Oct. 27, 1953 J. W. WIESMANN 2,657,250

FLUSH TYPE OUTLET FIXTURE

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Fig. 1.

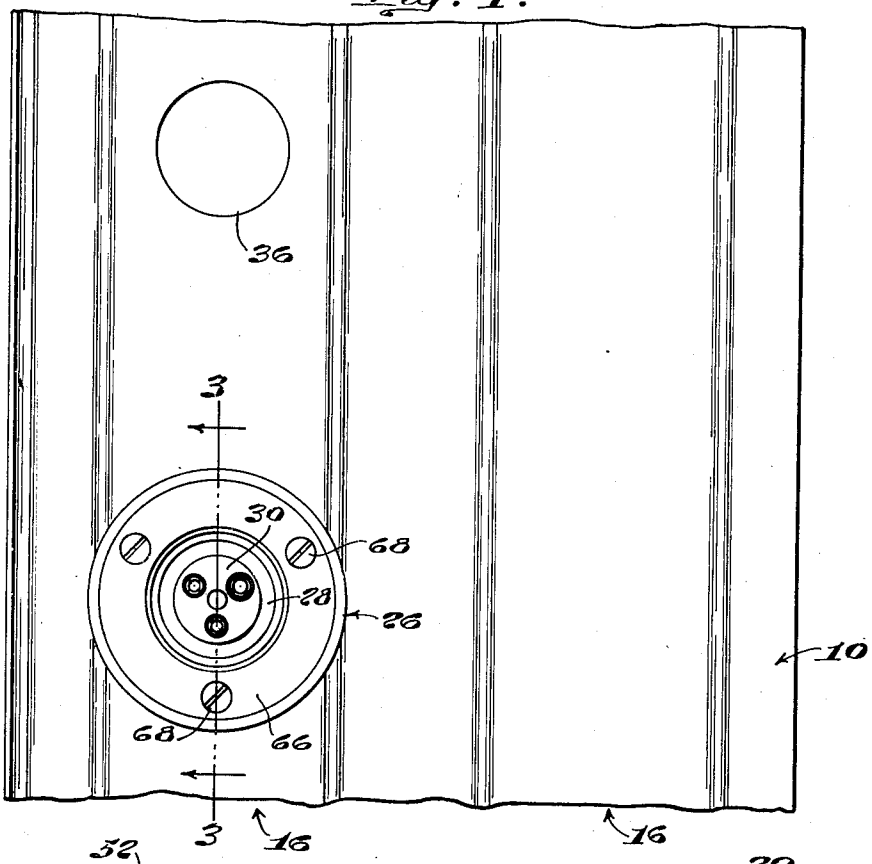
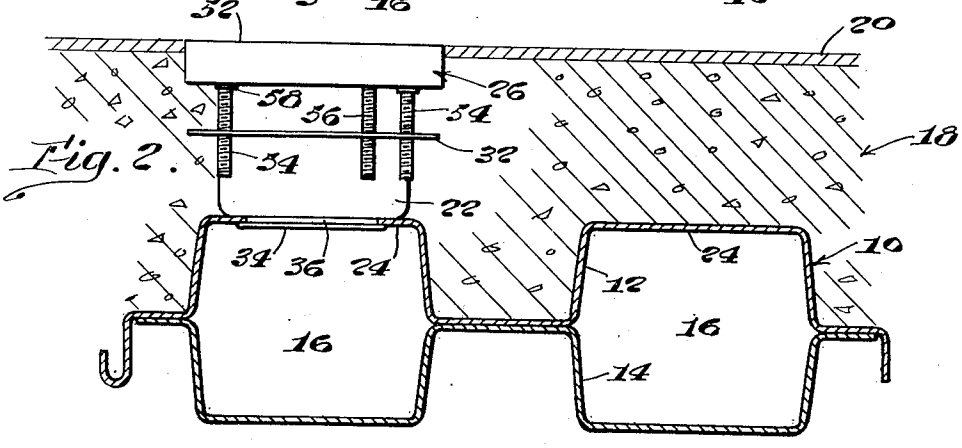


Fig. 2.



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Fig. 3.

