

S. P. GRACE.
CABLE TERMINAL STRUCTURE.
APPLICATION FILED JAN. 15, 1908.

1,045,697.

Patented Nov. 26, 1912.

2 SHEETS—SHEET 1.

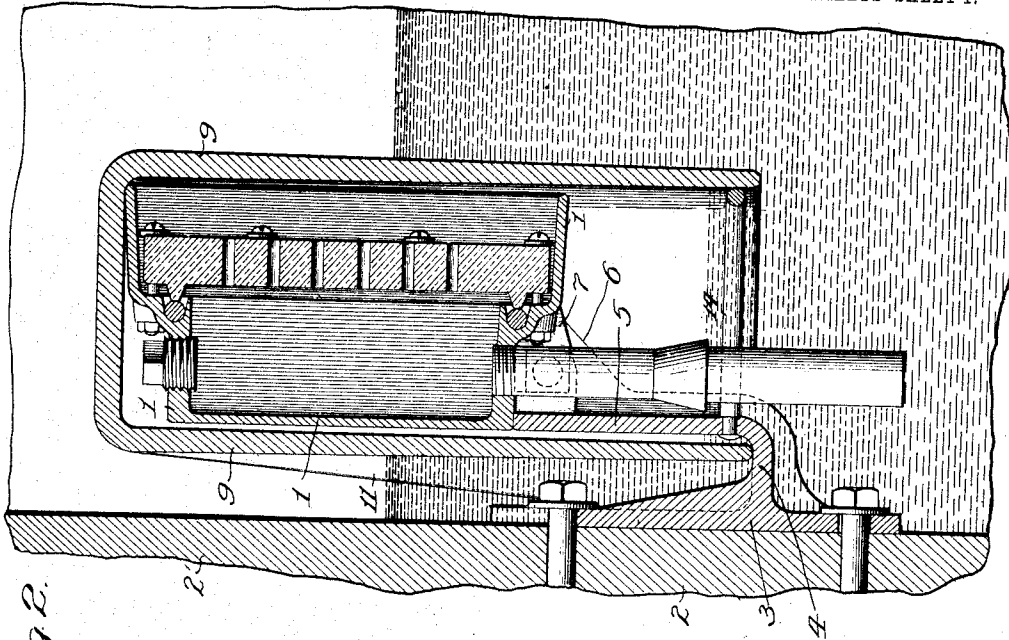


Fig. 2.

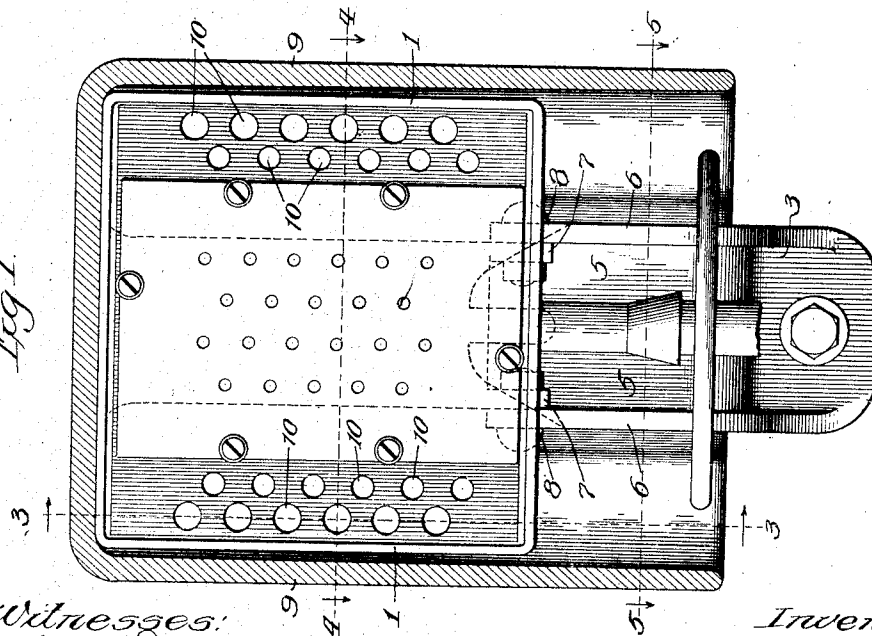


Fig. 1.

