

July 13, 1926.

1,592,344

F. C. DE REAMER

FIXTURE SUPPORT

Filed Jan. 24, 1921

2 Sheets-Sheet 1

Fig.1.

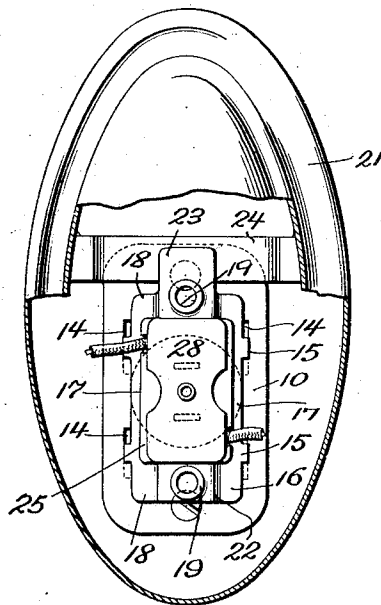


Fig.2.

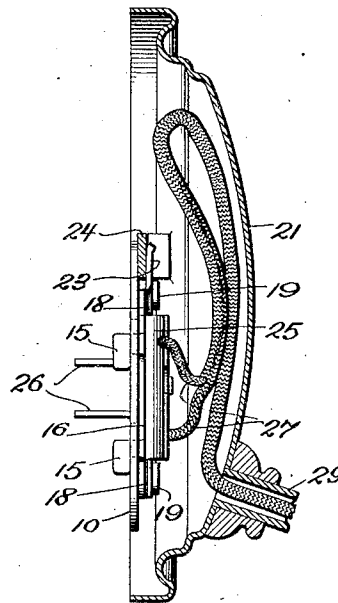


Fig.4.

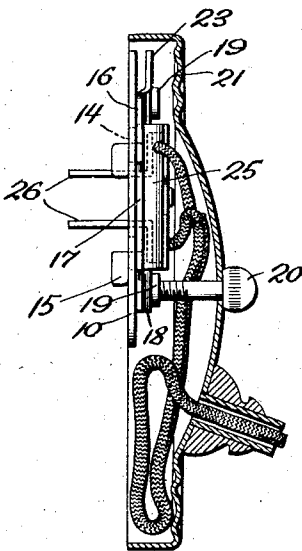
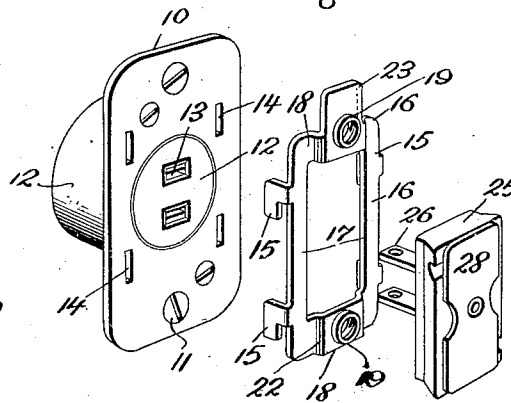


Fig.3.



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2 Sheets-Sheet 2

Fig. 9.

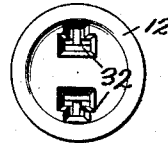


Fig. 5.

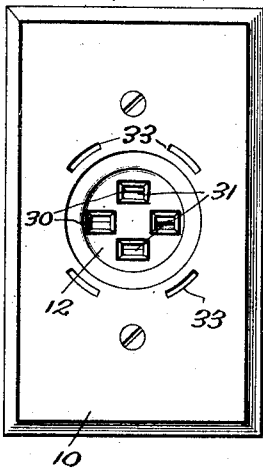


Fig. 6.

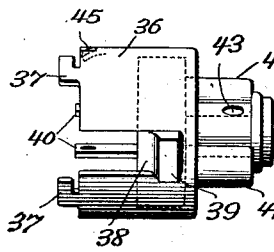


Fig. 7.

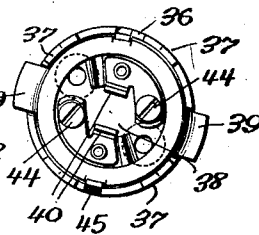


Fig. 11.

