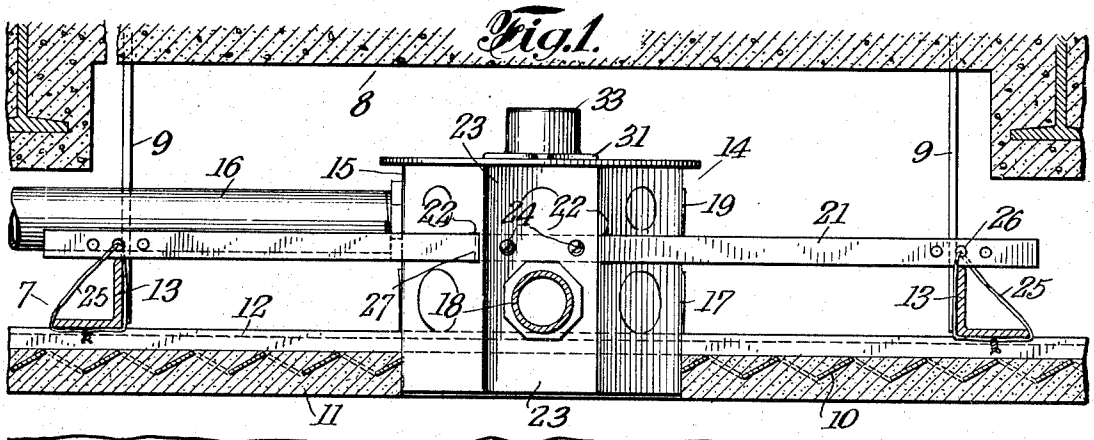
April 10, 1934. J. G. KNIGHT 1,954,481

OUTLET BOX MOUNTING

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Fig. 1.



