June 11, 1929. L. M. PERSONS 1,716,531

POLE CABLE TERMINAL

Filed June 5, 1925

Fig. 3.

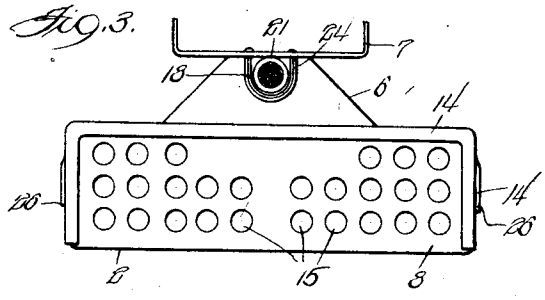


Fig. 1.

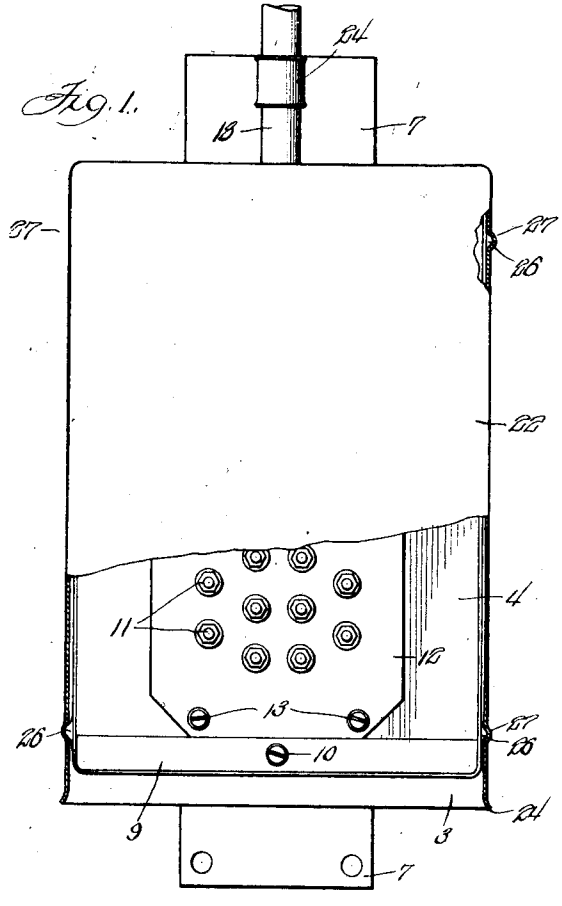
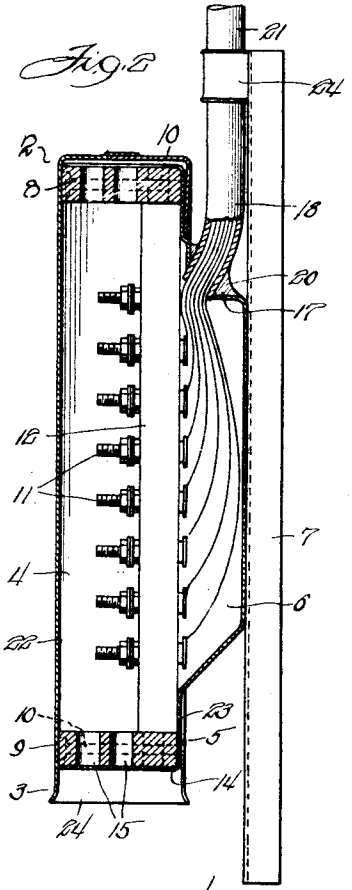


Fig. 2



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UNITED STATES PATENT OFFICE.

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POLE CABLE TERMINAL.

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My invention relates to cable terminal structures and more particularly to structures for terminating lead covered aerial cables, such, for example, as telephone cables.

In terminals of this character it is highly desirable to permit the stub cable to enter either at the top or at the bottom of the terminal housing. So far as I know, the practice among manufacturers has been to provide two separate forms, each designed to take the stub cable from one direction only. Such a practice, however, is open to the disadvantage that additional tools and stock are required and extra expense is incurred in the handling of two forms. My invention provides a novel design of terminal that can be used to take the cable in either direction with practically no change in the construction, the only alteration being in the reversing of the cover hood and the use of the fanning strip at the opposite end, if only one such strip is employed.