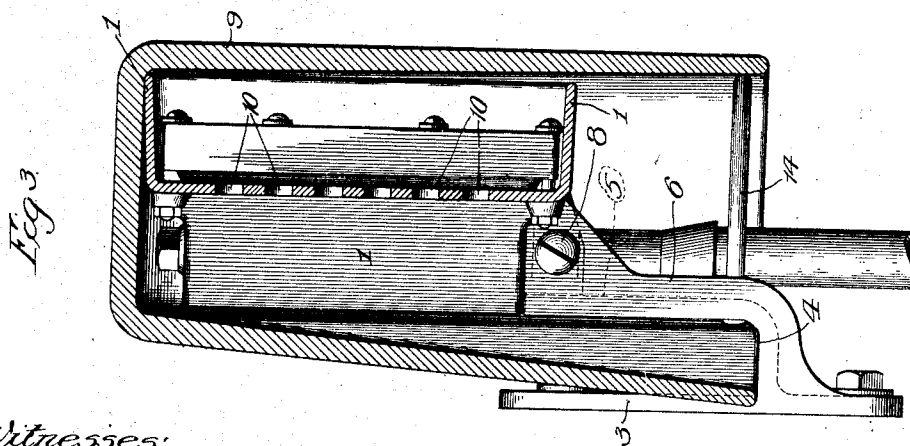
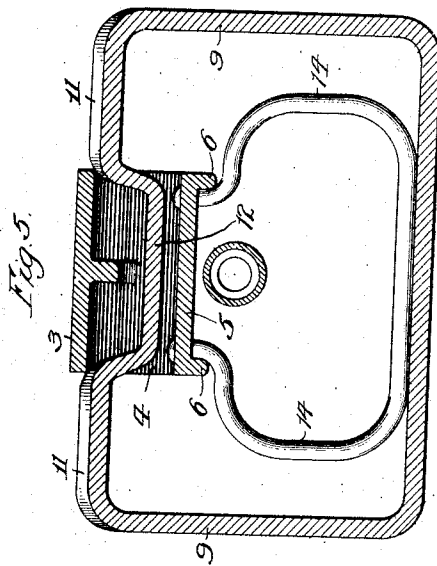
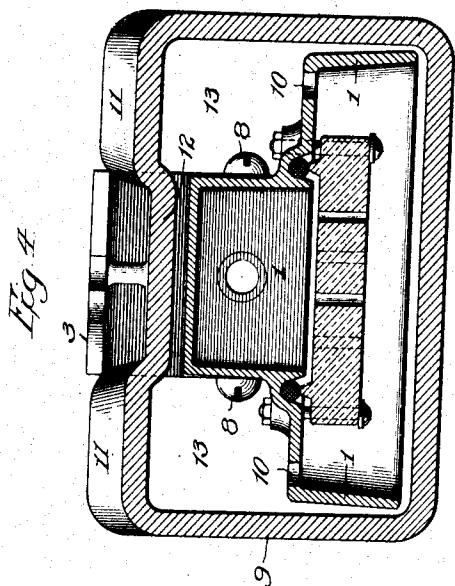
Witnesses:
Living Mac Donald
McCalland Young.

Inventor:
Sergius P. Grace,
By Barton, Panner & Folk,
Attys.

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Witnesses:
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McClelland Young.

Inventor
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UNITED STATES PATENT OFFICE.

SERGIOUS P. GRACE, OF PITTSBURGH, PENNSYLVANIA, ASSIGNOR TO WESTERN ELECTRIC COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

CABLE-TERMINAL STRUCTURE.

1,045,697.

Specification of Letters Patent.

Patented Nov. 26, 1912.

Application filed January 15, 1908. Serial No. 410,940.

To all whom it may concern:

Be it known that I, SERGIUS P. GRACE, a citizen of the United States, residing at Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented a certain new and useful Improvement in Cable-Terminal Structures, of which the following is a full, clear, concise, and exact description.

My invention relates to a cable terminal structure especially adapted for use in connection with underground cables. When the ordinary terminal is mounted in a manhole, as is the case in underground construction, it has heretofore been customary to make the terminal box water-tight, as, for example, by wiped joints, owing to the fact that manholes may become filled with water and the apparatus located therein submerged. Such water-tight box is objectionable for the reason that access to the terminal is thereby rendered very difficult.

The objection of my invention is to provide a simple structure which will render such precautions unnecessary and in which the terminals are readily accessible.

My invention consists in providing a suitably supported air bell cover for an ordinary terminal structure, the whole apparatus being suitably mounted in the manhole. The terminals are thus protected from water, owing to the fact that the air in the bell will not allow the water to rise far enough on the inside of the bell to reach the terminals, even though the apparatus be completely submerged in the water.

My invention may be more readily understood by reference to the accompanying drawings, in which—

Figure 1 is a front elevation of a terminal box provided with an air bell cover, such cover being shown in vertical section; Fig. 2 is a central vertical transverse section; Figs. 3, 4 and 5 are sectional views on lines 3—3, 4—4, and 5—5 of Fig. 1.

Similar letters of reference are used to designate the same parts wherever they are used.

The terminal box may be of the ordinary construction, that shown in the drawing being similar to that disclosed in letters patent to myself and Richard A. L. Snyder, No. 857,341, dated June 18th, 1907, and hence a detailed description thereof is unnecessary.

