J. S. STEWART.

APPLIANCE FOR CONDUIT WIRING.

APPLICATION FILED NOV. 13, 1907.

907,911.

Patented Dec. 29, 1908.

2 SHEETS—SHEET 1.

Fig. 1.

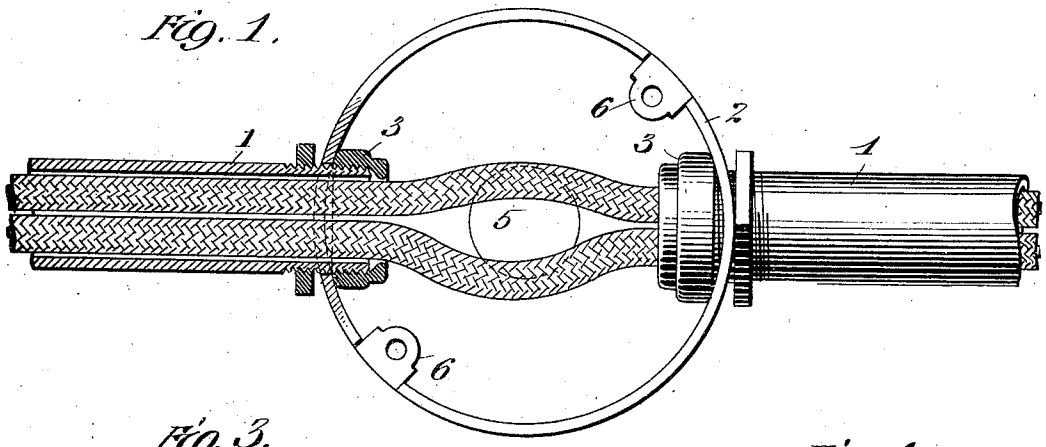


Fig. 3.

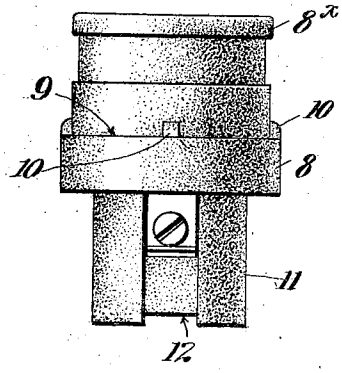


Fig. 4.

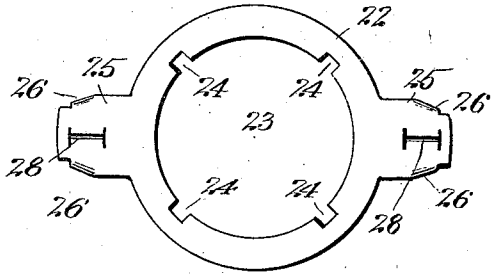
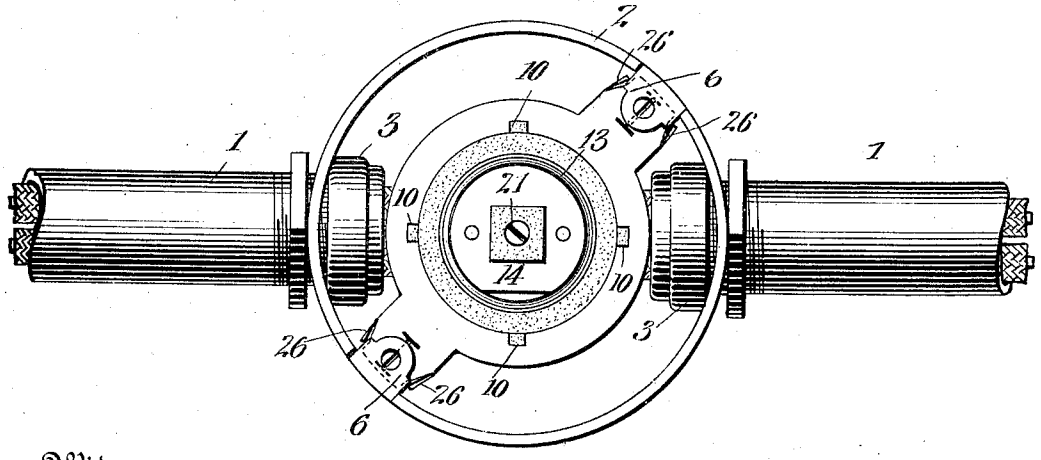


Fig. 2.