My invention further provides an improved form of terminal structure which is simple and inexpensive to manufacture, being preferably formed of sheet metal with a cover shaped as a hood, which cover is adapted readily to slip down over the housing, thereby rendering the housing air tight to prevent dust and moisture from accumulating within.

Cable terminal structures on the other hand must be provided with a cable connection capable of preventing any strain on the lead sheath where the cable enters the housing. Difficulty has been experienced in providing a tight connection at this point. Many of these terminal installations are on telephone poles and the like where they are subjected to great vibration. The vibration of the pole when transmitted to the lead sheath at this connecting point tends, and does, as a matter of fact, break the sheath in a short period of time. My invention contemplates checking the vibration before reaching the connecting point and providing a type or form of connection which is tight and capable of resisting strain. It might be mentioned that where solder is used at the nipple bringing the lead sheath into the terminal housing, the surface of the cable is usually scored and then heated when solder is applied. A possible change in the molecular structure of the lead sheath is apt to occur, which will weaken the sheath and assist in its rapid crystallization when subjected to vibration. The invention provides means to prevent the vibration continuing beyond a certain point along the cable sheath, thereby restraining the vibration from reaching the aforesaid connecting point of the sheath.

More specifically, a further object of my invention is to provide an improved type of terminal housing, being formed of pressed steel and of a design allowing the distributing wires to leave from either end through a fanning strip, this depending, of course, largely on whether the cable sheath enters at the top or at the bottom of the housing, and then to provide a cover hood adapted to slide over the housing from either end so as to close the free end and prevent the entrance of dust and moisture into the housing.

Other objects and advantages will appear from the following detailed description and claims taken in connection with the accompanying drawings in which:

Figure 1 is a view illustrating an assembled structure embodying the features of my invention, with the cover partly broken away at the lower end;

Fig. 2 is a vertical transverse sectional view of the structure shown in Fig. 1; and

Fig. 3 is a top plan view of the same with the cover removed.

As illustrated in the drawings, the cable terminal structure comprises a housing, preferably made of sheet metal, such as pressed steel, having upper and lower ends 2 and 3 and an open side designated 4 providing access to the interior of the housing when the cover is removed. The housing preferably comprises a rear wall 5 having a cavity 6 formed therein. Cavity 6 is located intermediate the ends 2 and 3 and is drawn with a slight taper away from the rear wall and in the direction of a mounting plate 7. The housing may be mounted upon the mounting plate 7 in any of the many well known ways, which mounting plate may then be suitably fastened to the usual telephone pole or post. Ends 2 and 3 may carry fanning strips 8 and 9 by means of screws 10 which pass through the fanning strips into the back wall 5. Binding posts 11

are carried upon a suitable contact mounting base 12, also secured to this rear wall by screws 13.

At the ends of the housing, inwardly formed flanges 14 serve to embrace the fanning strips about three edges without interfering with the perforations 15 through which the distribution wires are passed from the housing.

In the forming operation of the housing, a recess 17 may be provided. A cable 18 is adapted to enter the interior of the housing at the cavity 6 through this recess. Solder 20 may then be puddled in this recess to form a tight connection between cable 18 and the housing. The cable may then extend along the mounting 7 and be firmly gripped by a strap 24 carried by the mounting bracket 7. The cable conductors enter the cavity 6 and are secured to the contacts 11 in any suitable manner as by soldering the cable wires directly to the heads of the binding posts. After the connections to this side of the binding posts are completed, the cavity 6 may be filled with any suitable molten insulating compound which will harden upon cooling and which will serve to maintain these connections in their proper arrangements.

Base 12 may be fixed in place over the cavity 6 by means of the screws 13 and neatly fit between the fanning strips 8 and 9.

