening to clamp the head onto the standard 2.

Interposed between the standard 2 and head 1 including the sleeve 3 and body portion 4 is an insert 9 of insulating material such as thin fiber tubing with a side wall 10 and turned over end or flange 11 against which the end of the standard may rest. The flange 11 may extend entirely around the side wall 10. This insert insures the head 1 being insulated from the standard 2 or ground.

In order to mechanically secure or clamp the track wires to the head a lug 12 is provided which projects above the exposed face 13 of the body portion 4 and has a threaded opening to receive the cap bolt 14.

The upper surface of the lug 12 is provided with grooves 15 to receive the track wires 16. Mounted on the lug 12 is a clamp 17 provided also with grooves 18 for the track wires and an opening through which the cap bolt 14 extends.

The clamping mechanism is shown with one bolt 14 and the grooves for the track wires pass on opposite sides of the bolt which spreads the track wires apart the width at least of that of the bolt shank but if desired to bring the track wires nearer together it is evident that two bolts 14 spaced apart may be used with the grooves and wires between them.

In order to secure the conductor 19 of the parkway cable 20 to the head and electrically connect to the track wires, an opening 21 extends through the body portion 4. The conductor 19 is brought through the opening 21 and under the clamp 17 along side of the bolt 14 or may be secured between the bolt head and clamp 17.

In order to electrically connect the conductor 19 to the track wires 16 by solder in order to insure additional efficiency, a solder cavity or receptacle 22 is provided and which projects from the sleeve 3 and closing portion 4. While shown diametrically opposite to the lugs 7, the receptacle may project from the head at another point if found more convenient but not to restrict the clamping of the sleeve.

The receptacle 22 is provided with side and end walls 23 and a bottom wall 24. The side and bottom walls are integrally united to the sleeve 3 and body or cover portion 4 but to make this attachment more secure a rib 25 is provided formed integral with the sleeve 3 and bottom wall 24.

The track wires or cables 16 are very often made of metal which is very stiff and resilient

and to bend the same is not an easy job, therefore the bottom wall of the receptacle is made sloping such that its upper surface 26 and the upper surface of the lug 12 rest in a common plane obliquely disposed to the upper surface 13 of the body 4 also obliquely disposed to the longitudinal axis of the standard 2 which is usually mounted in a vertical position.

By this construction of the receptacle and lug 12 the receptacle is shallow at one end and sufficiently deep at the other end to receive the ends of the track wires or cables and to receive sufficient solder to cover the ends of the wires 16.

The angle of the bottom wall 24 and lug face may be that which is found most desirable. By bringing the track wires closer together as pointed out above, the width of the cavity 26 may be reduced thus decreasing the amount of solder required.

The end of the conductor 19 is bent so that it extends into the cavity 26 and covered by the solder and thereby securely connected to the track wires 16.

In Figs. 3 and 4 is shown a reverse arrangement of the receptacle and clamping means from that of Figs. 1 and 2.

Here the head 51 is adapted for application to a vertically disposed standard 52 and the head is provided with a collar or sleeve portion 53 and body or closing portion 54 therefor. The sleeve is provided with a slot 55 and the sleeve is spaced from the body portion by a slot 56 which intersects with the slot 55 and lends flexibility to the sleeve.

The spaced lugs 57 are secured to the sleeve on each side of the slot 55 and by means of the bolt and nut 58 extending through the lugs, the sleeve may be clamped to the end of the standard.

Interposed between the head and standard is an insert 59 of insulating material comprising a side wall or sleeve 60 with an inturned flange 61 against which the end of the standard may rest in insulated relation to the head.

The above description of Figs. 3 and 4 follows that of Figs. 1 and 2.

In Figs. 3 and 4 the body portion is provided with an open top cavity or receptacle 62 projecting downward into the sleeve portion of the head. The receptacle is formed with side and end walls 63 and a sloping bottom wall 64.

Projecting laterally from the head is a lug 66 formed integral with the sleeve and closing portions of the head. The lug 66 is provided in its upper face with grooves 67 to receive track wires or cables 68 and a clamping member 69 with cooperating grooves 70 is positioned on the upper face of the lug.

A cap bolt 71 extends through the clamp 69 and into a threaded opening in the lug 66 whereby the track wires positioned in the grooves may be secured to the head.

The upper face of the lug 66 and the upper face of the bottom wall 64 are preferably in the same plane obliquely disposed to the upper or outer face of the body portion and to the longitudinal axis or axis of rotation of the standand or head.

The conductor 72 of the parkway cable 73 is brought through the opening 74 in the cover portion 54 and then under the bolt head 71 or between the clamping member 69 and lug 66 and then bent so that its end is positioned in the cavity 62.

Solder may be poured into the cavity of receptacle 62 after the wires and conductor are properly placed thus making a secure electrical connection therebetween.

The constructions herein described and shown in Figs. 1 to 4 inclusive have a decided advantage over those constructions of outlet heads of the prior art in that, there are no openings or orifices through any side walls, the only application of the conductor and wires is through the top opening to the cavity of the receptacle.