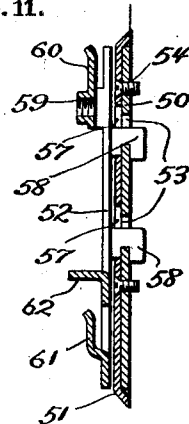


Fig. 8.

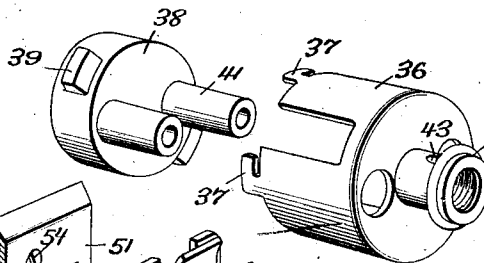
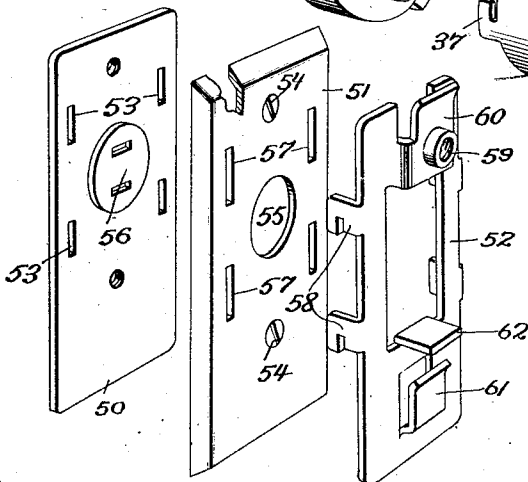


Fig. 10.



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UNITED STATES PATENT OFFICE.

FRANK C. DE REAMER, OF SCHENECTADY, NEW YORK, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

FIXTURE SUPPORT.

Application filed January 24, 1921. Serial No. 439,330.

The present invention relates to household fixture supporting and wiring devices and specifically to the mounting of brackets or fixtures on walls in such manner that they can be easily removed from one position and installed in another without requiring the services of skilled help. It will be understood that the term "walls" is used in a generic sense and as comprising either a side wall, a ceiling or other supporting wall.

The object of my invention is to improve and simplify the construction of such devices, and in particular to provide a simple and effective means whereby a fixture may be mounted in place or removed with a minimum effort.

For a consideration of what I believe to be novel and my invention, attention is directed to the accompanying description and the claims appended thereto.

In the drawings which are illustrative of my invention, Fig. 1 is a view in elevation of a combined fixture support and electrical connector with part of the canopy broken away; Fig. 2 is a view in side elevation of the same with the canopy in vertical section; Fig. 3 is an exploded view of the electrical parts and the fixture locking means; Fig. 4 is a side elevation of a modified form of canopy supporting means; Fig. 5 is a view in elevation of a structure embodying a modified form of the invention; Fig. 6 is a view in side elevation of the fixture support therefor; Fig. 7 is an end view of the same; Fig. 8 is an exploded view of the parts shown in Figs. 6 and 7; Fig. 9 is a view showing double T slots for the receptacle, instead of the four slot or window arrangement of Fig. 5; and Fig. 10 is an exploded view and Fig. 11 a vertical section of another form of my invention.

Referring to the drawing, 10 indicates a flat metal plate adapted to be located on the side wall or ceiling of a room and preferably flush with the plaster or other surface. It is to be understood that a number of these plates will be permanently installed in various parts of the room where it is desired to use currents for lighting, heating, etc. The plate is held in place by screws 11 which may enter properly threaded openings in the metal outlet box containing the supply conductors or in any other suitable

support. The main thing is that the plate shall be firmly fastened in the desired position. On the rear of the plate and carried thereby is a receptacle 12 of insulating material in which are located two or more spring contact fingers 13 that are below the surface of the receptacle and through which, by means of an attaching plug, current is conveyed from the supply conductors to the lamp, or other consumption device. These receptacles are permanently wired to the supply conductors.

In brief, the parts of the device thus far described are similar to the so-called separable flush receptacle intended to receive an attaching plug but the plate is somewhat smaller in surface area. One way of looking at the invention is that by suitable but small modifications of an existing and largely used construction it can be utilized for an important new use.

