W. A. BONNELL.

SWITCH OR OUTLET BOX.

APPLICATION FILED MAY 29, 1909.

956,674.

Patented May 3, 1910.

2 SHEETS—SHEET 1.

Fig. 1.

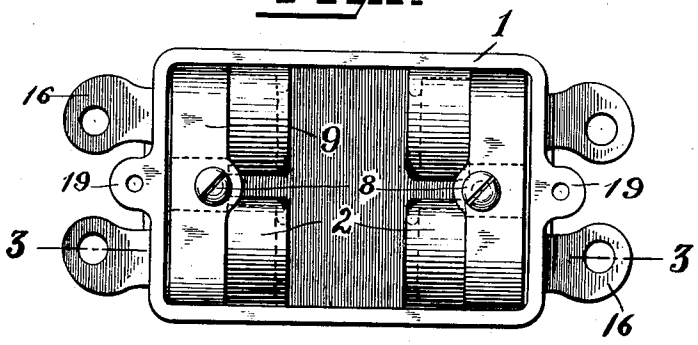


Fig. 2.

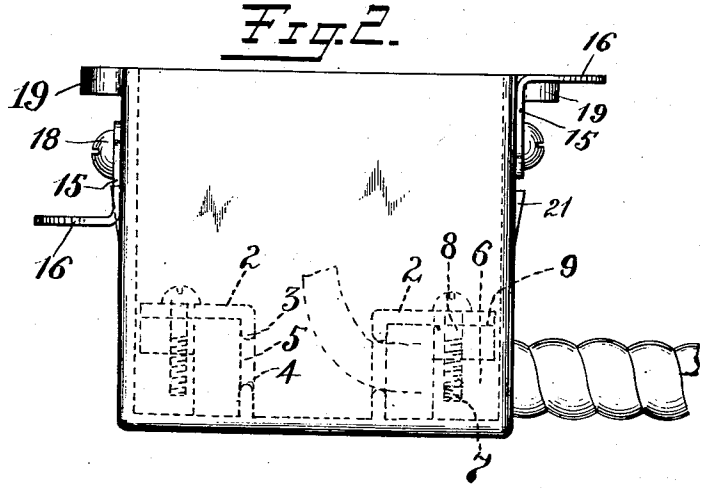
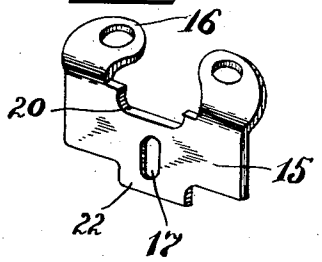


Fig. 6.



Witnesses:

Fred W. Dannenfelser.

Chas. A. Pierce

Inventor

W. A. BONNELL.

By his Attorneys.

Bartlett Brownell & Mitchell

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2 SHEETS—SHEET 2.

Fig. 3.

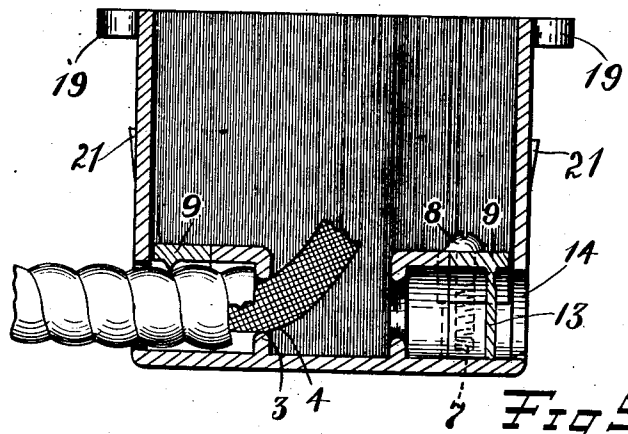


Fig. 4.

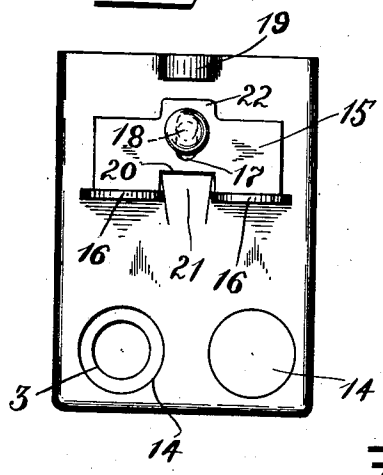


Fig. 5.