Where the bottom of the receptacle is horizontal, to bring the track wires through openings in the side wall requires very exacting construction with respect to the diameter of the side openings and that of the wires or cables in order that the wires may be entered and also that the openings are not too large so that the molten solder may run out through the enlarged opening.

The track wires or cables are brought away from the tracks horizontally and since they are very often formed from metal which is stiff and resilient such as silicon or phosphor copper or even high strength steel, it is difficult to bend the ends of such wires so as to insert the ends into the top opening of a receptacle which has no openings through the side walls and to provide clamping means therefor.

Therefore the clamping means is placed with its clamping faces obliquely disposed to the horizontal and to the vertical or longitudinal axis of rotation of the standard or head and so positioned relative to the receptacle that the ends of the wires may be entered in the cavity of the receptacle.

The slope of the clamping faces is made as small as possible relative to the horizontal in order to require bending the wires as little as possible.

As the track wires enter the receptacle on an angle through the top opening thereof, the bottom wall of the receptacle is angled in order to reduce the cavity to only that required in order to reduce the amount of solder required to a minimum.

It is found that the clamping surfaces and the bottom wall of the receptacle may have the same slope and that the track wires may be brought into the receptacle along the bottom surface of the cavity. Therefore the plane of one clamping surface and the plane of the surface of the bottom wall of the cavity of the receptacle may be the same or substantially so.

In Figs. 1 and 3 the deep end of the receptacle is shown as greater than the diameter of the cables but this depth need not be greater than the cable diameter as that will allow for sufficient solder also the cables may enter the clamp and the receptacle side by side as described above which will reduce the width of the receptacle cavity.

The receptacle is shown as a projection in Fig. 1 and this permits a torch flame to be applied thereto if desired without applying the flame to the entire head as in Fig. 3.

If one clamping surface and the receptacle bottom are in exact alignment and substantially a continuation of each other there will be no bending of the wires 16 and 68 within the limits of the device, however, these surfaces may be somewhat out of alignment and still function within the spirit of my invention especially if the plane of the clamping surface should be slightly higher than that of the receptacle bottom.

The plane of the opening into the receptacle in both Figs. 1 and 3 does not extend above the

plane of the top face of the head 1 and 51 respectively. This permits a low and compact head.

It should be noted that the disclosures here made result in a device which is simple to install and to connect to the conductors and which is economical to manufacture as the only machining defined is the threading for the clamping bolts 14 and 71 and this may be avoided by proper coring and the use of a bolt and nut in place of the threaded cap bolts 14 and 71.

The head is usually galvanized or coated with zinc or may be timed, which permits the solder to unite with the coating especially in the case of Figs. 1 and 2 where a torch may be applied to the receptacle.

While the head is shown as applied to an upright hollow standard such as a pipe, the body or cover portion may be adapted for application to a substantially horizontal surface or support.

Having disclosed my invention what I claim is:

1. A connector comprising, a body and means to secure it to a support, an open top receptacle having intact walls to receive solder metal, conductor holding means to secure the conductor to the connector, the conductor holding means having conductor clamping surfaces, the plane of the bottom wall of the receptacle and the plane of the clamping surface each being obliquely disposed to the plane of the upper surface of the body and the plane of one clamping surface and the plane of the receptacle bottom being in substantial alignment whereby the conductor may enter the receptacle through the top opening of the receptacle without substantial bend to the conductor, the plane of the said top opening substantially coinciding with the plane of the upper surface of the body.

2. A parkway cable outlet, comprising a head having a closing portion, a yieldable sleeve portion to receive a standard, means to insulate the outlet from the standard, means to draw the sleeve into clamping relation to the standard, an open top receptacle of varying depth integrally formed with the sleeve portion and projecting laterally from the outlet for receiving soldering metal, the bottom, side and end walls being intact, conductor holding means projecting from the closing portion to hold the conductor with its end extending into the receptacle through its top opening, the holding means securing the conductor in position with its axis obliquely disposed to the upper face of the closing portion and the plane of the bottom wall of the receptacle obliquely disposed to the plane of the upper face of the closing portion with the shallow end at the body member adjacent the holding means.

3. An outlet head comprising a body, means to secure the body to a support, the body provided with an open top cavity to receive molten solder metal, the cavity formed with walls free from openings and the bottom wall sloping upward whereby the cavity is deeper at one end than at the other end, holding means associated with the body and projecting laterally therefrom adjacent the shallow end of the cavity to secure a conductor to the body with its end projecting into the cavity.

4. A parkway cable outlet, comprising a hollow standard to receive a cable, a head mounted on an end of the standard, the head comprising a body member and means to secure the body to the standard to close the end of the standard, insulating means interposed between the standard and head, the head provided with an open top solder receiving receptacle integral with and projecting laterally from the side of the body and deeper at one end than at the other end, the deeper end spaced from the body member and the receptacle positioned below the upper face of the said closing means, a conductor holding means adjacent the shallow end of the receptacle whereby one or more conductors may be secured in positions relative to the receptacle and project into the receptacle through its top opening the closing means and conductor holding means provided with means whereby the end of the conductor of the parkway cable may be entered in the receptacle.