In the present instance, I have provided a novel form of cover 22 which is adapted to slidably fit over the housing to cover at least one of the ends and the open side 4. Cover 22 may be in the form of a hood also formed of sheet metal and provided with a slot 23 at one side for allowing the cover to slip down over the housing without interfering with the cavity portion 6. With the exception of this slot 23, the cover forms an enclosure having but one end open and this end may be provided with a flared edge for the purpose of facilitating the mounting of the cover when first slipped over the end of the housing and also for diverting water and dirt way from the open end.

As shown in Fig. 2, the end 2 of the housing is the upper end and is closed off by the cover 22. In this figure, the lower end comprises end 3 through which the distributing wires of the circuit are led through the perforations 15 in the fanning strip 9. It is desirable to provide fanning strips at both ends of the housing so that these ends may be interchangeably used for leading the distributing wires out of the housing. For instance, when the cable 18 extends vertically along the post in an upward direction, that is, when the cable enters the housing from its bottom, it is desirable to invert the structure so that the recess 20 faces downwardly. In other words, the cable terminal herein shown uniquely adapts itself to cables running into the box either from above or below without requiring any change or modification of the structure. The cover 22 slides over the housing as readily and easily from the end 3 as it does from the end 2. If the cable 18 enters the housing from below, the structure is inverted, as before explained, and the cover is then slid over the housing from the end 3, which is, in this position, the top end. The end 2 will now be at the bottom and the distributing wires will be led out of the housing through its perforations.

Those skilled in the art will appreciate the difficulty encountered by manufacturers in preventing crystallization of the lead sheath of cable 18. Before the soldering connection is made at 20, the lead sheath is scored and when the solder is puddled in recess 17, the sheath is, of course, heated. A possible molecular derangement of the lead is apt to cause quicker crystallization when vibrations are transmitted along the telephone pole to the cable at this connection. It is of utmost importance, therefore, to check the vibration, and, so far as I know, no structure has heretofore been provided which can effectively accomplish such checking of the vibration to any great extent. With the provision of a strap 24 on the mounting bracket 7 near the solder connection 20, it is impossible for these vibrations travelling along the pole to disturb the connection. The novelty which I wish to emphasize resides in the formation of recess 17 during the drawing operation of the housing, so as to receive the cable end and at the same time provide a pocket in which solder may be puddled for forming a tight connection. Not only is this connection a practical method of fastening the cable end, but I have found that it has met with approval in the trade, particularly with the underwriters. Strap 24 is very effective in checking the vibration and is also a very inexpensve form of attachment.

Hood 22 is effective in preventing a circulation of air and a consequent accumulation of dirt and moisture within the housing. Bosses 26 may be provided on the sides of the housing preferably near the upper and lower ends. Similar depressions 27 are made in cover 22 and are adapted to register with these bosses for tightly holding the cover in position. It will be seen that the cover is sprung into this position when slipped over the housing from one end. A further advantage is obtained from this arrangement in that the lineman desiring to obtain access to the interior of the cable terminal is not required to slip the cover entirely off the housing, but may bring the lower depressions in register with the bosses

near the upper end. This arrangement consequently does not necessitate entire removal of the cover, which has its disadvantages because the cover when entirely removed faces the possibility of being badly damaged.

Without further elaboration, the foregoing will so fully explain the gist of my invention that others may, by applying current knowledge, readily adapt the same for use under varying conditions of service, without eliminating certain features which may properly be said to constitute the essential items of novelty involved, which items are intended to be defined and secured to me by the following claims.

I claim:—

1. A cable terminal comprising a housing having its ends and one side open, means accessible from the open side for providing terminal connections within said housing, fanning strips at opposite ends for distributing wires leading from said terminal connections, and a reversible hood slidably positioned over either end to overlie one of the fanning strips for covering the same against the passage of conductors, and enclose substantially the entire housing.

2. A sheet metal enclosure for a cable terminal structure comprising a housing provided with open ends and a contact mounting base extending between said open ends, inwardly formed flanges on said housing at said open ends, fanning strips secured between said flanges and each end of said contact mounting base, and a cover for enclosing a substantial portion of said housing and for fitting over either end to overlie one of the fanning strips and cover the same against the passage of conductors.