Witnesses:

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By his Attorneys

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2 SHEETS—SHEET 2.

Fig. 5.

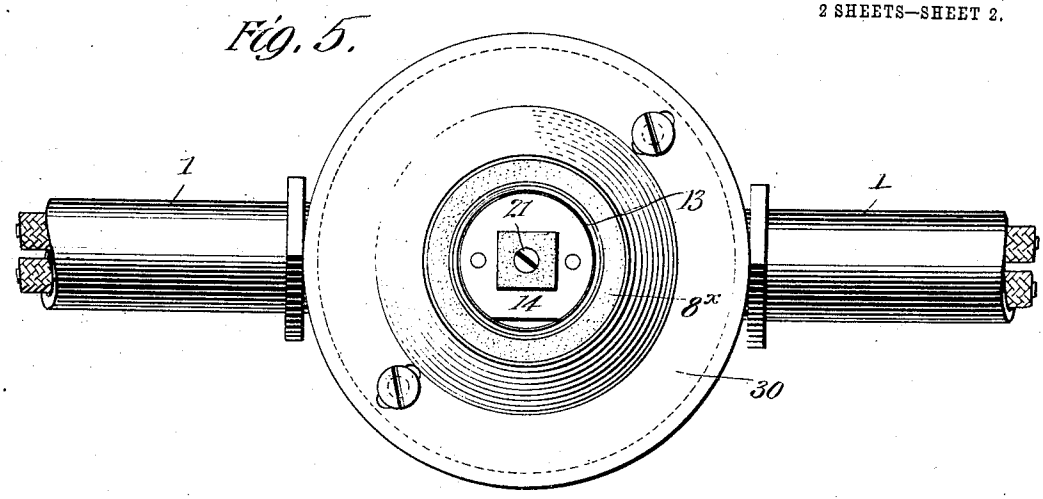


Fig. 6.

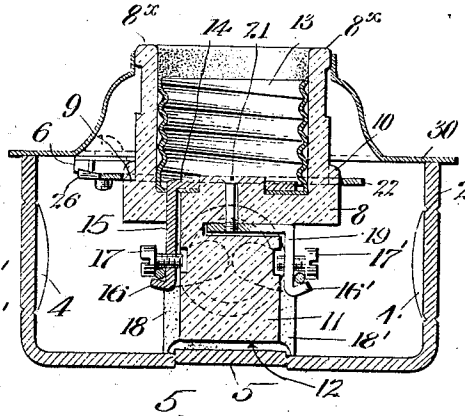


Fig. 7.

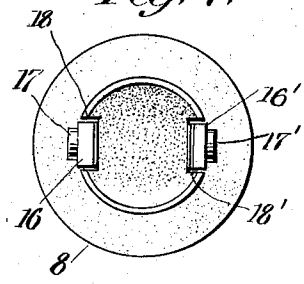
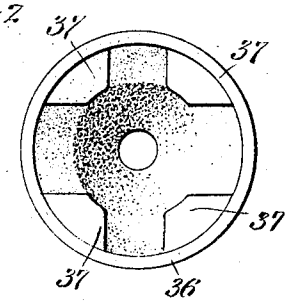


Fig. 9.