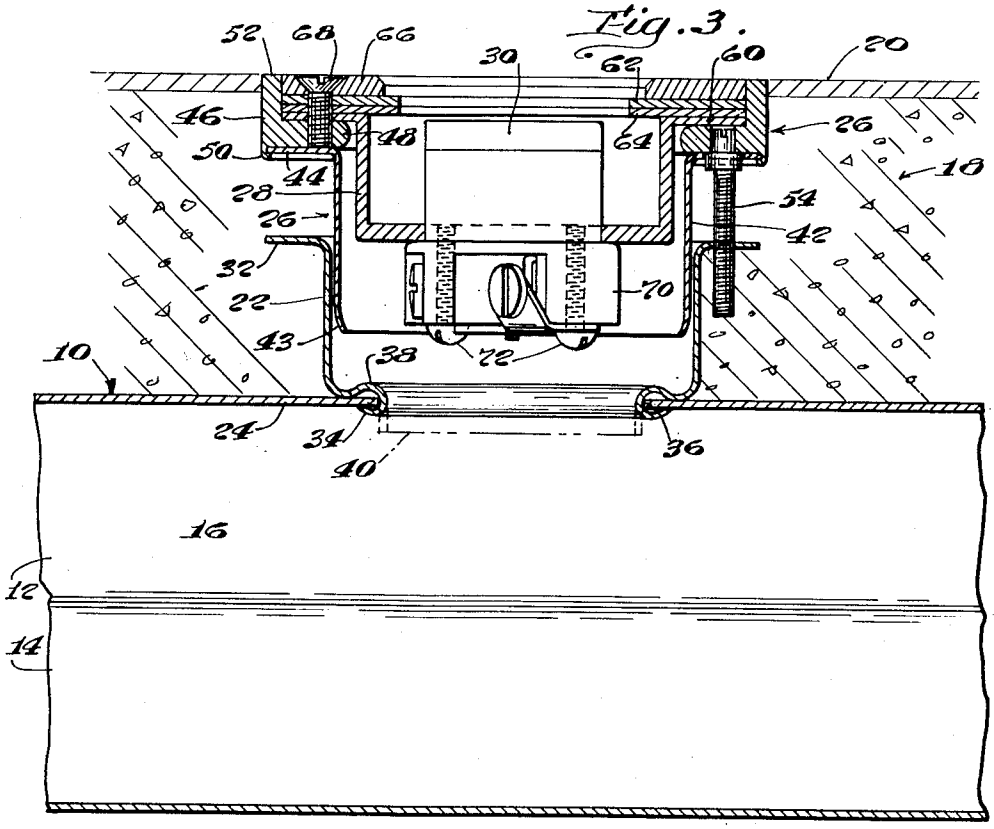
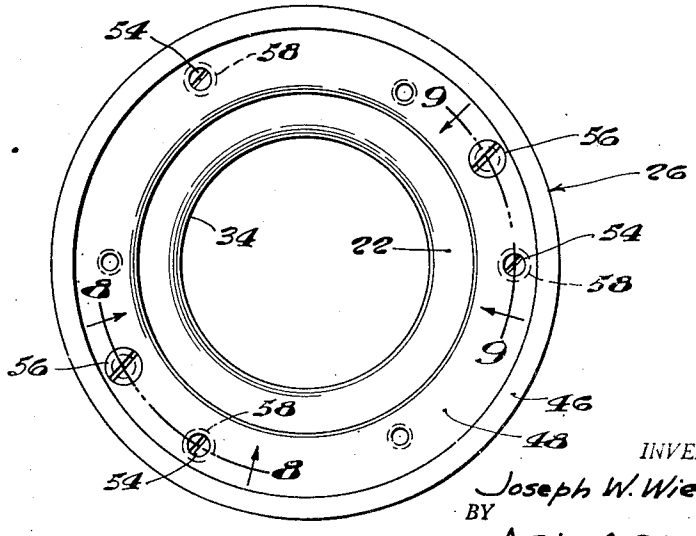


Fig. 4.



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Fig. 5.

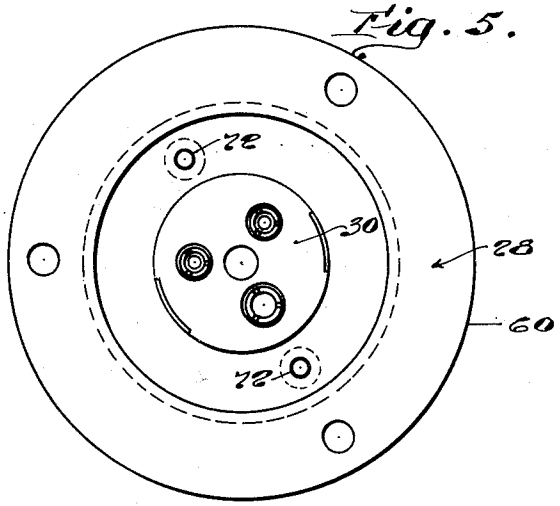


Fig. 6.

