

No. 634,381.

Patented Oct. 3, 1899.

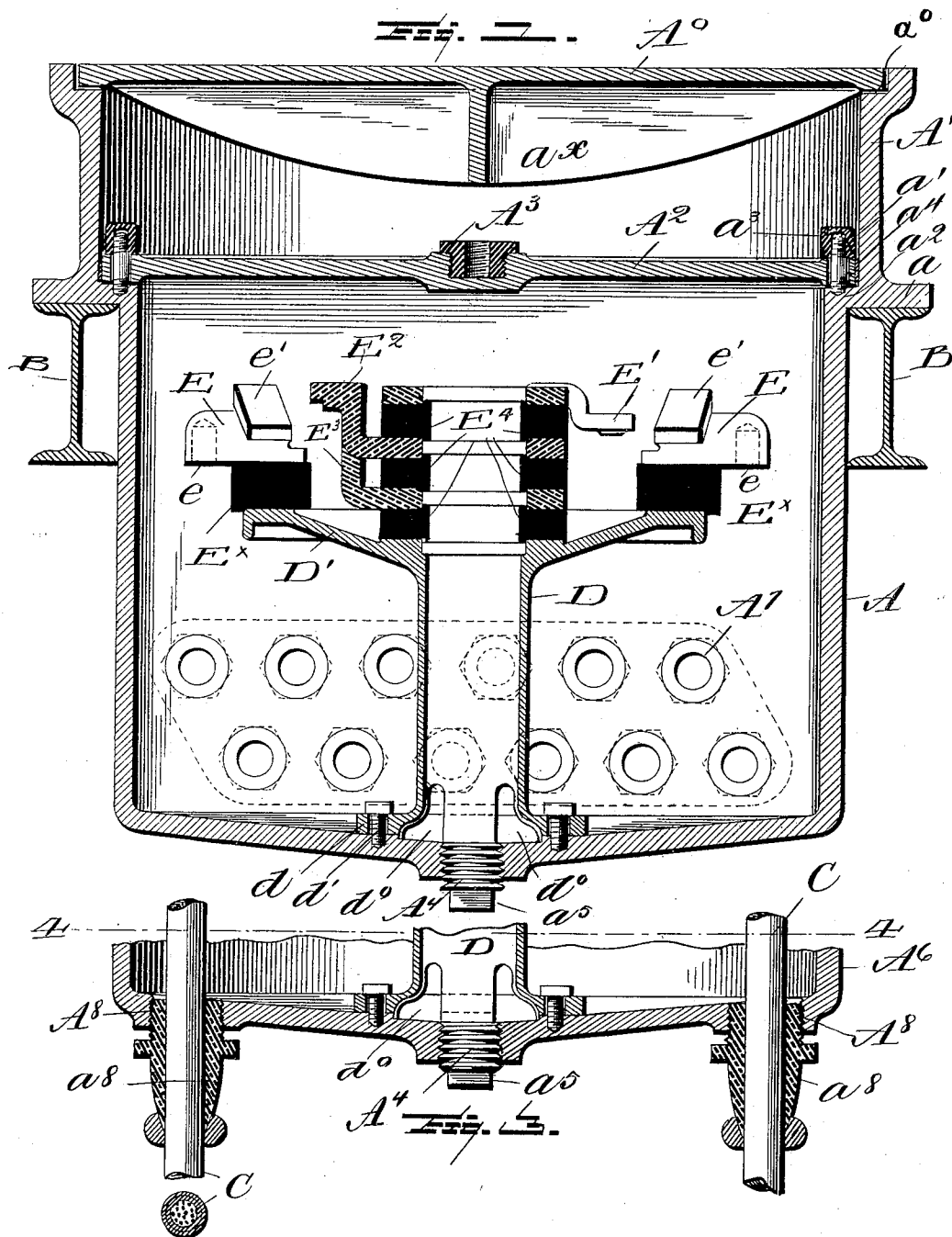
J. W. TURNER.

JUNCTION BOX FOR MANHOLES.

(No Model.)

(Application filed July 17, 1899.)

