

Jan. 4, 1944.

W. W. HALBROOK ET AL

2,338,179

CABLE TERMINAL HOUSING

Filed Jan. 1, 1942

2 Sheets-Sheet 1

FIG. 1

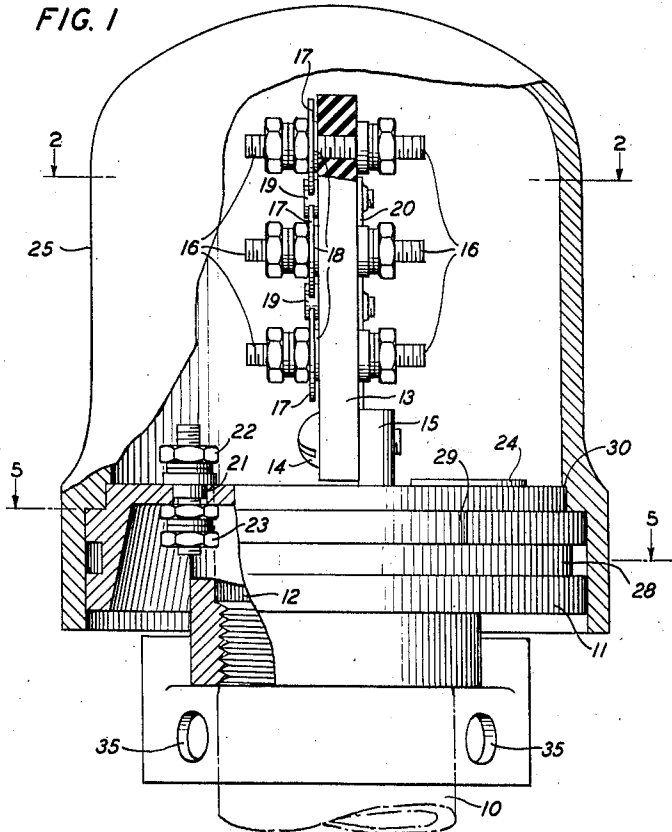


FIG. 3

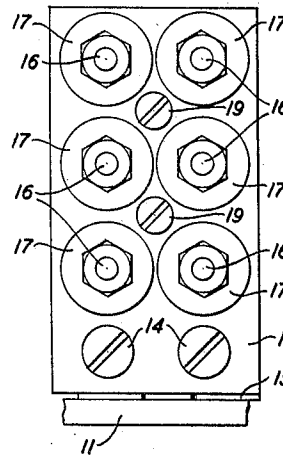


FIG. 2

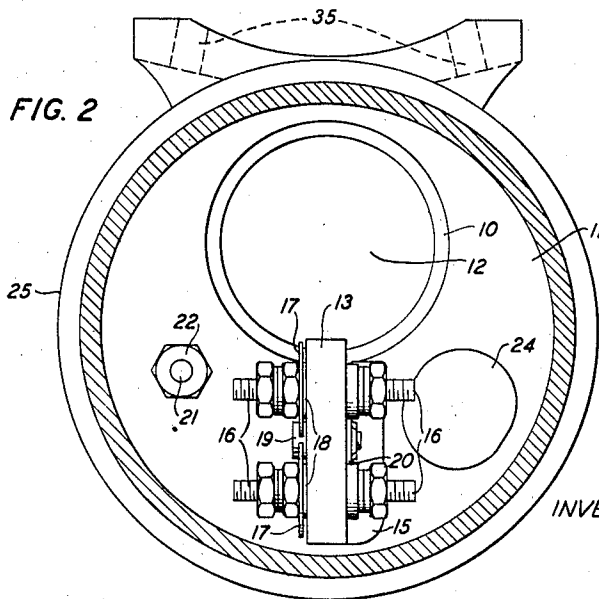
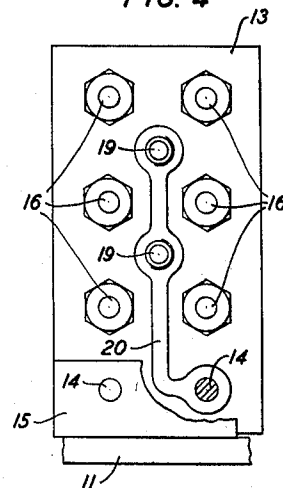


FIG. 4



INVENTORS: W.W. HALBROOK
L.W. KELSAY

BY J. MacDonald

ATTORNEY

Jan. 4, 1944.

