

H. F. KRANTZ.

FLOOR BOX.

APPLICATION FILED DEC. 18, 1912.

1,271,478.

Patented July 2, 1918.

2 SHEETS—SHEET 1.

Fig. 1.

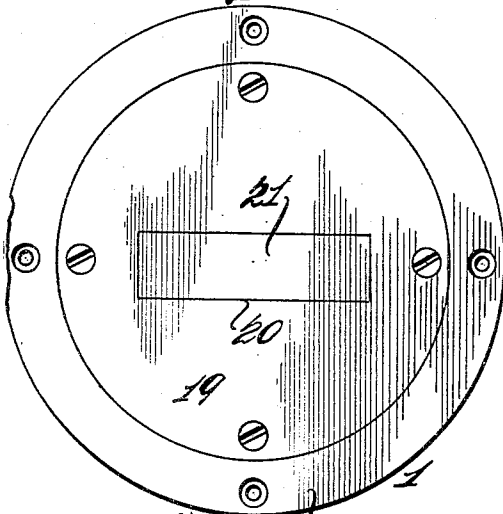


Fig. 2.

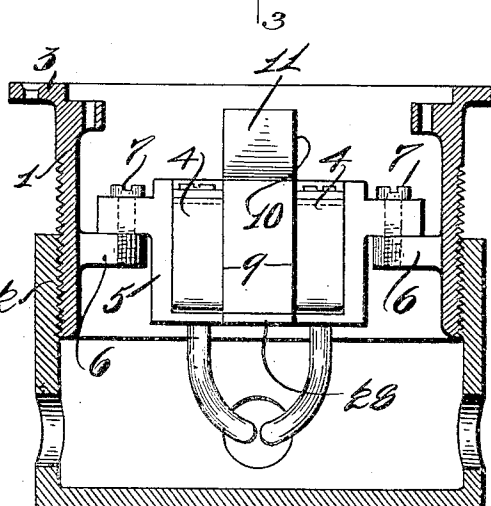
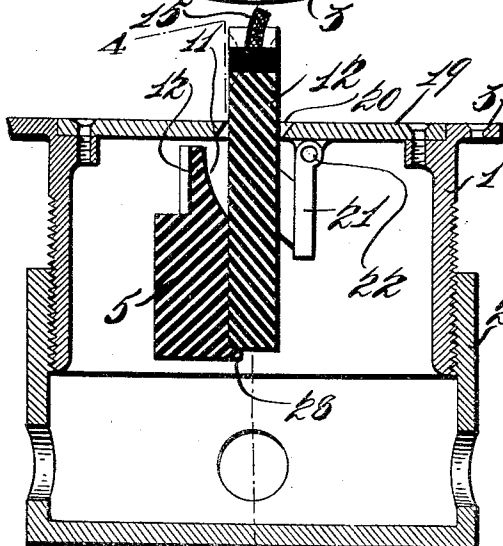
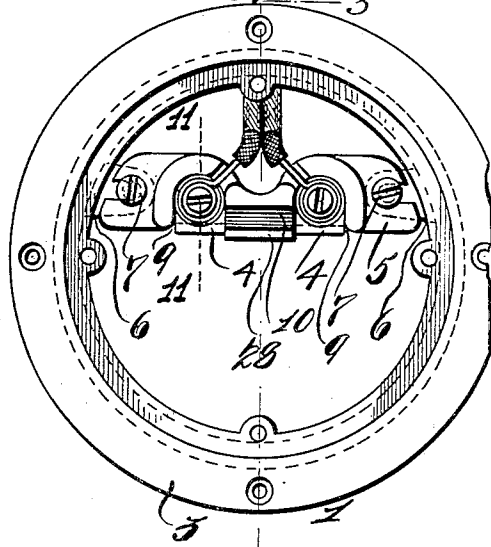


Fig. 5.

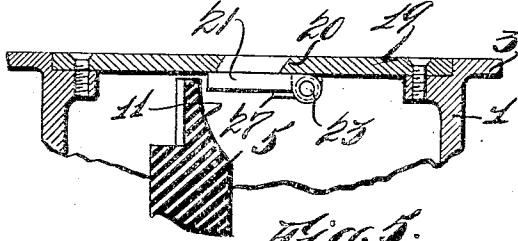
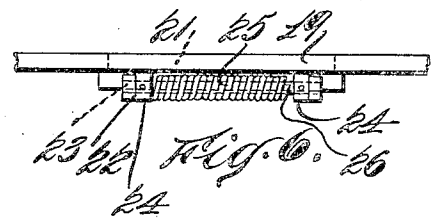


Fig. 6.