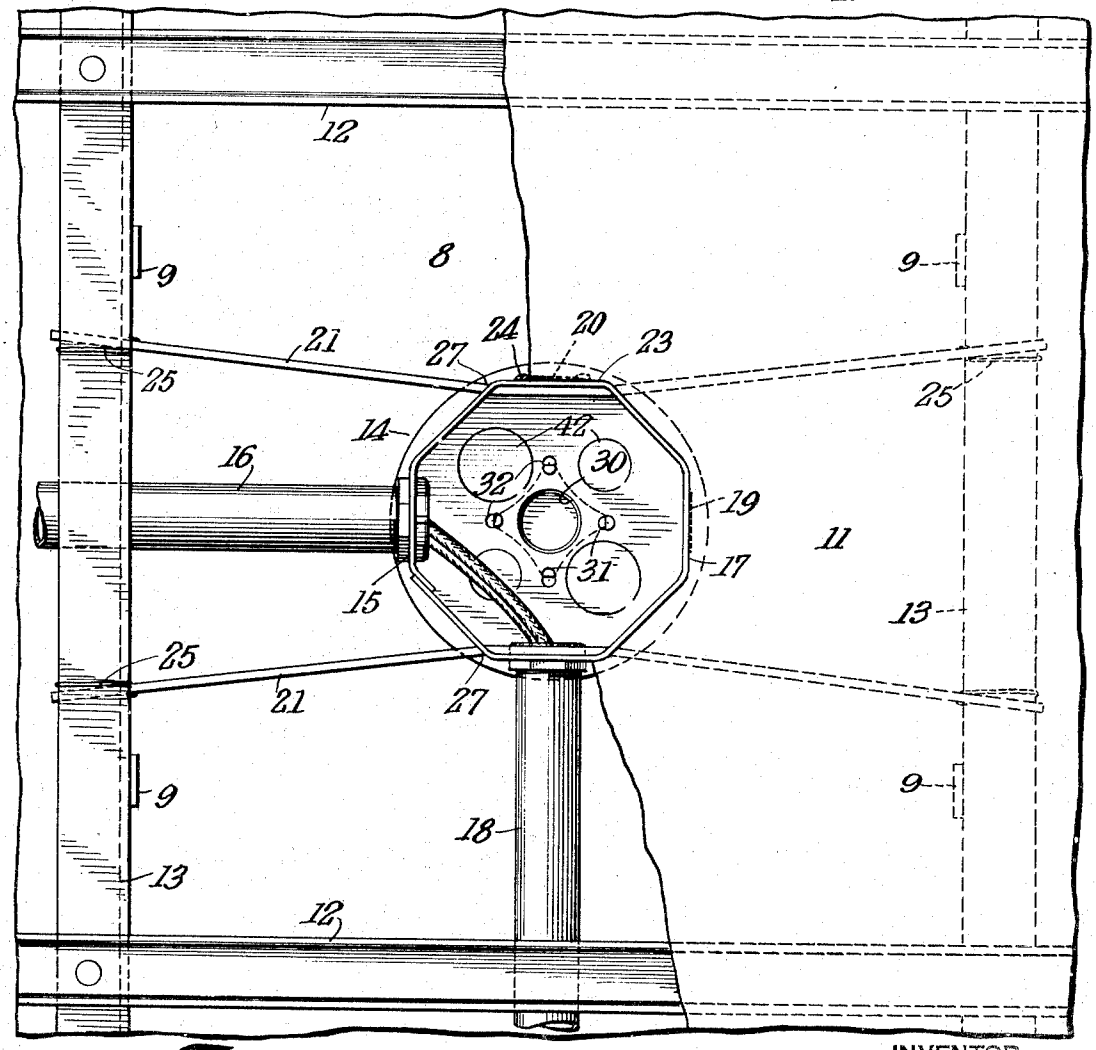


Fig. 2.

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Fig. 3.

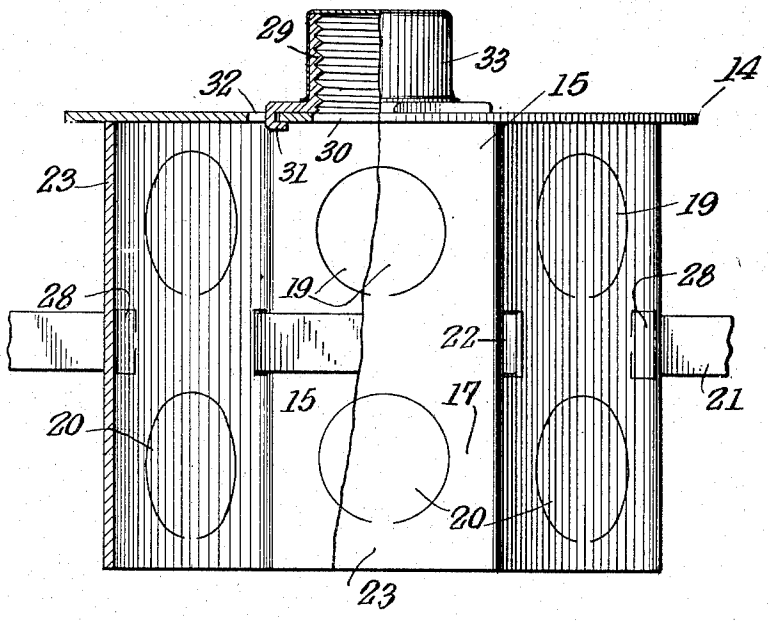


Fig. 4.

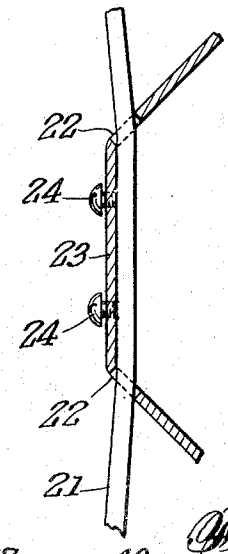


Fig. 5.