W. W. HALBROOK ET AL

2,338,179

CABLE TERMINAL HOUSING

Filed Jan. 1, 1942

2 Sheets-Sheet 2

FIG. 5

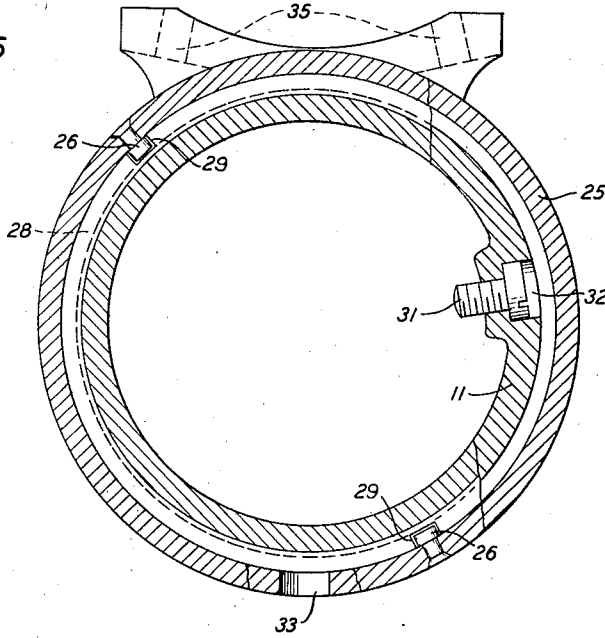
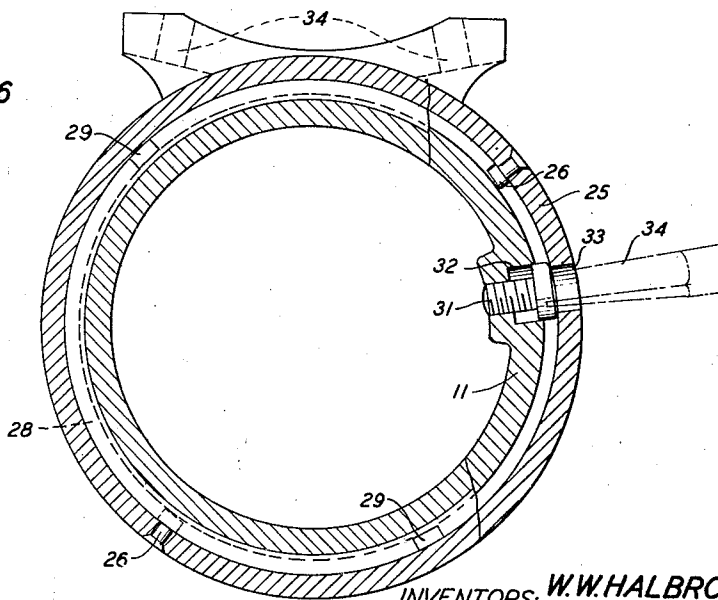


FIG. 6



INVENTORS: W.W. HALBROOK
L.W. KELSAY

BY

J. MacDonald

ATTORNEY

UNITED STATES PATENT OFFICE

2,338,179

CABLE TERMINAL HOUSING

Warwick W. Halbrook, Berkley Heights, and
Le Roy W. Kelsay, Summit, N. J., assignors to
Bell Telephone Laboratories, Incorporated,
New York, N. Y., a corporation of New York

Application January 1, 1942, Serial No. 425,364

2 Claims. (Cl. 220-40)

This invention relates to a wire terminal and more particularly to a terminal for making connections to and terminating electrical conductors which are buried underground.

The object of this invention is to provide a weather-proof terminal for buried conductors, which will under normal conditions be mounted on a pipe or the like in exposed locations, with a novel means for locking the cover thereon to prevent tampering by unauthorized persons.

A further object of this invention is the provision of a wire terminal for buried conductors and the like which has incorporated therein means for protecting the conductors connected thereto from excess voltages.

With the widespread use of buried conductors for telephone use, it has become advantageous to provide some means, above ground, for gaining access to the conductors for testing purposes and also to provide means for connecting the subscriber's lines thereto.