These modifications will now be described. In order that the plate may carry a certain dead weight or load represented by the side wall bracket or fixture on the one hand or a ceiling fixture on the other, the plate is provided with two or more slots 14, preferably four, as shown in Fig. 3, so as to afford a good mechanical connection between the rigidly supported plate and the detachable fixture. These slots are relatively long and narrow and are arranged to receive hooks 15 carried by a rectangular supporting base piece 16, which is a part of the fixture. After the hooks have been pushed into the slots until the body of the base strikes the flush plate, said body is given a slight sliding movement until the hooks engage the back wall of the plate and are anchored thereby. The base which is in the form of a rectangular frame comprises two side members 17 with which the hooks are integrally formed and also end members 18. The end members have internally screw-threaded bushings 19 to receive a canopy screw 20, Fig. 4. By providing two bushings a certain amount of adjustability is afforded for the canopy 21. The end members are also offset somewhat at 22 so there will be no danger of the canopy attaching screw striking on the face plate 10 and failing to clamp the canopy firmly in place. One of the end members is also provided with a tongue 23 so that when desired the

canopy screw may be omitted and a cross strap or bridge 24 substituted, which strap is secured to the under side of the canopy.

The advantage of this latter construction resides in the fact that the securing means is concealed and the canopy presents a smooth unbroken appearance which is sometimes desirable.

As before indicated when the hooks on the base are slid into place said base is securely held. However, with the construction thus far described it would be possible for some person to accidentally move the fixture attached to the canopy by a slight amount with the result that the hooks would be removed from interlocking engagement with the flush plate and the weight of the fixture would cause it to fall. To prevent this a lock is provided which must be released before the base can be removed. For this purpose a simple and effective means is found in the attaching plug, which must be employed in any event. In other words, it functions as a locking means in addition to its normal function of conveying current to and from the lamp or other device connected to the fixture. The attaching plug comprises a rectangular block 25 of insulating material and carried thereby and projecting rearwardly are two fixed contacts 26 which are adapted to engage the fixed contacts 13 carried by the receptacle secured to the plate 10. The front face of the plug is provided with binding screws, not shown, to connect the circuit wires 27 to the contacts 26. These wires are made long enough to facilitate the mounting and removal of the fixture. The binding screws which are in the electrical circuit are covered by a swinging plate 28 made of insulation. This plate when the device is in use occupies the position shown in Fig. 3 and serves to fully insulate the screws and exposed ends of the wire from the metal canopy. After the base 16 is mounted in its proper position the plug is inserted and as the latter is of such shape and size as to prevent the base from sliding or moving on the flush plate it follows that the base and whatever is supported thereby cannot be accidentally displaced. The plug is shown as being rectangular in form since this is a desirable construction but its shape of course may be altered. The main thing is to give it such an outline that when in place it will lock the base and associated parts against accidental movement.

The canopy 21 is made of pressed metal of suitable size, shape and ornamentation and fully conceals the flush plate and also the wires leading from the attaching plug to the fixture proper. The fixture may be of any suitable construction and is secured to the canopy by any well known means. The tube 29 indicates one end of such a fixture

which is permanently wired. Those plates which are not in use may be covered by a suitable ornamental canopy.

Assuming that the house or other building is properly wired and has suitably disposed surface or flush plate receptacles of the character described and it is desired to move the lighting fixture from one position to another, the canopy is removed either by raising it sufficiently to separate the strap or bridge 24 from the tongue 23 in the one case or by removing canopy screw 20 in the other case. The attaching plug is then pulled out which separates the electrical connections, after which the base piece is removed, first sliding it upward sufficiently to release the hooks 15. The fixture can now be installed in a new position by first mounting the base piece 16 in place, then inserting the plug and finally mounting the canopy and fixture in place. It will be apparent that this is a simple operation, requires no tools, and does not require the services of a skilled person to break and remake electrical connections. Since the mechanical support for the fixture is entirely independent of the electrical connections there is no danger of short circuits or shocks.

Referring to Figs. 5 to 8, inclusive, I have shown a modification of the invention which is intended more especially for ceiling fixtures but which can be used for side walls as well. It is to be noted that the construction shown in Figs. 1 to 4 is also capable of being used for ceiling fixtures.