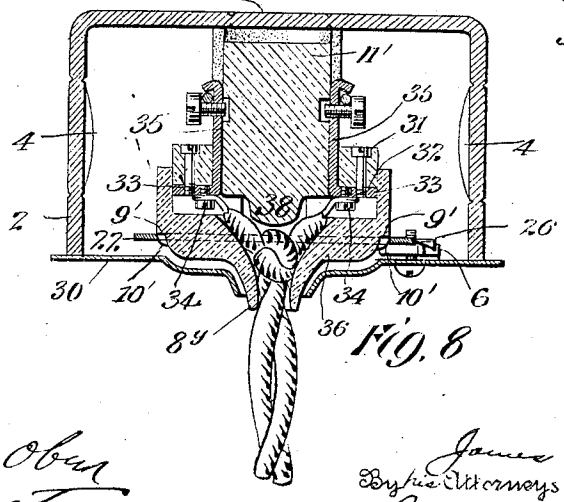


Fig. 8

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UNITED STATES PATENT OFFICE.

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APPLIANCE FOR CONDUIT-WIRING.

No. 907,911. Specification of Letters Patent. Patented Dec. 29, 1908.

Application filed November 13, 1907. Serial No. 401,932.

To all whom it may concern:

Be it known that I, JAMES S. STEWART, a citizen of the United States, residing at the city of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Appliances for Conduit-Wiring, of which the following is a full, clear, and exact description.

My invention relates to appliances for conduit wiring and more particularly a type of lamp receptacle or rosette applicable for use with an outlet box of ordinary construction.

In conduit wiring, the conductors are led through iron pipes either embedded in the plastering or walls of a building, or in an exposed relation. It is evident that a maximum degree of safety against fire is obtained by completely incasing the conductors in this way. Moreover, the conductors are protected from dampness and injury by any cause, so that notwithstanding the difficulties and expense of this construction, its use is largely superseding other kinds of wiring for inside purposes. It is evident that wherever a lamp is to be provided, the conduit pipe must be interrupted and some sort of box or pipe enlargement furnished of sufficient size to receive the lamp receptacle and the necessary wiring. The devices in use for this purpose are termed outlet boxes and are constructed in standard forms, for example, as shown in the drawings of this application. The ordinary outlet box comprises an integral cup stamped of sheet metal with openings at the side to receive the conduit sections, and a cover with a central perforation through which the lamp receptacle projects. On the grounds of economy and appearance, it is desirable to have the outlet boxes as small as possible, but in order to contain the necessary wiring, and a porcelain receptacle of the ordinary sort, they are never less than 3″ in diameter, and more commonly 4″ in practice. The lamp receptacle used must, of course, be anchored in place within the outlet box and so far as I am aware, this has always been done either by a fastening between the bottom or back plate of the outlet box and the lamp receptacle, or in some cases a fastening between the cover plate and the lamp receptacle. The latter arrangement is found very objectionable because of the difficulty of connecting, soldering, taping or compounding the wires (unless a very long loop is left by the wireman), on account of the flaring edges of the cover plate which is necessarily very much in the way under these circumstances. Moreover, with this arrangement, it is impossible to remove the cover without wholly disturbing the receptacle and the wiring. If, on the other hand, the receptacle is fastened by machine screws to the bottom plate of the iron outlet box, it is evident that considerably accurate machine work in drilling and tapping must be done, or else a great multitude of holes initially provided in the bottom plate of the outlet box, as is usually the case. Even in this instance, no small difficulty is found in properly registering the holes with those of different types of receptacles, and the surplus holes are left to admit moisture. It is also necessary to have a porcelain or insulating wall between the threaded shell and the edges of the central opening through the cover, and a mere bushing ring is not satisfactory on account of its liability of becoming broken or removed and lost.

So far as I am aware, it has been the general custom to make use of a lamp receptacle having a central block designed to be secured to the bottom plate of the outlet box, and a projecting porcelain housing which is slipped over the central block after the connections have been made. This outer housing has a portion surrounding the threaded shell and high enough to form a partition between the threaded shell and the surrounding edge of the opening in the cover. But this arrangement in addition to the drilling and tapping difficulties mentioned, is particularly objectionable because of the necessarily large size of the complete receptacle, with its central block and its outside housing part. With this construction and with the necessary wiring required, it is almost always necessary to use at least a 4″ outlet box. An incidental disadvantage in this construction is the fact that the wires are crowded against the iron back plate of the outlet box where they are liable to grounds and short-circuits.