3 Sheets—Sheet 1.



Witnesses

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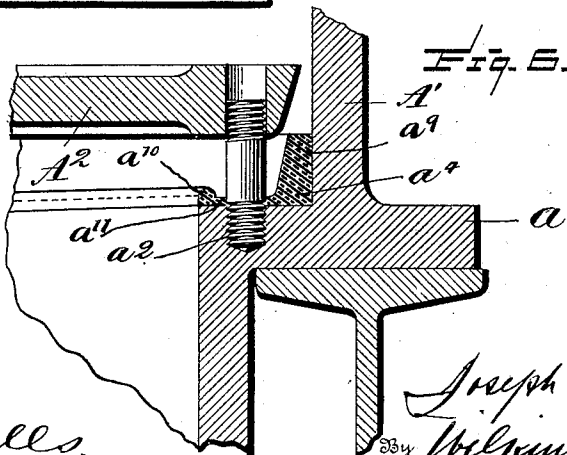
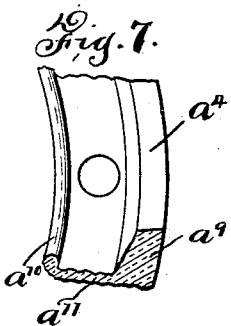
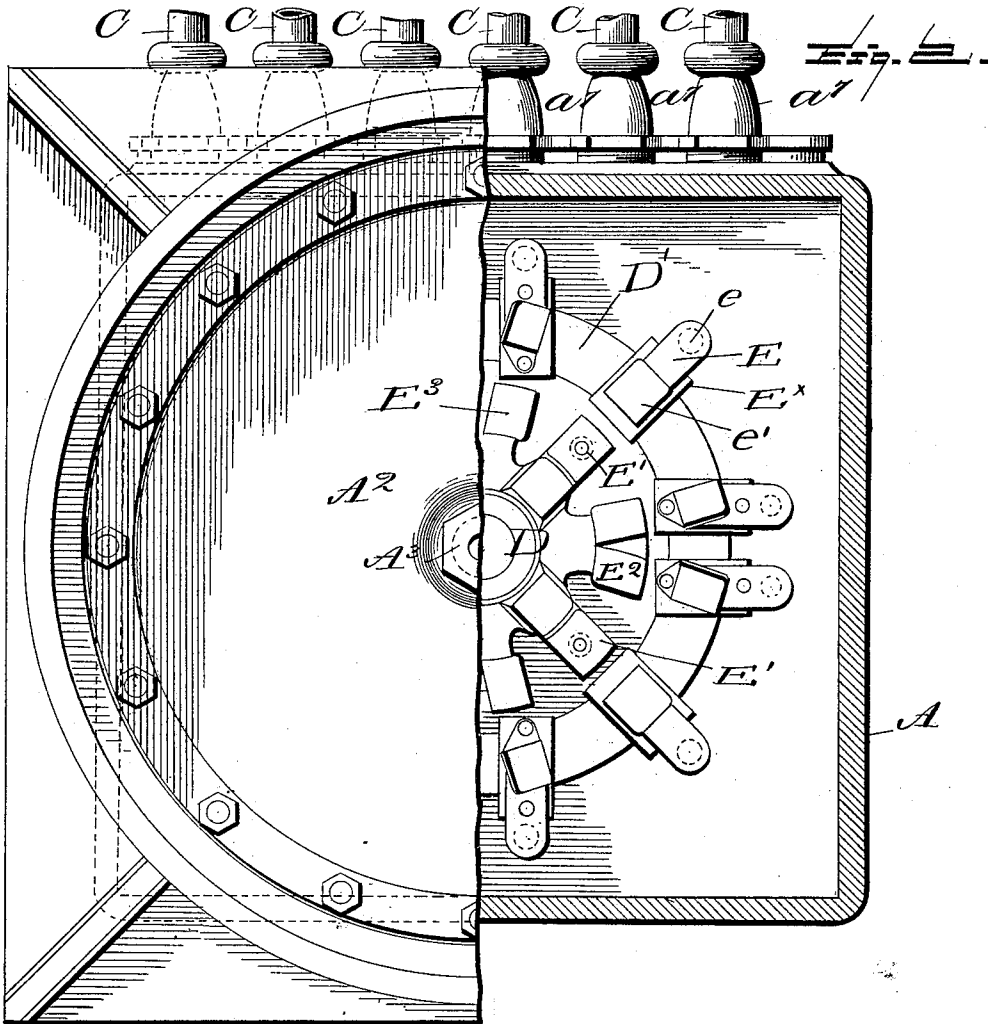