Inasmuch as the conductors are buried under the ground and the terminal is located above ground, it is preferable to support this terminal on a length of iron pipe or the like and have the conductors pass upwardly through the pipe and terminate on a binding post panel inside of the terminal housing. Due to the exposure of this terminal, inasmuch as it is generally mounted within easy reach from the ground, it is important that some means be provided for preventing the unauthorized opening of the terminal housing.

It is also necessary to provide in the terminal some means for protecting the circuits which terminate therein from excess voltages.

In the preferred form of our invention, we have provided a metal base member, having a binding post panel vertically mounted thereon, with a cover which is adapted to completely enclose the binding post panel and be secured to said base in such a manner that an unauthorized person would find it extremely difficult to attain access to the interior of the terminal. This is accomplished by having located on the interior of the cover, two pins which are adapted to register with two vertical slots in the base of the terminal and position themselves in a circumferential groove which is located on the periphery of the terminal base. A screw located in the groove of the base, can only be reached through an aperture located in the cover when the aperture is in alignment therewith. This screw when turned counter-clockwise, will protrude into the longitudinal groove and provide an obstruction therein which will prevent the cover from being rotated so that the pins will align themselves with the slots and permit the cover to be removed.

A threaded aperture in the base of the termi-

nal provides means for securing the terminal to a pipe or the like through which the conductors are introduced into the interior of the terminal. Branch conductors which may also be attached to the binding post panel, may be also brought out through this pipe or they may be brought out through an insulating bushing located in an aperture in the bottom of the base member. In order to protect the conductors on the binding post panel from excess voltages, a conducting disc is provided on each binding post and is so positioned to provide a narrow air-gap between it and the discs on the adjacent binding posts. The discs are also positioned so as to have a narrow air-gap between themselves and the head of a screw which in turn is secured to a strip which is connected to ground through the terminal base. Thus excess voltage with respect to ground potential can discharge across the narrow air-gap between the discs and the screwhead to ground and the excess voltages between conductors can discharge across the narrow air-gap between adjacent discs.

The invention will be more clearly understood from the following detailed description when read in connection with the following drawings of which:

Fig. 1 is a front elevation with the cover broken away to show the interior of the terminal;

Fig. 2 is a top plan view taken on line 2-2 of Fig. 1;

Fig. 3 is a side elevation of one side of the binding post panel;

Fig. 4 is a side elevation of the other side of the binding post panel;

Fig. 5 is a cross-sectional view taken on line 5-5 of Fig. 1 with the cover in its unlocked position;

Fig. 6 is a cross-sectional view similar to Fig. 5 except that the cover is in its locked position.

Referring to the drawings, at 10 there is shown a vertical pipe or riser of any desirable form to which there is threadedly secured a base member 11. Mounted on said base member 11 and accessible through the pipe 10, and the aperture 12 in the base 11, is the binding post panel 13. This panel is composed of suitable insulating material and is vertically mounted with respect to said base by means of the screws 14 which pass through the bottom portion of the panel 13 and engage the raised portion 15 on the base 11. Mounted on said panel 13 in definite space relation are the double-ended binding posts 16 which extend through each side of the panel 13 as shown in Fig. 1.

As shown in Fig. 3, the binding posts 16, are on one side of the panel 13, provided at their base with large discs 17. These discs are spaced away from the panel 13 by means of the small washers 18 which are interposed between the

discs 17 and the panel 13 as shown in Fig. 1 to reduce electrical leakage. It will be observed by referring to Fig. 3 that the discs 17 have a narrow air-gap therebetween. It will also be noted that the screws 19 are centrally positioned with respect to the washers 17 and have an air-gap therebetween. As shown in Figs. 1, 2 and 3, and more in detail in Fig. 4, the screws 19 pass through the panel 13 and threadedly engage the metallic strap 20 which has its lower end portion secured between the lower end of the panel 13 and the boss 15 on the base 11 by means of one of the screws 14, thereby grounding the strap to the base of the terminal. The terminal base is provided with a double ended binding post 21, having nuts 22 and 23 thereon, which extends through the base 11 and is arranged for attaching a ground wire (not shown).