It will be noted, however, that the usual hinged door or cover for the front of the box is dispensed with.

Secured to the side walls 2 of the manhole in any suitable manner is a bracket 3, having a horizontal shelf 4 which is upturned at its ends to form a vertical extension 5. The shelf 4 and extension 5 are provided with outwardly projecting side flanges 6, 6, the resulting channel-shape of the parts conducting to their strength and also forming parts which greatly assist in firmly supporting the terminal box on the bracket. The bottom of the box 1 at its rear edge rests upon the upper end of the extension 5. The rear portion of said box is also provided, upon its opposite sides with downwardly extending flanges 7, 7 which fit within said channel and are secured to the wings 6, 6 by bolts 8, 8 thus securely mounting the terminal box on the bracket.

The terminal box is provided with a cast-iron cover 9 which has air-tight top and sides and which is open at the bottom. Such a cover may be readily placed over or removed from the terminal box and when in position is supported at its bottom edge upon the shelf 4 of the bracket. In case the manhole becomes filled with water, the cover 9 acts as an air bell, the pressure of the air inclosed by the cover preventing the water from rising sufficiently high in the interior of the cover to reach the cable terminals.

The cover 9 shown in the drawings is especially adapted for use with the terminal box of the patent hereinbefore mentioned. It will be apparent that the wires which are to connect with the terminal posts located as usual on the face of the board, will be passed up through the bottom of the cover 9 and will then be led up at the back of the box 1 at each side thereof through the holes 10. It will be further apparent that comparatively few wires will extend to the top of the box the number gradually decreasing upward. Hence the space actually required at the back of the terminal box inclosed by the cover 9 becomes gradually less toward the top. To provide for this, I preferably make the cover 9 with outwardly flaring portions 11 at the rear upon each side of the central portion 12. This in effect produces upon the exterior of the cover a central channel which gradually decreases in depth toward the top of the cover. Upon the in-

terior are thus provided two chambers 13, 13, which gradually increase in cross-sectional area toward the bottom.

Supported in a suitable manner on the bracket 3 and located just within the mouth of the cover 9 is a wire retaining band 14 adapted to surround the wires which lead to the terminals and to prevent their spreading. By this provision of the band 14 the cover 9 may readily be placed in position and removed without interfering with the wires.

It will be noted that the bracket 3 is peculiarly designed to support the terminal box and cover 9 in such relative positions that said cover extends a considerable distance below the bottom of said box. Thus in case water in the manhole should rise so high as to completely submerge the apparatus and hence exert pressure sufficient to considerably compress the air within the cover or bell 9, the water nevertheless will not rise high enough within the air bell to reach the terminals.

I claim:—

1. A cable terminal comprising a terminal box, a bracket connected to said box and adapted to support the same from below and from the wall to which the bracket is secured, and an air-bell cover supported by said bracket adapted to cover said box and extend below the bottom thereof.

2. The combination with a bracket having a horizontal shelf provided with a vertical extension, of a terminal box mounted upon the end of said extension, and an air-bell supported upon said horizontal shelf and forming a cover for said box.

3. The combination with a bracket having a horizontal shelf provided with a vertical extension, said extension being provided with wings extending at right angles thereto, of a terminal box seated upon the end of said extension, said box being provided with flanges extending downwardly from the bottom thereof, means for securing said flanges to said wings, and an air-bell sup-

ported upon said horizontal shelf and forming a cover for said box.

4. The combination with a bracket having a horizontal shelf provided with a vertical extension, said extension being provided with wings extending at right angles thereto, of a terminal box seated upon the end of said extension, said box being provided with flanges extending downwardly from the bottom thereof into a channel formed between said wings, bolts for securing said flanges to said wings, and a cast-iron cover supported upon said horizontal shelf, said cover having air-tight sides and top and an open bottom.

5. The combination with a bracket having a horizontal shelf provided with a vertical extension, of a terminal box mounted upon the end of said extension, and an air-bell supported upon said horizontal shelf and forming a cover for said box the rear portion of said cover being provided on each side of its central portion with an interior channel which tapers from the bottom of the cover toward the top thereof.

6. The combination with a bracket having a horizontal shelf provided with a vertical extension, said extension being provided with wings extending at right angles thereto, of a terminal box seated upon the end of said extension, said box being provided with flanges extending downwardly from the bottom thereof into a channel formed between said wings, bolts for securing said flanges to said wings, a cast iron cover supported upon said horizontal shelf, said cover having air-tight sides and top and an open bottom, and a wire retaining band mounted upon said bracket within the opening of said cover.

In witness whereof, I, hereunto subscribe my name this 10th day of January A. D. 1908.

SERGIUS P. GRACE.

Witnesses:

J. F. McKENNA,
E. J. McKENNA.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."