Referring to Fig. 5, 10 indicates the face or flush plate as before. Carried by the plate is an insulated receptacle 12 containing four openings or windows 30, each being in line with a fixed spring contact 31, said contacts terminating below the surface of the receptacle so that all danger of electrical shocks to persons is prevented. This receptacle is permanently wired and can be used with plugs having parallel or tandem contacts. For this receptacle or that shown in the preceding figures, I may substitute one having the double T slots 32 of Fig. 9. In the plate 10 are four arc-shaped slots 33 which are so arranged because in this case the base of the fixture is cylindrical. 36 indicates the base portion of the fixture, and it is attached directly to the face plate. The base portion 36 is provided with hooks 37 which enter the slots 33 in the face plate and by a slight angular movement are locked in place. Inside of the base or cylindrical member is an attaching plug 38 which may be moved axially therein but is prevented from turning by the ears 39 which project through slots in the metal member, said ears also acting as means whereby the plug can be moved into and out of action. From the inner surface of the plug contacts 40, Fig.

6, project and are of such a character as to engage with a pair of the contact fingers 31 in the receptacle when pushed into place. On the front face of the plug are two hollow projections 41 through which extend the conductors connected to the contacts on the plug. These projections pass freely through holes in the head of the base portion. To the head is secured a nozzle 42 which is internally threaded to receive the pipe or hook which in turn supports the remainder of the fixture. The nozzle is also provided with openings 43 through which the wires extend from the attaching plug to the lamps or other devices supplied from the fixture, said fixture being permanently wired. The plug is wired from the inside, the wires being held by the screws 44, Fig. 7. From the screws the wires pass through the body and out through the projections 41. To prevent the plug from dropping out of the base small lugs 45 are provided as shown in dotted lines, Fig. 6. The device is mounted in place as follows: The face plate is first properly located and secured in place with the supply conductors permanently wired to the receptacle. The plug is also permanently wired as well as the fixture which is carried by the tubular casing or base. The casing is then mounted in place with the hooks in the slots, the plug at this time being in the position shown in Fig. 6. The casing is then given a slight turn to the right which moves the hooks under the plate, after which the plug 38 is forced inward by means of the ears 39. It is to be noted that the contacts 40 on the plug can not enter the slots or windows in the receptacle for engagement with the contacts 31 until the base is moved to proper angular position with the hooks in engagement. After the plug is seated and the circuit established, the contacts and plug prevent the hooks on the casing from being unlocked and hence there is no danger of the fixture being accidentally dislodged.

In Figs. 10 and 11 I have shown another form of my invention wherein the face plate is made up of two separate plates, a sub-plate 50 and a cover plate 51. Sub-plate 50 is preferably made of steel and forms the cover for the outlet box and also the support for base piece 52 corresponding to base piece 16 of Figs. 1 to 4. It is also provided with slots 53 corresponding to slots 14 of Figs. 1 to 4. Cover plate 51 is for ornamental purposes and is made of thin sheet material of brass or the like. It is fastened to sub-plate 50 by screws 54, and is provided with a central opening 55 in line with the plug receptacle 56, and with slots 57 which coincide with slots 53. Slots 57 project beyond the ends of slots 53 at both ends so as to leave room for the base piece 52 to move to locking position. By making slots 57 pro-

ject beyond slots 53 at both ends the base piece can be put on with either end up. Base piece 52 is provided with hooks 58 which pass through slots 57 and 53 and hook over the edges of slots 53 as shown in Fig. 10. The sub-plate thus forms the supporting means. Base piece 52 is provided with a threaded opening 59 to receive a canopy holding screw such as is shown in Fig. 4, for example, and it is provided also with two struck-up tongues 60 and 61 located at its top and bottom and adapted to receive cross pieces on a canopy for supporting it after the manner shown in Fig. 1 for example. By providing a tongue at both the top and bottom of the base piece the canopy can be supported positively at both its top and bottom and need not rest against the wall. By having the edge of the canopy spaced slightly from the wall, marring of the wall when the canopy is put into place or removed is avoided.