It is the purpose of my present invention to overcome each of these above-enumerated difficulties and objections, and to provide a type of a lamp receptacle or rosette exclusively for use in conduit wiring, which has an insulating partition between the threaded shell and the edge of the opening in the cover plate; which is of such small diameter within the outlet box that all necessary wiring connections can be made with great convenience in boxes of the smallest sizes; and which sup-

ports the conduit wires at a considerable elevation away from the bottom or back plate. I also provide means by which the body of the receptacle or rosette is anchored securely in place within the outlet box by means which is not disturbed by removing the cover.

With these objects in view, the invention consists in the features of construction and combination as hereinafter set forth and claimed.

In the drawings, Figure 1 is a plan view partly in section of an outlet box of the type used with my invention. Fig. 2 is a similar view showing a receptacle embodying the principles of my invention in place therein. Fig. 3 is a side view of the receptacle. Fig. 4 is a view of a retaining device or holding plate which I employ. Fig. 5 is a view similar to Fig. 2 showing the cover in place upon the outlet box. Fig. 6 is a vertical sectional view of the same. Fig. 7 is a bottom view of the receptacle. Fig. 8 is a view similar to Fig. 6, except that a rosette is employed instead of a receptacle. Fig. 9 is an inside view of part of the rosette.

Referring to the drawings in which like parts are designated by the same reference sign, 1 indicates the sections of a conduit pipe which are joined to the outlet box 2 by the usual nuts or bushings 3 which need not be described. 4 and 5 indicate the inwardly embossed portions of the outlet box which can be knocked out when desired to permit the connection of additional pipes. 6 indicates lugs formed by inwardly bent portions of the outlet box and which have threaded holes for the fastening screws of the cover. All these features are of the standard and well-known construction, and constitute no part of my invention.

8 designates the body of a form of lamp receptacle embodying the principles of my invention. One essential characteristic of this body is the provision of a ledge or shoulder 9 directed upwardly or toward the lamp receiving end. In the form of the invention shown where the body 8 is of cylindrical outline, I provide a plurality of teats or projections 10 which are designed to coöperate with certain recesses in a holding plate later described. In practice, I find four of these teats or projections equally spaced apart from one another or a multiple of four to be the only practical number, for reasons later pointed out.

The second feature of the body 8 which I regard as peculiarly characteristic is the provision of a comparatively slender elongated portion 11 generally co-axial and symmetrical with the body of the receptacle and extending in the direction away from the lamp end. In practice, I make this elongated portion 11 of a diameter slightly greater than any one of the knockout portions 4, 5 of the outlet box, and recess the flat end face slightly at 12 so as to just fit nicely over the inwardly embossed part 5 in the bottom plate. The length of the elongated portion is just sufficient to bring the shoulder 9 on a level with the lugs 6 of the outlet box.

13 indicates the threaded shell snugly received within the body 1 and clamped therein by a plate 14 having a downwardly extending integral strip or ear 15, the end of which is bent over at 16 and has a terminal screw 17 which clamps the conduit wire. For greater compactness, this ear or extension is inset in a suitable recess 18 in the elongated portion 11 of the body. 18′ designates a similar recess in the other side of the elongation 11 and which receives a terminal clip or ear 19 having a bent portion 16′ and a terminal screw 17′. This ear or clip is bent into a lateral opening of the body 8 and receives a screw 21 extending downwardly from the threaded shell cavity and serving the double function of a central stud terminal and a fastening means for the clip 19. It is clear that this construction not only provides for holding all the parts together, but establishes all necessary electrical connections, and in such a way that a partition 8× of integral porcelain is always interposed between parts of opposite polarity.