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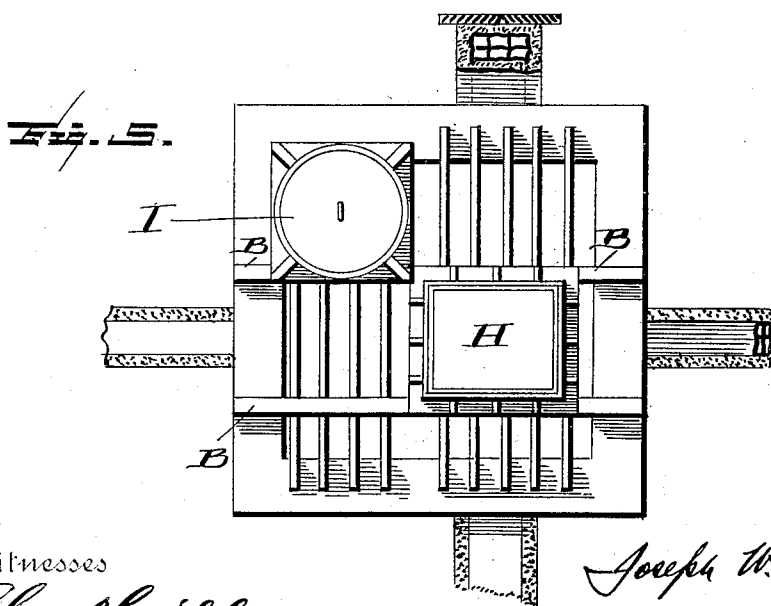
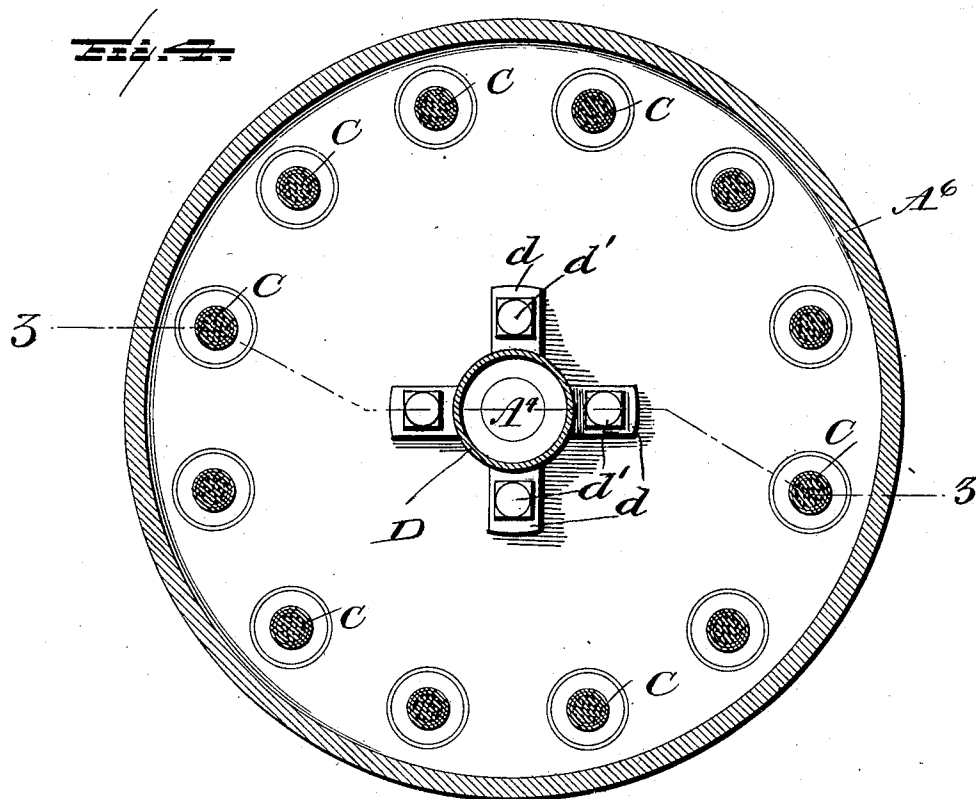
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3 Sheets—Sheet 3.