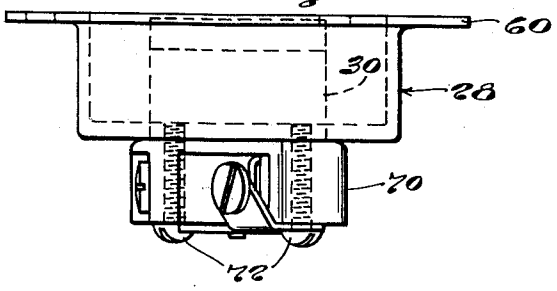


Fig. 7.

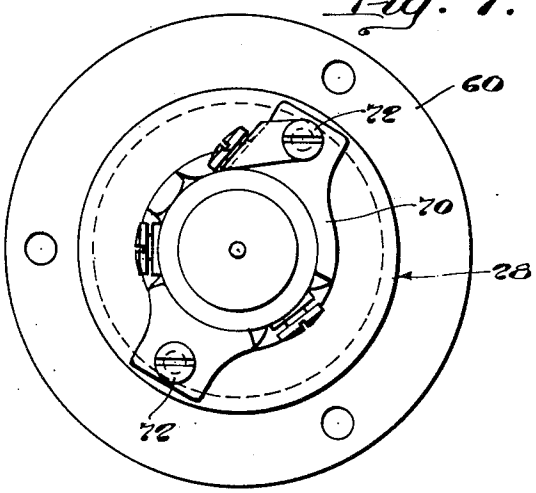


Fig. 8.

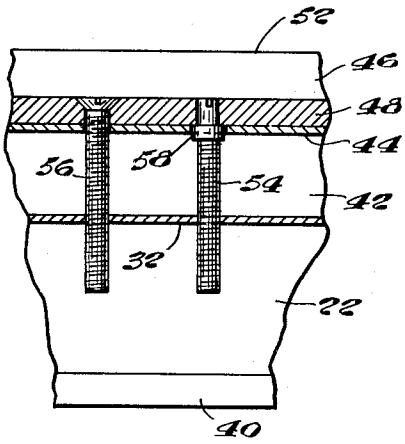
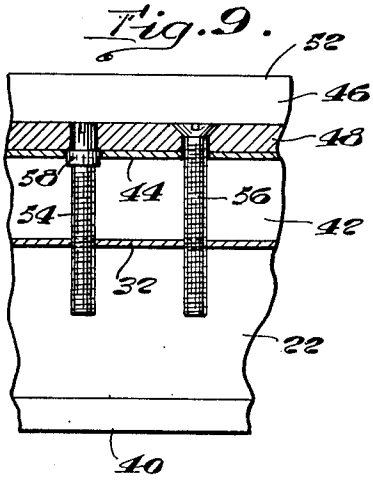


Fig. 9.



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UNITED STATES PATENT OFFICE

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FLUSH TYPE OUTLET FIXTURE

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Application June 23, 1948, Serial No. 34,808

1 Claim. (Cl. 174—52)

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This invention relates to a wire distributing floor structure and more particularly to an outlet fixture for a wire distributing floor.

The invention has for an object to provide a novel and improved flush type floor outlet fixture for a wire distributing floor, whose structure is such as to facilitate installation of the fixture in a wire distributing duct, and which is capable of being adjusted in a simple efficient manner to conform to the level of the finished flooring.

With this general object in view, and such others as may hereinafter appear, the invention consists in the flush type floor outlet fixture for a wire distributing floor and in the various structures, arrangements and combinations of parts hereinafter described and particularly defined in the claim at the end of this specification.

In the drawings illustrating the preferred embodiment of the invention, Fig. 1 is a plan view of a wire distributing flooring duct embodying the present outlet fixture; Fig. 2 is an end view of the same with the wire distributing duct shown in cross section; Fig. 3 is a cross sectional view of the fixture as taken on the line 3—3 of Fig. 1; Fig. 4 is a plan view of the fixture with the receptacle carrying portion removed; Figs. 5, 6 and 7 are views in plan, side and bottom elevations respectively of the receptacle carrying portion of the fixture; and Figs. 8 and 9 are cross sectional views taken on the lines 8—8 and 9—9 respectively of Fig. 4 illustrating the means for adjusting the fixture to conform to the level of the finished flooring.