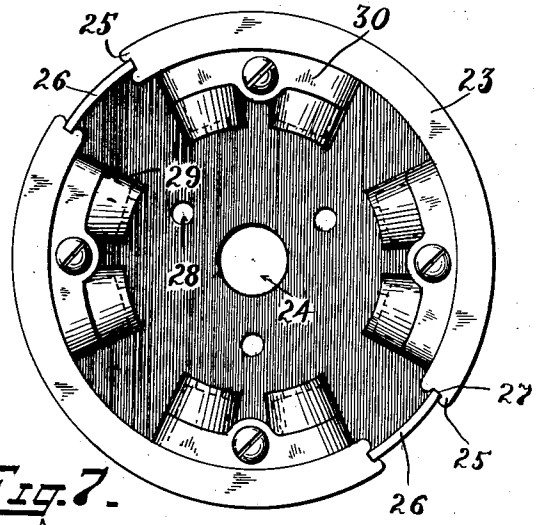
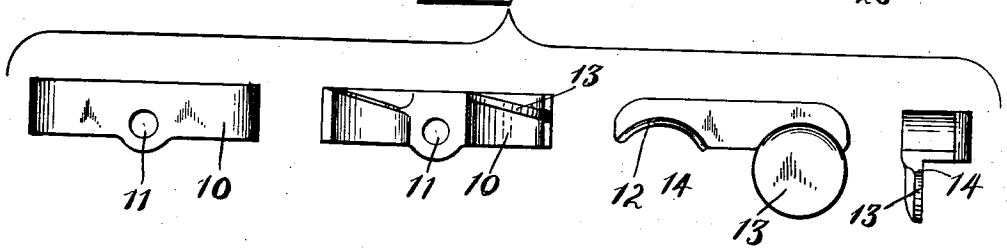


Fig. 7.



Witnesses:

Fred W. Damenfelser.

Chas. A. Seaid

Inventor

W. A. BONNELL.

By his Attorneys:

Bartlett Brownell & Mitchell

UNITED STATES PATENT OFFICE.

WILLIAM A. BONNELL, OF BROOKLYN, NEW YORK, ASSIGNOR TO HATTIE W. F. BONNELL, OF BROOKLYN, NEW YORK.

SWITCH OR OUTLET BOX.

956,674. Specification of Letters Patent. Patented May 3, 1910.

Application filed May 29, 1909. Serial No. 499,130.

To all whom it may concern:

Be it known that I, WILLIAM A. BONNELL, a citizen of the United States, residing at Brooklyn, county of Kings, State of New York, have invented certain new and useful Improvements in Switch or Outlet Boxes, of which the following is a full, clear, and exact description.

My invention relates to improvements in switch and plug receptacle boxes employed in electric wiring and may be applied with equal advantage both to boxes of the character designated and to so-called junction and outlet boxes.

The object of the invention is to provide a box of this character with stationary bushings for the reception and firm holding of electric conduits, and with effective clamping means for holding said conduits in position irrespective of the rough condition of the terminals of the armor thereof due to careless cutting of the conduits.

A further object is to so construct said clamping means as to most effectually engage the armor of the conduits.

A further object is to provide the box with adjustable means for securing the same in position either to the lathing of a new building and permit clearance to bring the face of the box substantially flush with the face of the plastering, or, on the other hand, to bring the outer face of the box substantially flush with the surface of a panel within which it is secured.

A further object is to provide a modification of my invention which will be adapted for use as an outlet box in connection with chandeliers and the like and having, in combination with the cable receiving apertures and bushings, suitable passages for the reception of gas pipes.

With these objects in view the invention consists in the construction and arrangement of parts preferred embodiments of which are illustrated in the accompanying drawings, in which,

Figure 1 is a plan view of a switch or plug receptacle box embodying my invention and looking into the interior of the box. Fig. 2 is a side elevation of said box showing the different positions of the securing brackets. Fig. 3 is a sectional view on the plane of the line 3—3, Fig. 1. Fig. 4 is an end view of the box. Fig. 5 is a view similar to Fig. 1 of an outlet box embodying my improvements. Fig. 6 is a detail view in perspective of one of the securing brackets, and Fig. 7 comprises upper and under side plan views and a side and end elevation of the clamping member used in conjunction with the box.