Due to the novel arrangement of the binding posts 16, on the panel 13, and the associated grounding screws 19, any excess voltage with respect to ground potential can discharge across the narrow air-gap between the washers 17 and the screws 19, through the metal strap 20 the base 11 and thence to ground. Any excess voltage differences between the terminals will discharge across the narrow air-gap between adjacent discs 17, thereby providing protection to the line wires, connected in the terminal, from excess voltages which might cause severe damage to the line.

The buried or concealed conductors (not shown) which are adapted to be terminated at the terminal are threaded through the pipe 10 and connected to their respective binding posts 16 and the branch wires or subscribers' lines (not shown) are adapted to be brought into the terminal and secured to the binding posts 16 either through the grommet 24 located in the base 11 or through the pipe 10.

The cover 25 is dome-shaped in configuration and is intended to be positioned and located on the base in such a manner that it cannot be readily removed by an unauthorized person.

As shown in Figs. 5 and 6, the cover 25 is provided adjacent its lower edge, on the inner surface thereof, with inwardly extending pins 26, these pins are spaced approximately 165 degrees apart and are arranged to register with and be guided downwardly into the circumferential groove 28 in the base 11 by means of the vertical slots 29 in the base 11 which terminate at the groove 28 as shown in Fig. 1. When the cover 25 is positioned on the base 11 with the shoulder portion 30 in engagement with the upper portion of the base 11 and rotated, the pins 26 and 27 will register with the slots 29 and the cover will descend of its own weight until the pins engage the lower surface of the circumferential groove 28. After the cover 25 has moved downward as above described, with the pins 26 and 27 in position in the groove 28, the cover is rotated approximately 90 degrees in the counter-clockwise direction, which will cause the head of the screw 31, located in the recess 32 beneath the surface of the groove 28 in the base member 11, to be in alignment with the aperture 33 in the cover 25 at which time the pins 26 and 27 will have assumed a position somewhat removed from the slot 29.

With the head of the screw 31 in alignment with the aperture 33, a screwdriver or other sim-

ilar tool 34 is inserted therethrough and into engagement with the head of the screw 31. The screw is then turned counter-clockwise until the head of the screw projects outwardly into the groove 28, thus, when the cover 25 is rotated, the head of the screw 31 will engage either of the pins 26 or 27, depending upon the direction of rotation, and prevent them registering with the slots 29 and the subsequent removal of the cover 25.

In order to effect the removal of the cover 25, it is rotated until the head of the screw 31 is in alignment with the aperture 33, a screw driver 34 or the like is then inserted in the aperture into engagement with the head of the screw 31 and the screw turned clockwise until the head thereof registers with the base of the recess 32 and is below the surface of the groove 28, the cover may now be rotated until the pins 26 and 27 register with the slots 29 at which time the cover 25 may be raised upwardly and removed.

It will be noted that since the pins 26 and 27 are not diametrically opposed, there was only one position at which the cover can be removed from the base 11, also the association of the aperture 33 in the cover 25 with the screw 31 is not likely to be noted by a person not instructed in removing the cover, consequently the terminal is not likely to be opened by unauthorized persons.

Suitable apertures 35, are provided in the base member 11 for securing the terminal to a wall or the like.

While we have shown and described herein the preferred embodiment of our invention, we do not intend it to be limited to the precise details of construction shown and are only limited by the appended claims.

What is claimed is:

1. A cable terminal housing comprising a substantially circular base, said base being provided on its periphery with a step portion having notches therein and a circumferential groove into which said notches lead, an apertured cover overlying said base in engagement with said step portion and rotatable thereon, means on said cover adapted to be aligned with said notches to permit placing said cover in position on said step portion, and adjustable means on said base adapted to be moved into said groove in the path of the means on said cover, to restrict the rotation thereof and thereby prevent aligning the means on said cover with the said notches, said adjustable means being accessible only through the aperture in said cover.
2. A cable terminal housing comprising a substantially circular base, said base being provided on its periphery with a step portion having notches therein and a circumferential groove into which said notches lead, an apertured cover overlying said base in engagement with said step portion and rotatable thereon, a plurality of inwardly projecting pins on said cover, adjacent the lower edge thereof, adapted to be aligned with said notches to permit placing said cover in position, and adjustable means on said base accessible only through the aperture in said cover adapted to be moved into said groove to prevent aligning said pins with said notches to restrict the rotation of said cover and its subsequent removal.

WARWICK W. HALBROOK.
LE ROY W. KELSAY.