22 indicates the holding plate referred to, and which serves a very important purpose in the combination. This part is essentially a retaining device which extends across the open side of the outlet box and secures the receptacle in place therein, particularly against any angular movement. In practice, I form the retaining device or holding plate from sheet metal with a central opening 23 of such a size as to receive the body 8 with the edges of the holding plate resting snugly against the shoulder 9. 24 indicates recesses corresponding to the teats or projections 10 already referred to and which coöperate therewith to prevent relative angular movement between the holding plate and the body of the receptacle. At diametrically opposite points corresponding to the location of the lugs 6 of the outlet box, there are integral ears 25 terminating by points separated at a distance corresponding to the internal diameter of the outlet box. These ears are designed to be passed beneath the lugs 6 in which relation they bear the holding plate down against the shoulder 9 of the lamp receptacle which is securely anchored or locked in position by this simple engagement on account of the elongation 11 which abuts against the bottom plate of the outlet box. In practice, I have upturned flanges 26 on the ears 25 which fall on either side of the lugs 6 and keep the locking plate against angular movement. The resiliency of the holding plate is sufficient to permit the initial engagement of the holding plate with the lugs, notwithstanding these flanges. I do

not rely on this engagement, however, to absolutely lock the lamp receptacle against rotary movement which is essential to withstand the considerable twisting strains applied in inserting or removing a lamp. The ends of the ears 25 have elongated slots or holes 28 which are directly beneath the holes of the lugs 6. When the cover 30 of the outlet box is secured into place the usual screws pass downward through the lugs and through the elongated holes 28 forming an engagement therewith so secure as to absolutely preclude any angular movement of the holding plate with its lamp receptacle. Incidentally this engagement prevents the holding plate being buckled upward by any strain, since such a movement would be resisted by the screws. In practice, the holes 28 are formed by merely slotting the ears 25 and bending down the edges forward into an inverted V. In this way the width of the hole or slot adjusts itself somewhat to the size of the screw used and binds tightly on the threads thereof at the engaging edges.

In use, the conduits with their outlet boxes being installed, the conductors are positioned by being pulled through from box to box, a slight loop being left at each box to give wire enough for the connections with the lamp receptacle or rosette. Thereafter, the wires are stripped and soldered or fastened to terminals 17, 17′, the receptacle body being loose or unfastened at this time. On account of this loose relation, and particularly the fact that the body of the receptacle is so small and slender with the especially slender elongated portion 11, these acts are very readily accomplished. If the wireman has only left a short loop in the conductors, or even no loop at all, still it is possible to make the connections, since the terminal screws are exposed in engaging relation adjacent to the conduit wires, even though the latter run practically straight through the box. On the other hand, if the wireman has left a long loop at the outlet box, no harm is done, because, as the receptacle is so small, there is plenty of room to pack away the surplus wire. The terminal connections are made at a point at least one-half inch away from the metallic base of the outlet box, and the wires are not crowded into engagement therewith. Also it will be noted that there is a considerable insulating partition 8^x between the threaded shell and the surrounding edges of the cover plate. Also the cover can be removed whenever desired without disturbing the receptacle or wiring, which is nevertheless made sufficiently accessible for all purposes. It is obvious that the outlet box may be used as a pull box for subsequent lines in threading such subsequent lines through the conduit or running a branch therefrom. This latter characteristic arises on account of the room left within the outlet box, together with the freely removable character of the cover plate. Finally and perhaps most important of all, the receptacle is very securely fastened against any independent movement in the outlet box and particularly any angular movement, there being severe angular strains in the insertion and removal of a lamp.

While I have described the invention particularly for use with a lamp receptacle, it is evident that it is equally applicable to a rosette. In Figs. 8 and 9, I have illustrated a rosette, which, when in its assembled condition has substantially the same exterior outlines as the lamp receptacle already described, except that the portion 8^y which issues through the cover plate is of somewhat smaller diameter. In practice, the rosette is constructed of a block 31 with a flat upper face 32 to which are secured flat plates 33 with screw terminals 34 for the extension line and having downwardly extending ears 35 forming terminal clips for the conduit conductors and analogous to the parts 15, 19 already described. 36 denotes a cap or casing fitting over the block and having lugs 37 engaging a transverse partition 38 of the block 31, so as to prevent relative angular movement. The part 36 has a shoulder 9′ and teats or projections 10′ exactly corresponding to the parts 9 and 10 already described. This shoulder with its teats or projections coöperates with the hole 23 of the plate 22 in exactly the same way as in the preceding form of the invention. The main block 31 has an elongated portion 11′ exactly analogous to the part 11 of the receptacle type. The use of the rosette is therefore exactly like the lamp receptacle in all respects, and need not be again described.