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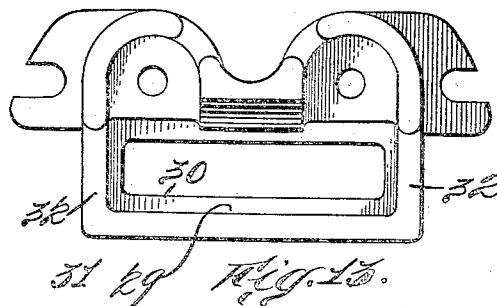
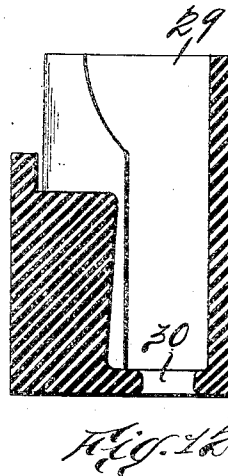
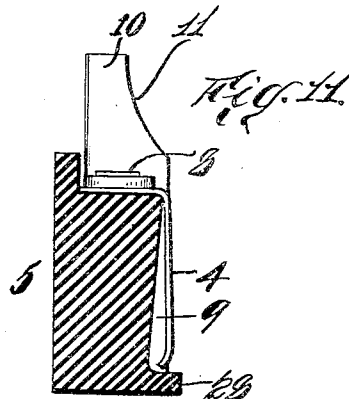
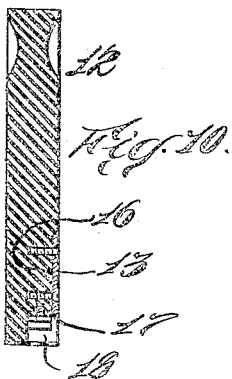
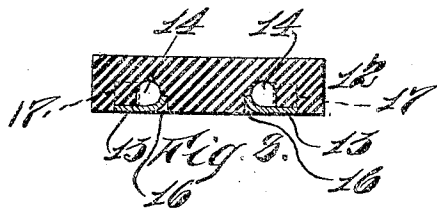
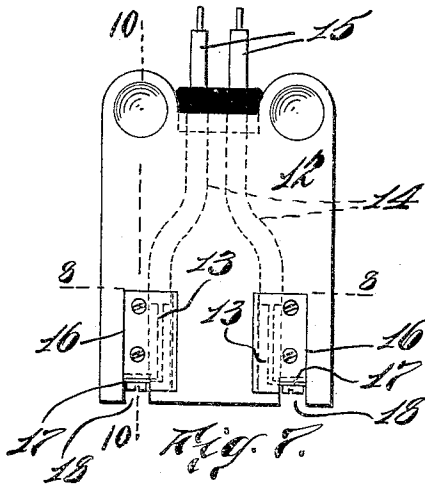
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

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FLOOR-BOX.

1,271,478.

Specification of Letters Patent.

Patented July 2, 1918.

Application filed December 18, 1912. Serial No. 737,374.

To all whom it may concern:

Be it known that I, HUBERT F. KRANTZ, a citizen of the United States, residing at Brooklyn, county of Kings, city and State of New York, have invented certain new and useful Improvements in Floor-Boxes, of which the following is a clear, full, and exact description.

This invention relates to an improvement in a floor box, the function of which is to form a connection for electrical distribution, the said box being located in a floor and connected with a feeding circuit; a plug being utilized to tap the circuit, the said plug being usually inserted through the tap of the box.

The object of this invention is to provide a floor box which is for all practicable purposes, proof against short-circuiting by water or any other foreign element. The manner by which the contacts are protected makes it possible to wash a floor by flooding or otherwise.

In the drawings, which form part of this specification:

Figure 1 is a top plan view of my improved floor box.

Fig. 2 is a similar view, the cover being removed.

Fig. 3 is a cross sectional view of the box on line 3—3, Fig. 2.

Fig. 4 is a cross sectional view of the box on line 4—4, Fig. 3 with the cover removed.

Fig. 5 is a fragmentary sectional view of the upper portion of the box illustrating the door for the opening in the cover of the box as closed.

Fig. 6 is a fragmentary end view of the cover of the box, illustrating the spring which acts to close the door and also to hold the plug in contact with the fixed contact holder in the box.

Fig. 7 is a detail face view of the plug.

Fig. 8 is a sectional plan view thereof, the section being taken on a line 8—8 in Fig. 7.

Fig. 9 is a top plan view of the plug.

Fig. 10 is a vertical sectional view of the plug, the section being taken on a line 10—10 in Fig. 7.

Fig. 11 is a vertical sectional view of the fixed contact holder, the section being taken on a line 11—11 in Fig. 2.

Fig. 12 is a similar view of a modified form of fixed contact holder.

Fig. 13 is a top plan view thereof.

As herein embodied, my improved floor box comprises the adjustably connected sleeve and body portion 1 and 2, both of which are threaded to engage each other, as shown, which adapts the box as a whole to be adjusted in order to increase or decrease the depth of the structure, whereby the box is adaptable for application to floors, adjacent which the line wires are strung unevenly, that is to say, where the line wires are nearer to the floor at some points than at others.

The fixed contacts which form part of the circuit are carried by the adjustable element 1, the said element being termed the adjustable element, because it is the one that is screwed into the other element until the flange 3 thereof comes in contact with the floor.

The contacts which form part of the main circuit are indicated by 4 and are carried by a contact holder 5 of some insulating material, such as porcelain. The contact holder 5 is fixed to lugs 6 carried by the adjustable element 1, by means of screws 7. The contacts 4 are secured to the holder 5 by means of screws 8.