Referring to Figs. 1 to 4 inclusive, the embodiment of my invention herein illustrated consists in the usual metal box or casing 1, which in the form here shown is provided with bushings 2 at or adjacent to the base preferably arranged in pairs at opposite ends of the box, as shown. These bushings are preferably formed integral with the box and are provided with flanges 3 having rounded edges 4 and forming apertures 5 for the passage of the electric cables, said rounded edges serving to prevent abrasion of the insulation of said cable. Between the bushings of each pair and preferably forming part of the walls thereof is a ridge 6 threaded at 7 to receive the screw 8 which secures the conduit clamps 9 in position; said clamps lying between the ends of the bushings and the wall of the box. In the form here shown, such clamping member, Fig. 7, consists of a body or bridge portion 10 having an aperture 11 to receive the securing screw and has formed in its under side the curved recesses 12, which are substantially of the radius of the conduit to be secured and having knock-out disks 13 formed integral with the body portion in said recesses 12, which knock-out disks normally close the conduit receiving openings 14 in the walls of the box. I have so constructed the device that the disks may be readily punched in and broken off, when it is desired to pass the conduit into the corresponding opening. It will be seen from an inspection of Fig. 7 that the knock-out disks are arranged at an angle to the body portion of the clamping member corresponding to the pitch of the spiral winding of the conduit armor and said disks at the line of junction with said body portion are slightly thinned to facilitate the breaking out operation. Furthermore, this thinned portion, when the disks have been broken out, presents a comparatively sharp ridge for engagement with the conduit armor to enable the clamps to hold the conduits more securely in position. The breaking off of the disks leaves an edge of raw or bare metal adapted to form a good "ground" connection for the conduit when in engagement

therewith. The upper portion of the box above the bushings 2 affords sufficient space for the reception of electric switches or plugs to which the electric cables are to be connected. By forming the bushings integral with the box, firm, stationary receiving means are provided for the reception of the conduits which in conjunction with the clamping plates described affords an absolutely secure connection of the conduits with the box and prevents any possibility of accidental release of the conduits. Furthermore, the position of the clamping edges, left by knocking out the disks 13, close to the walls of the box and far removed from the inner ends of the bushings insure gripping the conduits at a considerable distance from their ends thus insuring the gripping of the armor of the conduits well within the rough-cut or broken ends of said armor. In order to provide for securing the box in proper position, as, for example, to the laths of a new building, I provide the securing brackets 15 having the apertured ears 16 to receive the securing screws and having a slot 17 for the reception of the screw 18 which secures the bracket to the box 1. The upper edge of the box is provided with apertured lugs 19 to receive the screws for holding the usual cover (not shown) on the box and the brackets 15 are provided at the edge between the ears 16 with a recess 20 adapted to embrace the lugs 19 and be guided thereby and hold the brackets in proper position with their ears in alinement with the rim of the box. I also provide lugs 21 (Fig. 4) below the lugs 19 on the ends of the box to rest in said recess 20 of the clamping brackets when the said bracket is in reverse position, as shown in Figs. 2 and 4. The position of the bracket as illustrated to the left of Fig. 2 and in Fig. 4 provides for sufficient clearance between the ears 16 and the rim of the box for the plastering of the walls or ceiling as the case may be, whereas the position of the clamping bracket to the right of Fig. 2 provides for the securing of the box with its rim substantially flush with the surface of a panel within which it may be supported. The bracket furthermore may be provided with a projection 22 on its edge opposite the recess 20 to limit its adjustment between the lug 19 and the lugs 21. It will be noticed that the depth of the recess 20 is substantially equal to the thickness of the lug 19 whereby when the bottom of said recess is seated against the under side of said lug, the ears 16 of the bracket will be substantially flush with the rim of the box.

Fig. 5 illustrates my invention applied to a so-called "outlet" box and comprises a circular box 23, which may have an aperture 24 at its center to receive a gas pipe for a chandelier projected from the ceiling or wall of the room and also with side openings 25 for the passage of gas pipes extending laterally into the outlet box. As here shown, the opening 25 may be provided with removable gates 26 arranged to slide in grooves 27 in the edges of the openings. The box may further be provided with suitable screw holes 28 to receive the screws for fastening the box to the ceiling or wall. This outlet box may be provided with any desired number of bushings, such as 29, arranged preferably radially thereof, as shown, and similar in construction to the bushings hereinbefore described, and the clamps 30 may also be similar in form and arrangement to the clamps heretofore described but made of arc shape to fit the curvature of the walls of the circular box. In other respects, the means for securing the conduits is the same as that heretofore described.