I have already referred to the fact that there are four teats or projections 10, on the shoulder 9 of the receptacle or rosette, or a multiple of this number, all equally spaced apart. This arrangement is particularly advantageous because the ordinary outlet box has only one pair of lugs 6, as shown in the figures of the drawing, but is made with knock-out portions 4 at four points around its circumference or periphery, ordinarily spaced apart 90° from one another. The box is adapted to receive conduit pipes at either diametrically opposite pair of these knock-out portions 4.

Inasmuch as it is desirable to have a receptacle or rosette serve equally well for conduit pipes in any direction, it is evident that a means which permits such receptacle or rosette to be positioned in different angular relations 90° apart is advantageous. This is permitted by the spacing of the teats or projections 10 in the manner indicated.

What I claim, is:

1. In combination with an outlet box having an open side and a pair of lugs projecting inward from the edge thereof, an insulating

body having terminals and having an abutting engagement against the bottom of the box, and an independent retaining device engaging said lugs and bearing against said body to maintain it in its abutting relation against the bottom of the box.

2. In combination with an outlet box having an open side and lugs projecting inwardly from the edges thereof, an insulating body having terminals and having an abutting engagement against the bottom of the box, and a retaining device engaging the underside of said lugs and coöperating with said abutting engagement to hold said body in place in the box.

3. In combination with an outlet box having an open side and a perforated cover plate therefor, an insulating body having terminals and having an abutting engagement against the bottom of the box, and a retaining device extending across said open side and coöperating with said abutting engagement to secure said body in place in the box.

4. In combination with an outlet box having an open side, an insulating body having terminals and resting freely against the bottom of the box, said body having an upwardly directed shoulder, and a retaining device extending across said open side and bearing against said shoulder to secure said body in place in the box.

5. In combination with an outlet box having an open side, an insulating body having terminals within the box and adapted to rest freely against the bottom thereof, said body having an upwardly directed shoulder with projections, and a retaining device extending across said open side coöperating with said shoulder and said projections to secure said body in place in the box against angular or any independent movement.

6. In combination with an outlet box having an open side, an insulating body having terminals within the box and resting freely against the bottom thereof, said body having an upwardly directed shoulder with four equally spaced apart projections, and a retaining device extending across said open side and coöperating with said shoulder and said projections to secure said body in place against the box against angular or any independent movement.

7. In combination with an outlet box having an open side and a perforated cover plate therefor, an insulating body having terminals within the box and resting against the bottom thereof, said body having an upwardly directed shoulder with a number of projections which is a multiple of four all equally spaced apart, and a retaining device extending across said open side and coöperating with said shoulder and said projections to secure said body in place in the box in different angular relations.

8. In combination with an outlet box having an open side and a perforated cover plate therefor, an insulating body containing a threaded shell and a central stud terminal and having a slender elongated portion adapted to rest against the bottom of said box, said body having terminals extending downward on either side of said slender elongated portion and having an upwardly directed shoulder, and a retaining device extending across said open side and coöperating with said shoulder to secure said body in place in the box.

9. In combination with an outlet box having an open side and a perforated cover plate therefor, an insulating body having a threaded shell and a central stud terminal and having a slender elongated portion adapted to rest against the bottom of said box, said body having terminals extending downward on either side of said slender elongated portion, and having an upwardly directed shoulder, and a sheet metal holding plate coöperating with said shoulder to secure said body in place in the box independently of said cover plate.