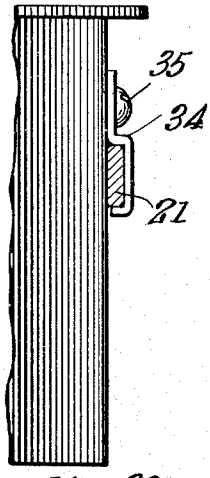


Fig. 6.

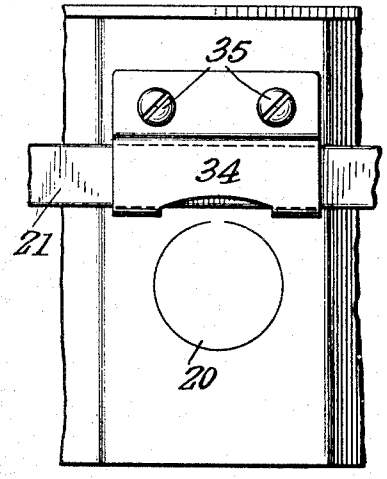


Fig. 7.

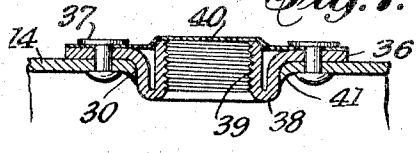
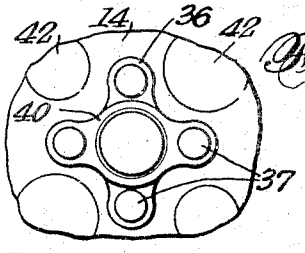


Fig. 8.



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UNITED STATES PATENT OFFICE

1,954,481

OUTLET BOX MOUNTING

Julian Gordon Knight, Brooklyn, N. Y.

Application July 30, 1932, Serial No. 626,392

4 Claims. (Cl. 247—22)

The objects of this invention are to provide simple, practical and inexpensive means for mounting outlet boxes and the like in so-called "hung" or hanging ceiling structures and which means will be capable of ready installation, adjustable to suit different requirements and which will support the box structure rigidly and firmly in the desired position.

The foregoing and other desirable objects are attained by the novel features of construction, combinations and relations of parts hereinafter disclosed and broadly claimed.

The drawings accompanying and forming part of the specification illustrate certain practical embodiments of the invention but it will be understood that the structure may be modified and changed as regards such illustration without departure from the true spirit and broad scope of the invention.

Figs. 1 and 2 in the drawings are broken vertical sectional and bottom plan views respectively of a hung ceiling structure and showing an electric outlet box mounted in accordance with the present invention;

Fig. 3 is a broken and part vertical sectional view illustrating the special outlet box as constructed in accordance with the present invention;

Fig. 4 is a broken part sectional detail illustrating a form of screw means for securing the box in accurately adjusted position on the supporting bars;

Figs. 5 and 6 are fragmentary detail views illustrating another form of means for securing the box in accurately located position. Figs. 7 and 8 are further details of the invention.

In Figs. 1 and 2, a so-called hung ceiling is illustrated comprising the "furring" 7 suspended from the ceiling side of the floor slab 8 by the hangers 9 and carrying the metal lath 10 for the plaster face 11 of the lower or hanging ceiling.

The furring for such hung ceiling consists usually of a grid made up of the downwardly faced channel bars 12 connected in parallel relation by the angle irons 13.

The outlet box, indicated at 14 is shown as relatively deep so as to present an upper portion 15, Fig. 1, in line with conduit pipe 16 extending over the upstanding flanges of the angle bars and a lower portion 17 in line with other conduit 18 extending at a lower level over the channel bars 12 of the gridwork. To take these pipes at the two different levels, the box is shown as carrying a series of knockouts 19 in the upper portion and another series of knockouts 20 in the lower portion of the same.

To support the box on the gridwork or frame of the hung ceiling, there are provided, in the present disclosure, bars 21 of flat strip material of a length to bridge across the flanges of adjoining angle bars and secured in that engagement with opposite sides of the box so as to stand "on edge" and hence present the greatest strength and rigidity to the flanges of the angle bars.