5. A parkway cable outlet comprising a closing portion and a sleeve portion to receive a vertically disposed standard, the closing portion having an outer surface at right angles to the vertical axis of the sleeve portion, means to insulate the outlet from the standard, means to secure the sleeve in holding relation to the standard, an open top receptacle formed integral with the sleeve and projecting laterally from the sleeve to receive soldering metal and the conductors to be connected, the bottom wall of the receptacle being obliquely disposed to the vertical axis of the sleeve portion with the upper end of the bottom wall at the upper surface of the closing portion, the side and end and bottom walls of the receptacle being free of openings, conductor holding means projecting from the upper surface of the closing portion and having clamping surfaces to receive the conductor therebetween and hold it with its end positioned in the deep end of the receptacle, the clamping surface having the same slope relative to the said vertical axis of the sleeve portion as the said bottom wall and one clamping surface being continuous with the upper surface of the said bottom wall, and the closing portion provided with an opening through which to pass the conductor of a parkway cable from within the standard.

6. An outlet head comprising a body having a side and a top wall and means to secure the body portion to a support, an open top solder receiving receptacle integrally formed with and projecting laterally from the side wall of the body portion, the receptacle having a recess deeper at one end than at the other end with the shallow end at the side wall adjacent the top wall, a conductor receiving means associated with the head and having conductor receiving surfaces sloping toward the receptacle with the plane of one surface common with the plane of the inner surface of the bottom wall of the recess whereby the conductor may be securely held in position relative to the receptacle with the end of the conductor extending into the recess of the receptacle through the top opening of the receptacle.

7. A connector comprising a head having a closing portion for mounting on a support and means to secure the closing portion to the support, the connector provided with an open top solder receptacle to receive the ends of a plurality of conductors to be electrically connected by the solder in the receptacle, the walls of said receptacle being positioned below the plane of the outer face of the closing portion and the plane of the inner surface of the bottom wall being obliquely disposed to the said plane of the outer face of the closing portion, clamping means mounted on the outer face of the closing portion and having conductor receiving surfaces the planes of which are obliquely disposed to the plane of the outer face of the closing portion, the plane

of the bottom wall being common with the plane of one of the conductor receiving surfaces.

8. An outlet head adapted to be secured to a support comprising a closing portion, the closing portion provided with means to secure it to the support and also with an open top solder receiving receptacle projecting laterally from the closing portion, the receptacle being deeper at the end remote from the closing portion than at the other end and having walls free from side openings, the plane of the outer face of the said top opening of the receptacle being substantially coextensive with the plane of the outer face of the closing portion, a conductor receiving means associated with the closing portion at a point adjacent the receptacle whereby a conductor may be secured in position relative to the receptacle with the end of the conductor extending into the receptacle through the top opening thereof.

9. A parkway cable outlet, comprising a head with a cover portion, means whereby the portion may be secured to a support, an open top receptacle forming an integral part of the outlet and projecting laterally therefrom for receiving solder metal, the receptacle having its side, bottom and end walls intact and the plane of the upper face of the said side and end walls and the plane of the outer face of the cover portion substantially coinciding and the said bottom wall sloping upward toward the cover portion and the said top opening, a conductor holding means projecting upwardly from the cover portion and provided with a pair of clamping surfaces, the holding means being so constructed and arranged relative to the receptacle that the end of a conductor may be secured by the clamping surface of the holding means may extend into the receptacle, and the cover portion provided with an opening through which to pass the conductor of a parkway cable.

10. A connector comprising a body portion and means to secure it to a support, an open top receptacle associated with the body portion and adapted to receive molten solder metal and also to receive the ends of a plurality of conductors to be electrically connected together and secured to

the connector, clamping means to mechanically secure the conductors to the connector, the receptacle having two intact side and only one intact end wall and a bottom wall obliquely disposed to the longitudinal axis of rotation of the body portion and its securing means, the clamping means having a wire receiving surface obliquely disposed to the said axis of the body portion, the inner surface of the bottom wall being coextensive with the wire receiving surface of the clamping means.

11. An article of manufacture comprising a head to connect a plurality of conductors and having a plate-like closing portion and a projecting portion to secure it to a support, the head also provided with a receptacle means to receive solder metal and the ends of a plurality of conductors, the receptacle provided with a bottom wall and closed end and side walls, the head also provided with holding means having a conductor clamping surface to receive and secure the conductors to the head with the ends thereof in the receptacle, one of the said means positioned below and the other said means positioned above the plane of the upper surface of the plate-like closing portion and the plane of the inner surface of the bottom wall and the plane of the clamping surface each being obliquely disposed to the said plane of the upper surface of the plate-like portion.

GEORGE A. MEAD.

REFERENCES CITED

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

UNITED STATES PATENTS

Number	Name	Date
1,801,269	Edmunds	Apr. 21, 1931
1,887,249	Snyder	Nov. 8, 1932
2,109,616	Gort	Mar. 1, 1938
2,146,462	Bone	Feb. 7, 1939
2,209,912	Deems	July 30, 1940
2,262,226	Flath	Nov. 11, 1941
2,426,157	Smith	Aug. 19, 1947