In general, the present invention contemplates a novel and improved electric outlet fixture or flush floor outlet adapted for use in a wire distributing flooring system embodying a multicellular metal flooring having a plurality of spaced cells or ducts through which the wires may be drawn to provide electrical service to different parts of the building. The present fixture is adapted for connection to the upper wall of a cell or duct and is arranged to support the socket or receptacle portion of a plug and receptacle connector for supplying electrical service directly from the floor. In its preferred form the present fixture is characterized by structure enabling the same to be quickly and easily installed in a wire distributing duct; which may be easily adjusted to align the upper surface of the fixture level with the floor finish; and which is easily accessible for wiring and installation of the receptacle or for replacement thereof. In practice, the present fixture may be installed in a wiring duct prior to laying the concrete fill and the floor finish or, it

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may be installed in an existing wire distributing floor by breaking through the concrete at the point designed to expose the upper wall of the duct, after which the fixture may be installed and leveled to the height of the floor finish and then surrounded by the concrete fill.

Referring now to the drawings, the invention is herein illustrated as embodied in a wire distributing flooring system such as is disclosed in the United States Patents to Young, No. 1,855,082 and Young et al., No. 2,125,366. Such systems embody a multicellular metal flooring through which the wires may be drawn to provide electrical service in the building and as herein shown, 10 represents one type of cellular metal flooring used in the erection of buildings which comprises an upper corrugated sheet 12 and a lower corrugated sheet 14 welded together to form a series of spaced parallel hollow ducts or cells 16 upon the top of which a concrete fill 18 and floor finish 20 may be laid to complete the floor.

As herein illustrated the improved outlet fixture comprises, in general, a hollow cylindrical sheet metal base fitting 22 arranged to be secured to the upper wall 24 of a wire distributing duct or cell 16; a hollow cylindrical body member 26 telescopically fitted into the base and adjustably secured thereto; and a receptacle carrying portion 28 detachably fitted into the body portion 26 and arranged to support an electric receptacle 30 in operative position to receive a plug, not shown, to provide an electrical connection directly from the floor.

Referring now particularly to Fig. 3, the hollow cylindrical base fitting 22 is provided with an outwardly extended flange 32 at its upper end for supporting the body member 26, and is shaped at its lower end to provide a crimped or grommet connection 34 with the marginal edges of an opening 36 formed in the upper wall 24 of the duct. As herein shown, the lower end of the base fitting is flanged inwardly, the inner edge of the flange being slightly curved or rolled as indicated at 38, and then extended downwardly to provide an integral depending annular rim portion 40, as indicated in dotted lines in Fig. 3. In practice, the depending rim portion 40 is extended into the opening 36 and then crimped or spread outwardly against the underside of the duct wall, as indicated in full lines, to form the grommet connection 34 and thus providing a bushed opening about the edges of the duct opening 36.

The grommet connection may and preferably will be formed by a grommet crimping tool of the type illustrated and described in my United

States Patent No. 2,399,776 issued May 7, 1946, which is particularly adapted for use in bushing an opening in a closed duct wall and in which the duct is accessible from but one side thereof. In using the grommet crimping tool, a separable lower die portion is first extended through the base fitting disposed in assembled relation with the duct wall and the die is then expanded to cooperate with an upper die portion bearing against the curved upper portion of the connection. Pressure is then applied to crimp the grommet connection 34 about the duct opening 36, as illustrated. The base fitting 22 may and preferably will be attached to the duct wall 24 before the body member 26 is assembled therewith.

As above stated, the body member 26 is arranged to be adjustably secured to the base fitting 22 and, as herein shown, the body member comprises a hollow cylindrical sheet metal portion 42 having an outwardly extended flange 44 at its upper end and having its lower end curved inwardly slightly as shown at 43 to facilitate insertion of the unit into telescopic relation to the base member. The upper end of the portion 42 is formed integrally with an annular rim portion having an upstanding wall 46 and an inwardly extended flange 48, the flange 44 of the portion 42 being attached to the annular rim portion by spinning a relatively narrow depending rim 50 of the upstanding wall 46 over the outer marginal edge of the flange 44, as clearly shown in Fig. 3.