One simple and practical way of securing the flat supporting strips to the boxes is to pass them through aligned openings 22 at opposite sides of the panels 23 of the octagon sided box wall. This construction is illustrated in detail in Fig. 4, which view also shows how the box may be secured in adjusted position on the bars by one or more set screws 24 in the side of the box and bearing at their inner ends against those portions of the supporting bars inside the box and bridging the wall panel between the openings at the edges of the same.

The supporting strips 21 may be fastened down on top of the ceiling frame as by tie wires shown at 25 passed about the angle bars and through openings 26 in the supporting bars. A series of such openings may be provided adjacent each end of the bar so as to permit a certain amount of longitudinal adjustment of the bar and if desired the use of the tie wire through a number of the openings, instead of only one opening at each end of the bar.

To gain a wider supporting base and also to secure the box and the bars in non-shifting relation, the bars may be bent where they issue from the box sides as indicated at 27, Fig. 2. When the bars are thus "spread" at their ends, they form a wider and more stable supporting base, overcoming tipping tendencies of the box before the conduit is connected up.

The openings 22 for the supporting bars 21 may be provided for by suitable knockouts 28. Fig. 3 in the box wall at opposite side edges of diametrically opposed octagon panels of the box. These special knockouts may be provided in ordinary double depth boxes, thereby adapting such boxes to the present special use when so required.

In the hanging type ceiling, there is usually plenty of space betwen the two ceilings, as indicated in Fig. 1 and consequently an outside fixture stud may be mounted on the top of the box. In Fig. 3 the details of this external fixture stud are shown, such stud consisting of an internally screw threaded thimble 29 disposed over an open-

ing 30 in the top of the box and secured in this relation by the downwardly and inwardly turned lugs 31 extending through openings 32 in the box top. This hollow fixture stud is shown as closed at the top and covered over by a thin walled sheet metal thimble 33 inverted and pressed down friction tight over the hollow stud.

Instead of passing the supporting bars through openings in the sides of the box wall, said bars may be caught over the outside of the box wall by clips such as indicated at 34, Figs. 5 and 6, bent to pass about and grip the bars to the side of the box wall and adjustably secured in this gripping relation to the box wall by one or more screws 35. Upon loosening these screws, it will be observed that the box may be shifted relatively to the supporting bars and be then secured in the desired adjusted relation.

It will be seen that the supporting bars may first be secured to the box and the box with the bars attached be then placed down over the angle bars of the ceiling frame, as a unit, after which, with the box positioned in properly centered relation, the supporting bars may be securely wired or otherwise fastened down on to the frame. Before or in the course of so mounting the box, the bars may be spread somewhat as indicated in Fig. 2 and the set screws 24 for relatively fastening the box and supporting bars may be used or not, as required. By the construction disclosed, the box is securely and firmly supported and in position with the upper set of box openings in line to take the conduit 16 extending over the flanges of the angle bars and with the lower set of openings in line to take the conduit 18 extending over the channel bars 12, in between the angle iron flanges.

In addition to the fact that the flat strips are relatively inexpensive and provide a maximum of strength for size and weight, such strips arranged as they are, on edge and flat against the inside face of the box, take up a minimum of space within the box. It should be understood however, that these supporting rods or bars may be round or square or other shapes and may be tubular or solid in form. The supports engage the intermediate portion of the box, in the region between the set of wiring openings in the upper portion of the box and the other set of wiring openings in the lower portion of the box so as to support the box in a way to resist strain occasioned by either the upper or the lower sets of conduit. The multisided form of box is advantageous as providing flat panels to which the flat support may be firmly secured in flat relation. The various means for adjustably securing the box and supporting rods in relatively adjusted relation each have certain advantages. The bending or spreading of the rods to provide in effect shoulders locking against the outer faces of the box panels is an inexpensive and ordinarily sufficient method of relatively securing the parts. The set screws 24 or the bar clamping brackets 34 however permit possibly of greater adjustment and avoid the need for any bending of the bars. The slots 22 are preferably so nearly in alignment with the inside faces of the box panels 23, Fig. 4, that the flat supporting bars 21 will be held flat against the box wall and hence be secured in their on-edge relation by both the box wall and the confining slots. The outside brackets or clips 34 in Figs. 5 and 6 have an equivalent effect but the slotted construction is cheaper and to some extent simpler and stronger.