10. In combination with an outlet box having an open side and a perforated cover plate therefor, an insulating body having a threaded shell and a central stud terminal and having a slender elongated portion adapted to rest freely against the bottom of said box, said body having terminals extending downward on either side of said slender elongated portion and having an upwardly directed shoulder with projections, and a retaining device coöperating with said shoulder and projections to secure said body in place in the box against angular or any independent movement.

11. In combination with an outlet box having an open side and a perforated cover plate therefor, an insulating body having a threaded shell and a central stud terminal and having a slender elongated portion adapted to rest freely against the bottom of said box, said body having terminals extending downward on either side of said slender elongated portion and having an upwardly directed shoulder, said insulating body extending upward around said threaded shell beyond said shoulder and forming a partition between the threaded shell and the cover plate, and a retaining device extending across said open side beneath the cover plate and securing said body in place in the box against angular or any independent movement.

12. In combination with an outlet box having an open side and a perforated cover plate therefor, an insulating body having a threaded shell and a central stud terminal and having a slender elongated portion adapted to rest freely against the bottom of said box, said body having terminals extending downward on either side of said slender

elongated portion and having an upwardly directed shoulder, said insulating body extending upward around said threaded shell beyond said shoulder and forming a partition between the threaded shell and the cover plate.

13. In combination with an outlet box having an open side with inwardly directed lugs at its edges and a perforated cover plate, an insulating body having a threaded shell and a central stud terminal and having a slender elongated portion adapted to rest against the bottom of said box, said body having terminals extending downward on either side of said slender elongated portion and having an upwardly directed shoulder, and a sheet metal holding plate coöperating with said shoulder and having ears adapted to be engaged beneath said lugs and securing said body in place in the box.

14. In combination with an outlet box having an open side with inwardly directed lugs at its edges and a perforated cover plate and fastening screws, an insulating body having a threaded shell and a central stud terminal and having a slender elongated portion adapted to rest against the bottom of said box, said body having terminals extending downward on either side of said slender elongated portion and having an upwardly directed shoulder, and a sheet metal holding plate coöperating with said shoulder and having ears adapted to be engaged beneath said lugs, said ears having elongated slots with downwardly deflected edges to receive the fastening screws of the cover.

15. In combination with an outlet box having an open side with inwardly directed lugs at its edges and a perforated cover plate, an insulating body having a threaded shell and a central stud terminal and having a slender elongated portion adapted to rest against the bottom of said box, said body having terminals extending downward on either side of said slender elongated portion and having an upwardly directed shoulder, and a sheet metal holding plate coöperating with said shoulder and having ears adapted to be engaged beneath said lugs, said ears having flanges projecting upward on either side of said lugs.

16. In combination with an outlet box having an open side with inwardly projecting lugs, an insulating body having terminals and resting in abutting engagement against the bottom of said box, and resilient means independent of said body but bearing against the upper side thereof and engaged beneath said lugs for coöperating with said abutting engagement to hold the body in place in the box.

17. In combination with an outlet box having an open side with lugs projecting inwardly from the edges thereof, a body having terminals and resting in abutting engagement against the bottom of said box, and a resilient sheet metal retaining device engaging said body on the underside of said lugs to hold the body in place in said box.

18. In combination with an outlet box having an open side, an insulating body having a slender elongation in abutting engagement with the bottom of the box, and having an upwardly directed shoulder with projections, and means coöperating therewith to exert a downwardly bearing engagement on said body whereby said body is secured in place in the box against angular or any independent movement.

19. In combination with an outlet box having an open side, an insulating body having a slender elongation in abutting engagement with the bottom of the box and having an upwardly directed shoulder with a number of equally spaced-apart projections which is a multiple of four, and means coöperating therewith and with said abutting engagement to secure said body in place in the box against angular or any independent movement.

20. In combination with an outlet box having an open side with inwardly projecting lugs, a body having terminals, and a sheet metal retaining device engaging said body and said lugs to hold said body in place in the box independently of the cover plate or any other fastening means.

In witness whereof, I subscribe my signature, in the presence of two witnesses.

JAMES S. STEWART.

Witnesses:
WALDO M. CHAPIN,
REUBEN GREENE.