In practice, the upper surface 52 of the upstanding rim 46 is arranged flush with the surface of the floor finish 20 and, in accordance therewith, provision is made for adjustably supporting the body member 26 vertically from the base fitting 22 in order to accommodate the unit to different heights of floor thickness and to permit angular adjustment of the unit with relation to the base member and the duct to dispose the upper surface of the unit level with the surface of the floor. As best shown in Figs. 8 and 9, the body member is adjustably supported by adjusting and locking screws 54, 56 respectively, the screws 54 being provided with slotted heads arranged to extend upwardly through an opening in the flange 48 and the underside of the flange 48 bearing against a shouldered portion 58 of the screw. A clearance hole is provided in the integral flanged portion 44 for the shouldered portion 58. The threaded portion of the screw is received in tapped holes formed in the flange 32 of the base fitting 22. In the illustrated embodiment of the invention, there are three adjusting screws 54 equally spaced circumferentially so that the body unit may be adjusted to the height and horizontal level of the floor finish. Thereafter, the flat head locking screws 56 which extend through the flange 48 and are threadedly engaged with the flange 32 are tightened down into locking position so that the upper surfaces of the heads of both the adjusting screws and the locking screws are flush with the upper surface of the flange 48.

As shown in Figs. 5, 6 and 7, the receptacle carrying portion 28 comprises a cup-shaped member having an outwardly extended flange 60 at its upper end arranged to fit snugly into the recessed portion of the annular rim, the flange 60 resting on the upper surface of the flange 48. Two washers 62, 64, one of which may be metal and the other of cork or other yieldable material, may then be placed in the recess on top of the receptacle carrying flange 60 and the parts may then be covered by an annular retaining member 66 arranged flush with the upper surface 52 of the annular rim. The parts may be secured to the flange 48 by flat head screws 68 which extend through aligned openings in the parts and into tapped holes in the flange 48. The bottom wall of the cup-shaped member 28 is provided with a central opening arranged to receive the head of the receptacle 30 extended upwardly therethrough. The lower portion 70 of the receptacle provides a shoulder arranged to bear against the underside of the member 28 and the receptacle may be attached to the carrying member by screws 72, as shown, leaving the upper end of the receptacle exposed to be connected by a cooperating plug to provide an electrical connection directly from the floor. It will be understood that prior to assembly of the receptacle carrying member 28 with the body member 26, the receptacle 30 may be assembled with the member 28 and connected to the wiring in the duct 16. In practice, the receptacle carrying member 28 may vary in size and shape to accommodate the particular type of receptacle required in an installation.

From the above description of the preferred embodiment of the invention it will be seen that the present outlet fixture may be quickly and economically installed in an underfloor wiring duct or conduit of an existing wire distributing system and that the unit may be easily adjusted vertically and angularly to the level of the finished flooring. It will also be observed that the manner of attaching the outlet unit to the duct provides a bushed opening in the duct to protect the wires from the rough edges of the opening cut therein. It will be further observed that the present structure of the floor outlet fixture is readily accessible to permit the receptacle and its supporting member to be quickly detached for replacement or repair. In practice, suitable closures, water guard risers, plugs or other accessories may be employed with the present fixture in accordance with the requirements of the trade.

While the preferred embodiment of the invention has been herein illustrated and described, it will be understood that the invention may be embodied in other forms within the scope of the following claim.

Having thus described the invention, what is claimed is:

For use with a metal wire distributing floor having wiring ducts, a flush type outlet fixture comprising a generally cup-shaped sheet-metal base member provided with an outwardly extended rim at its upper end and provided in its bottom wall with a relatively large opening and a downwardly turned flange surrounding the opening for insertion into a hole in the upper wall of the wiring duct and adapted to be crimped over the edge of the opening to form a bushing therefor and for securing the base member in operative position on the top of the duct, a hollow cylindrical body member telescopically fitted into said base member and having an integral, outwardly and upwardly extended annular rim at its upper end, both rims extending beyond said base and body members, means cooperating with said rims for adjustably supporting the body member upon and relative to the base member, a hollow cylindrical receptacle carrying member having an outwardly extended flange at its upper end secured to the rim of the body

member and an electrical receptacle secured to said carrying member, the top of said receptacle being disposed below the top of said flange on the receptacle carrying member.

JOSEPH WILLIAM WIESMANN.

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