The box wall may be of various lengths to suit different requirements and accordingly the knockouts may be located at different levels in the box wall, with the supporting bars located between the upper and lower knockout levels, the spacing being such to leave clearance between the knockouts and the bars for the usual conduit bushings at the inside of the box. The adjustability of the bars on the grid and the adjustability of the boxes with respect to the bars enables the location and the centering of the boxes in practically any desired relation. Rotary as well as lateral shifting adjustments may be made to face the knockouts in different angular directions. The knockouts may be of different sizes as indicated, enabling conduit of one size to be entered at one level and conduit of a different size to be taken out at another level. The knockouts 28 for the bar openings may be provided at opposides sides of every alternate panel of the box side wall as indicated in Fig. 3, so that a certain choice may be exercised in locating the box on the supporting bars. This may be desirable where different size conduit knockouts are provided in the different panels. The two bars on edge, engaged with diametrically opposite side portions of the box provide a strong, wide and firm mounting for the box.

Different forms of fixture studs may be used. Thus as indicated in Figs. 7 and 8, a "flush" type of stud may be employed, the same consisting of a base portion 36, secured on the top of the box as by rivets 37 and having a centrally bossed part 38, extending down through the top opening 30 and carrying an upwardly introverted screw-threaded socket portion 39. The upper end of this screw-threaded socket is shown as closed over by a sheet metal, sheet cardboard or paper cover 40 extended out over the base of the stud and secured by two of the diametrically opposite rivets 37. The top is bossed downward in this form of the invention about the central opening as indicated at 41, so as to provide a smooth and easy wire guiding surface about the projecting portion of the stud.

The top of the box may have a suitable number of knockouts 42 therein, these if desired, being of different sizes, after the manner of the side panels.

While certain preferred embodiments of the invention have been illustrated, it will be appreciated that many other changes may be made, all within the broad intent of the claims.

What is claimed is:

1. A multi-sided outlet box having pairs of aligned slots therethrough closely adjacent opposite edges of opposite side panels, said aligned slots of each pair being disposed substantially in line with the inside faces of said opposite side panels and flat supporting bars extending through said aligned slots and held thereby in flat engagement with the inside faces of said side panels.

2. A multi-sided outlet box, flat supporting bars for the same, means securing said flat supporting bars in flat engagement with opposite side panels of the multi-sided box wall and end portions of said flat supporting bars being spread apart a distance greater than that maintained by the securing of said bars in flat engagement with the opposite side panels and providing a supporting base structure for the box of greater width than the box itself.

3. A multi-sided outlet box having pairs of aligned slots therethrough closely adjacent opposite edges of opposed side panels and in substantial parallelism with said side panels, flat sup-

porting bars extending through said aligned slots and positioned thereby with the portions extending through the box in close substantially parallel relation with said side panels and end portions of said flat bars outside the box, being spread a greater distance than the distance maintained by said box wall and providing thereby a supporting base for the box of greater width than that permitted by the box itself.

4. An electric outlet box or the like having a deep side wall with knockouts in the upper portion of the same to take conduit at an upper level and other knockouts in the lower portion of the same to take conduit at a lower level, said side wall being provided with passages at an intermediate level between said upper and said lower knockouts and supporting bars extending through said passages and projecting from the box and thereby adapted for supporting the box on the grid work of a hung ceiling in position for the connection with the box of conduit brought to the box at different levels above and below the supporting grid work.

JULIAN GORDON KNIGHT.