3. A cable terminal box comprising a rear wall, opposite side walls extending forwardly from said rear wall, inwardly extending retaining flanges formed about the upper and lower edges of said rear wall and said side walls, a panel board mounted in position at the rear wall, fanning strips inserted between the ends of said panel board and said retaining flanges, and a cover adapted to be slidably mounted in detachable relation over either end of said rear wall, said cover having rearwardly extending side wings to embrace said side walls.

4. A cable terminal box of pressed steel comprising a rear wall formed with forwardly extending side walls providing a terminal chamber, inwardly turned retaining flanges formed about the upper and lower edges of said rear wall and said side walls, fanning strips seated in said retaining flanges and forming opposite end closures, and a reversible cover for the box adapted to slide downwardly thereover, one end of said cover being closed and adapted to overlie the upper fanning strip to cover the openings therein, the opposite end of said cover being open to permit the passage of conductors from said terminal chamber through the openings in the lower fanning strip.

5. A cable terminal box comprising a rear wall formed with forwardly extending side walls along its vertical edges, retaining means extending inwardly to accommodate perforated fanning strips at the opposite ends of said rear wall, said fanning strips permitting the passage of conductors from a central terminal chamber in the box to either of the opposite ends thereof, a reversible cover having a closed end adapted to overlie one of said fanning strips and cover the openings therein, the opposite end of said cover being open, and rearwardly extending side wings on said cover adapted to embrace said side walls to hold the cover in place.

6. A cable terminal box comprising a rear wall formed with forwardly extending side walls along its vertical edges, fanning strips at the opposite ends of said rear wall adapted to provide for the passage of conductors leading from a terminal base disposed between said side walls, and a cover slidably positioned over either end to overlie one of the fanning strips and cover the same against the passage of conductors, said cover having sides formed thereon to embrace said side walls for holding said cover in place.

7. A sheet metal cable terminal box comprising a rear wall having a depression therein to provide a cavity for the reception of cable conductors, said rear wall having a substantially planar surface surrounding said cavity, a terminal base positioned against said planar face and secured thereto, side walls formed along the vertical edges of said rear wall, inwardly extending retaining flanges formed along the upper and lower end edges of said rear wall and said side walls, fanning strips inserted between said retaining flanges and opposite ends of said terminal base, and a reversible cover hood slidably fitting over either end of the box.

8. A pole cable terminal unit including a cable terminal box and a mounting plate to which said box is secured, said box comprising a terminal chamber having a rear wall, side walls formed on said rear wall and a removable front wall, said rear wall provided with a rearwardly extending depressed portion fastened to said mounting plate, a terminal base in said chamber and fitting over said depressed portion, fanning strips at the ends of said terminal base, and a cover for the box slidably fitting over either fanning strip, said cover including said removable front wall.

9. A pole cable terminal unit including a cable terminal box and a mounting plate to

which said box is secured, said box comprising a terminal chamber having a rear wall, said wall being provided with a soldered connection for said cable stub, and clamping means providing a rigid connection between said cable stub and said mounting plate for eliminating vibration at said soldered connection.

10. A pole cable terminal unit including a cable terminal box and a mounting plate to which said box is secured, said box having a rear wall provided with a cavity for the conductors at the end of the cable stub, the wall of said cavity being provided with a soldered connection for the cable stub, and clamping means providing a rigid connection between the cable and said mounting plate which is disposed at a distance from said soldered connection to eliminate vibration at the soldered connection.

11. A cable terminal box comprising a casing having a cable stub joined thereto by a soldered joint, said joint comprising an exteriorly formed pocket in said casing, solder in said pocket, the end of said cable stub extending into said pocket and imbedded in said solder, the solder rising upwardly of the surface of the imbedded cable stub end.

12. A cable terminal box comprising a casing having a cable stub joined thereto by a soldered joint, said joint comprising a V-shaped pocket formed exteriorly on said casing, solder in said pocket, the end of said cable stub seated in said pocket and imbedded in the solder.

In witness whereof, I have hereunto subscribed my name.

LAWRENCE M. PERSONS.