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UNITED STATES PATENT OFFICE.

JOSEPH WHITTIER TURNER, OF NEW ORLEANS, LOUISIANA.

JUNCTION-BOX FOR MANHOLES.

SPECIFICATION forming part of Letters Patent No. 634,381, dated October 3, 1899.

Application filed July 17, 1899. Serial No. 724,173. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH WHITTIER TURNER, a citizen of the United States, residing at New Orleans, in the parish of Orleans and State of Louisiana, have invented certain new and useful Improvements in Junction-Boxes for Manholes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in manhole covers and junction-boxes for use in connection with underground electric conduits, such as are commonly constructed along the line of thoroughfares in large cities.

My invention has for its special object the providing of such a junction-box and cover to be fitted into the manhole in such manner as to render the interior of the junction-box accessible at all times irrespective as to whether the manhole be full of water or not, and, furthermore, to provide for making connections with the interior of the junction-box from the interior of the manhole.

My invention will be understood by reference to the drawings, wherein the same parts are indicated by the same letters throughout the several views.

Figure 1 represents a central vertical section through a junction-box constructed according to my invention. Fig. 2 is a top view, partly in plan and partly in section, of the same. Fig. 3 is a section taken on the line 3 3 in Fig. 4. Fig. 4 is a section taken on the line 4 4 in Fig. 3. Fig. 5 is a general top plan view, partly in section, showing the arrangement of the manhole-cover and the junction-box. Fig. 6 is an enlarged detail sectional view showing the water-tight joint between the inner cover of the box and its seat, with the cross-sectional form of the packing-gasket used; and Fig. 7 is a fragmentary plan view of the gasket.

Referring now more particularly to Figs. 1 and 2 of the drawings, A represents the shell or body of the junction-box, the same being shown as square in cross-section, having side flanges *a*, adapted to rest upon beams B, for supporting the box in the manhole. The box A has an enlarged upper portion A', provided

with an interior shoulder *a*², upon which is fitted the inner cover A², as hereinafter described, and a shoulder *a*⁰, upon which rests the outer cover A⁰, the latter being upon the level of the street and provided with ribs *a*^x upon its under side for strengthening purposes, as seen most clearly in Fig. 1. The inner cover A² is securely fastened in position by means of screw-studs *a*' and removable nuts *a*³, engaging said screw-studs. A rubber gasket *a*⁴ is also fitted between the edge of the cover A² and its seat for rendering the closure water-tight. This gasket is formed with a beveled vertical portion *a*⁹, upon which the beveled edge of the cover A² bears when in position, and being drawn down by the nuts *a*³ engaging the screw-studs *a*' wedges outwardly on said portion *a*⁹, making a close joint.

As seen in Fig. 6, the bevel of the upright portion *a*⁹ of the gasket *a*⁴ is less than the bevel of the edge of the cover A² to avoid excessive distention of the web portion *a*¹¹ when the cover is tightened, and the inner edge of the gasket is provided with a raised rib *a*¹⁰, which becomes compressed by the cover when the latter is tightened. This construction of gasket *a*⁴, besides making a doubly-tight joint, prevents the accumulation of water or foreign matter between the edges of the cover and the inner wall of the box, as will be obvious.

A³ represents a nut which has exterior screw-threads engaging in a screw-threaded opening in the center of the cover A² and interior screw-threads for the engagement of a detachable handle in removing the cover.

The bottom of the box A is made sloping, preferably toward its center, as shown in Figs. 1 and 3, and is provided with a central screw-threaded opening fitted with a screw-plug A⁴, having a square head *a*⁵ thereon for turning the same, the said plug being removable for the purpose of draining off any water or moisture which may accumulate in the box A by reason of condensation, but when fitted in said opening to effectually close the same against the entrance of water from the manhole should it rise sufficiently high to come in contact with the box A.

In Figs. 3 and 4 I have shown a box A⁶, hav-

ing a circular form, which is ordinarily preferably of the square form shown in Figs. 1 and 2.

In the square form (shown in Figs. 1 and 2) a suitable number of openings A^7 , fitted with water-tight tubular connections a^7 , are provided in one or more sides of the box, near the bottom thereof, for the entrance of the cables C from the conduits.

In the circular form of box (shown in Figs. 3 and 4) a suitable number of openings A^8 are provided in the bottom thereof, arranged in a circle, as shown in Fig. 4, or any other suitable manner, and fitted with screw-threaded tubular water-tight connections a^8 for the entry of the cables C. I do not, however, wish to limit myself to the arrangement of these openings in the side of the square box nor in the bottom of the circular box, as this arrangement may be varied in either case to suit conditions or as found most convenient.

D represents a hollow standard centrally mounted within the junction-box and secured in a fixed position by means of screw-bolts d' passing through flanges d on the bottom end of the standard D and engaging in screw-threaded openings in the bottom of the box. The said tubular standard is fitted immediately over and concentric with the central drain-opening in the bottom of the box; but in order to allow the free passage of moisture to the said drain-opening the foot of the standard D is provided with a series of openings d'' , which allow communication with the drain-opening, as seen most clearly in Figs. 1 and 3.