As can be seen the contacts 4 are located in recesses 9 in the holder 5 and are for all practicable purposes flush with the face of the holder. The holder 5 is provided with a post or upstanding projection 10 having a curved face 11 which acts to guide the plug 12, which carries contacts 13, which forms part of a branch circuit. As can be seen in Fig. 7, 8 and 9, the plug 12 is provided with ducts 14 through which the branch circuit wires 15 are strung to the contacts 13. The contacts 13 are secured in recesses 16 in the face of the plug. The flange 17 of the contacts 13 is disposed within a recess 18 in the bottom of the plug. For the reason that the contacts 4 and 13 are secured in recesses in the manner shown the said contacts are protected at all points, excepting at the faces thereof, which are caused to contact, one with the other, when the main line is to be tapped.

As can be seen in Figs. 1, 3 and 5 the cover 19 of the box is provided with an opening 20, through which the plug 12 is passed. To close the opening 20 when the plug 12 is removed I provide a door 21 which is pivoted to the cover 19 at 22, the said pivotal connection consisting of a pin 23 secured in the

lugs 24 on the cover. To close the door or closure 21 I provide a spring 25, which is coiled around the pin 23, one end of which is secured to the pin at 26, the other end resting against the closure or door at 27.

The spring 25 not only closes the door to fill the opening 20 when the plug is removed, but it also acts to force the plug 12 toward the holder 5 and keep the contacts 4 and 13 together; in fact the closure 21, together with the spring 25, constitutes a pressure entering device for holding the plug in position. To prevent the plug from being forced too far into the box, and also to align the contacts 4 and 13, I provide a stop 28 at the lower end of the holder 5 (see Figs. 2, 3 and 4) with which the lower end of the plug contacts when the said plug is forced home, as shown in Fig. 3.

To connect the branch circuit the lower end of the plug will be placed upon the closed door 21 and pressed downwardly, which action will cause the door to swing inwardly against the tension of the spring 25. As the door swings inwardly the plug will ride sidewise down the inclined surface of the door and contact with the rounded guideway 11 of the post 10. A continued downward movement of the plug will result in the position shown in Fig. 3, in which position the contacts 4 and 13 will be held firmly together by the tension of the spring 25. As can be seen the opening 20 is comparatively small and the chances of the door being even partly opened by a person walking thereupon is remote.

Should water flow into the box it would flow past the contacts 4, as there are no pockets or recesses in the holder to retain water enough to short-circuit the line.

Furthermore the said contacts are substantially flush with the face of the holder and the recesses which retain them are not in communication. Figs. 12 and 13 illustrate a self contained fixed holder for contacts. The object of this construction is to provide a holder that will retain the plug independently of any outside element. In this form the holder is provided with a socket 29, in which the plug is inserted, the bottom of the socket being provided with an opening 30 through which water and dirt can pass to prevent the socket from filling up. The socket 29 is formed by the side wall 31 and end walls 32. In other respects the holder is similar to the holder 5.

I claim as my invention:

1. In combination with an electric circuit, a holder provided with recesses, contacts located in said recesses, an upstanding post carried by said holder and located between said contacts, said post being provided with a curved guideway, a stop located at the

lower end of said holder, and a plug adapted to rest on said stop, contacts carried by said plug adapted to impinge upon the contacts carried by said holder, said plug being adapted to rest upon said stop when said contacts are in alignment.

2. In combination with an electric circuit a holder provided with recesses, contacts located in said recesses, an upstanding post carried by said holder and located between said contacts, said post being provided with a curved guideway, a socket carried by said holder encompassing said contacts, the bottom of said socket being provided with an opening, a plug adapted for insertion in said socket, and contacts carried by said plug adapted to align with the contacts on said holder when said plug is pressed home in said socket.

3. The herein described floor box consisting of a container, stationary contacts, a supporting body therefor located within the container, a cover having an opening above said body, a plug having contacts adapted to be inserted through said opening, the contact plug and the contacts of the body adapted to be engaged by a sliding motion on the insertion of the plug, and means resiliently mounted within the box to urge laterally the plug contacts against the body contacts.

4. The herein described floor box consisting of a container, stationary contacts, a supporting body therefor located within the container, a cover having an opening above said body, a plug having contacts adapted to be inserted through said opening, the contact plug and the contacts of the body adapted to be engaged by a sliding motion on the insertion of the plug, and means within the box to urge laterally the plug contacts against the body contacts, said means consisting of a closure for the opening of the cover, and resilient means for holding it against the plug.

5. The herein described floor box consisting of a container in two parts, one a body part and one a sleeve, a cover for the sleeve, an opening therein, a body carrying contacts and secured to the sleeve with the contacts a definite distance from the cover, a plug having contacts adapted to be inserted through said opening, a closure for the opening and resilient means for normally restoring it to closed position so mounted that it will press against said plug to maintain contact when the plug is in position.

Signed at New York city, New York, this 17th day of December, 1912.

HUBERT F. KRANTZ.

Witnesses:

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