While I have herein described particular embodiments of my invention, it is to be understood the same may be varied in detail and relative arrangement of parts without departing from the spirit or scope thereof.

What I claim is:

1. An electric appliance for electric conduits comprising a box or casing, having a conduit aperture therein, a stationary bushing therein spaced away from the wall thereof opposite said aperture and a clamping member interposed between said bushing and said wall and having a knock-out disk formed integral therewith, said disk arranged to stand closely adjacent to said wall whereby the conduit is gripped at the greatest distance from its end within said box.

2. An electrical appliance comprising a box or casing, having conduit apertures therein bushings formed integral therewith at the bottom thereof opposite said apertures respectively, the outer ends of said bushings being spaced away from the walls of said box and a clamping member interposed between said bushings and the walls of the box and having one or more knock-out disks formed integral therewith, so arranged as to lie closely adjacent to the wall of said box.

3. An electrical appliance for electric conduits comprising a box or casing, bushings formed integral therewith at the bottom thereof, and spaced away from the walls of said box, said casing having apertures in said walls in alinement with said bushings, clamping members interposed between said bushings and said walls and having knock-out disks formed integral therewith and arranged to lie close to and close said apertures whereby when said disks are removed, the raw edges left thereby will form gripping edges for the conduits considerably removed from the inner ends of said bushings.

4. An electrical appliance for electric conduits having spirally arranged armor comprising a box or casing having conduit aper-

tures therein, bushings formed integral therewith adjacent the walls thereof and spaced away from said walls opposite said apertures respectively, clamping members adapted to be interposed between said bushings and walls and having knock-out disks formed integral therewith, said disks being arranged at an angle to the body of said clamping member whereby when said disks are broken out the edges left thereby will extend in line substantially coincident with the spiral of the armor of said conduits to more effectually grip said conduits.

5. In an electrical appliance for electric conduits having spirally arranged armor, a box or casing having conduit apertures therein bushings formed integral therewith opposite said apertures respectively, clamping members arranged transversely of said bushings and having knock-out disks formed integral therewith and arranged at an angle to the body of said clamping members whereby the gripping edges left by the breaking out of said disks will extend in lines coincident with the spiral of the armor of the conduits to be secured.

6. In an electrical appliance for electric conduits having spirally arranged armor, a box or casing, having conduit apertures therein conduit receiving bushings therein, opposite said apertures respectively, clamping members arranged to coöperate with said bushings to secure conduits in said box, said members having one or more knock-out disks arranged at an angle to the body of said clamping members whereby the edges left by the knocking out of said disk will extend in lines substantially coincident with the spiral of the armor of said conduits to more effectually grip and secure the same.

7. An electrical appliance for electric conduits comprising a box or casing, bushings formed integral therewith adjacent the bottom thereof, clamping members interposed between said bushings and the walls of said box to secure the conduits within said bushings, said casing having openings in its walls between said bushings for the passage of gas or other pipes and removable gates in said openings.

8. An electrical appliance for electric conduits comprising a circular box or casing, stationary bushings arranged radially thereof and spaced away from the side wall of said box, said casing having apertures in said wall registering with said bushings, a clamping member interposed between said bushings and said wall and having knock-out disks formed integral therewith arranged to lie closely adjacent to said wall and overlying said apertures whereby when said disks are removed, roughened edges of bare metal will remain to form clamping edges to secure and hold the conduits within said bushings.

9. A clamping member for an outlet box comprising a body portion having knock-out disks integral therewith and arranged at an angle thereto whereby when said disks are removed roughened edges of bare metal will remain and extending in lines substantially coincident with the spiral of the armor of the conduits to be secured thereby.

10. A clamping member for outlet boxes comprising a body portion, one or more knock-out disks formed integral therewith and arranged at an angle thereto, the material of said disks being thinned at the line of junction with said body portion whereby the removal of said disks will leave comparatively sharp edges of bare metal extending in lines substantially coincident with the spiral of the winding of the conduits with which said members are used.

WILLIAM A. BONNELL.

Witnesses:
CHAS. A. PEARD,
M. E. GARRETT.