The upper end of the tubular standard D is provided with a circular flange D' , upon which may be mounted the cable connections. These may be of any suitable, convenient, or preferred form and arrangement; but for the sake of illustration I have shown in Figs. 1 and 2 an arrangement which has been put into practice. In these views, E represents copper or brass lugs having openings or sockets e in their under sides into which the cables C may be connected, and the said lugs E are mounted upon blocks E^1 , of insulating material, supported upon the flange D' of the standard D, so as to be held out of electrical connection with the said standard.

E^1 , E^2 , and E^3 represent copper or brass "bus-rings," being of alternately different polarity. Thus the top bus-ring E^1 and the lower bus-ring E^3 are each neutral, while the second or intermediate bus-ring E^2 is positive. These "bus-rings," so called, are insulated from each other and from the standard D by blocks E^4 , of insulating material, as seen most clearly in Fig. 1. The several bus-rings have radial projections, as shown most clearly in Fig. 2. The lugs E are each provided with an elevated projection e' for attachment of a fusible link or catch (not herein shown) which I use to connect each lug to the corresponding bus-ring projection and so make or sever electrical connections with any individual cable entering the manhole junction-box. Thus

the set of cables entering the manhole from any direction can be connected in the junction-box to the lug E nearest that direction, making it very convenient for a person to locate any particular cable on opening the box.

In Fig. 5 I have shown the usual manner of arranging the junction-box in the manhole. In this figure, H may represent the cover of a manhole proper, and I may represent the cover of the junction-box, or vice versa, the shape of the junction-box or of the entrance to the manhole being immaterial; but for the sake of illustration it will be assumed that H represents the cover of the manhole proper and I represents the cover of the junction-box. Thus entrance may be had to the manhole by removing the cover H, and so the cables or wires may be introduced into the junction-box from the interior of the manhole, while access may be had to the junction-box independent of conditions existing within the manhole, which may be partially or completely full of water.

The junction-box is preferably arranged to one side of the manhole, as shown in Fig. 5; but it may be arranged centrally thereof, and the entrance to the manhole may be to one side thereof. This will of course depend upon the existing condition, and I do not limit myself to the exact relative arrangement of the manhole-cover and the junction-box.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In an underground electrical system, the combination with a manhole; of a junction-box supported in the upper portion of said manhole, having wire connections accessible from the interior of the manhole, and provided with a cover allowing access to its interior from the exterior of the manhole, substantially as described.

2. In an underground electrical system, the combination with a manhole; of a junction-box supported in the upper portion thereof and opening upon the street-level; a water-tight cover for said junction-box, said box having connections for the wires accessible from the interior of the manhole, and a drain-opening in the bottom of said junction-box fitted with a water-tight closure, substantially as described.

3. In an underground electrical system, the combination with a manhole having an entrance-opening provided with a removable cover; of a junction-box supported in the said manhole to one side thereof, having openings for entrance-wires within the manhole, and having its top opening directly upon the surface of the street; and a water-tight cover for said junction-box independent of the manhole-cover, substantially as described.

4. In an underground electrical system, the combination with a manhole with which the conduits connect, and a removable cover for said manhole; of a junction-box mounted in the upper portion of said manhole, having

its top on the level of the manhole-cover; openings in said junction-box communicating directly with the interior of the manhole for the entrance of the wires from said conduits; a drain-opening provided with a water-tight closure in the bottom of said junction-box; and a water-tight cover for said junction-box permitting access thereto from the surface of the street, substantially as described.

5. In a junction-box for underground electrical systems, the combination with a hollow shell or case, having a water-tight cover, and having a sloping bottom with a drain-opening therein provided with a water-tight closure; of a hollow tubular standard mounted over said drain-opening and provided with passages leading to said drain-opening, said standard to serve as support for the cable connections, substantially as described.

6. In a junction-box for underground electrical systems, the combination with a shell or case, having a water-tight cover and openings at or near its bottom for passage of wires to the interior thereof; and having a central drain-opening fitted within a water-tight clo-

sure; of a hollow tubular standard mounted centrally within said shell over said drain-opening and provided with openings about said drain-opening, and a circular flange upon the upper end of said standard as a support for the cable connections, substantially as described.

7. In a junction-box for underground electrical systems, the combination with a shell or case, having openings for passage of wires to the interior thereof; and having a central drain-opening fitted within a water-tight closure; of a hollow tubular standard mounted centrally within said shell over said drain-opening and provided with openings about said drain-opening, said standard serving as a support for the cable connections, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JOSEPH WHITTIER TURNER.

Witnesses:

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