The arrangement of Figs. 10 and 11 is used in the same manner as that of Figs. 1 to 4, the base piece after it is in place being locked by the attaching plug as explained in connection with Figs. 1 to 4. At the lower end of the plug opening in the base piece, there is provided a projection 62 which forms a guide and support for the plug and also a means to prevent the base piece from being pushed up when the plug is in position. With this arrangement of cover plate, when the wall bracket is removed, the plate 51 gives a finished appearance to the receptacle.

It will be observed that it is characteristic of my invention that the supporting parts of the fixture are not in the electrical circuit in any way; that the attaching plug in addition to acting as such forms a locking means, and that the fixture can be mounted in position and taken down without disturbing any of the permanent wiring. By providing a suitable number of face plates about the room the fixture can be readily moved from place to place to suit the convenience of the householder. If desired the face plates may be covered when not in use by ornamental canopies. In any event, they are not conspicuous and the electrical contacts carried thereby are below the face of the receptacle and hence not liable to cause damage or to be damaged.

It is furthermore to be noted that by my invention I modify existing structures but little. In the case of the wall portion of the fixture it is only necessary to provide openings in the face plate to receive the supporting hooks; where a house is already wired with flush plate receptacles the plates already there may be modified by providing openings in them or a new plate may be substituted. In the case of the bracket portions of the fixture any existing

bracket may be readily modified to provide the necessary connecting means.

In accordance with the provisions of the patent statutes, I have described the principle of operation of my invention, together with the apparatus which I now consider to represent the best embodiment thereof; but I desire to have it understood that the apparatus shown is only illustrative, and that the invention may be carried out by other means.

What I claim as new and desire to secure by Letters Patent of the United States, is,—

1. In a device of the character described, the combination of a plug receptacle having a face plate, a fixture member, said face plate and fixture member having interengaging means which are brought into engagement by relative movement of the face plate and fixture member for fastening the fixture member to the face plate, and a plug which connects with the receptacle and when so connected presents a part which stands in the path of movement of the fixture member to form a locking means for the fixture member.

2. In a fixture of the character described, the combination of wall portion having a plug receptacle, and a permanently wired hanging portion including a plug, a supporting member for the hanging portion, and interengaging means on the wall portion and supporting member which are brought into engagement by movement of the supporting member and wall portion relatively to each other, said plug when in engagement with the receptacle presenting a part which stands in the path of the supporting member to lock the supporting member in engaging position.

3. In a device of the character described, the combination of a plug receptacle having a face plate, a supporting member comprising means adapted to support a bracket, said face plate and member having interengaging means for fastening the member to the plate, said interengaging means being brought into and out of engagement by movement of the member relatively to the face plate, and a plug adapted to engage the receptacle and which when in engagement therewith stands in the path of movement of the supporting member whereby the plug serves to lock the interengaging fastening means.

4. In a device of the character described, the combination of a plug receptacle having a face plate, a frame comprising means adapted to support a bracket and provided with an opening which aligns with the plug receptacle, means forming a hook and slot connection between the frame and face plate which is brought into operative position by moving the frame relatively to the face plate, and a plug which is inserted through

the opening in the frame into engagement with the receptacle which when inserted presents a part which stands in the path of movement of the frame to lock the frame in position.

5. In a device of the character described, the combination of a plug receptacle having a face plate, a frame provided with an opening which aligns with the plug receptacle, and with a tongue adapted to support a canopy and bracket, means forming a hook and slot connection between the frame and face plate which is brought into operative position by moving the frame relatively to the face plate, and a plug which is inserted through the opening in the frame into engagement with the receptacle.

6. A fixture member comprising a frame having a central opening, and hook members formed integral with and projecting forwardly from the marginal edges of said frame, said central opening being adapted to receive the plug of a wired fixture.

7. A fixture member comprising a frame having a central opening, means forming a part of the frame for enabling a wired fixture to be attached to it, and hook members formed integral with and projecting forwardly from said frame, said central opening being adapted to receive the plug of a wired fixture.

8. In a device of the character described, the combination of a fixed supporting plate which has a plurality of slots in its face, a receptacle carried by the plate which is adapted to be permanently wired to supply conductors, a fixture member which is permanently wired, a part having hooks thereon which enter the slots and engage the rear of the plate when in adjusted position, and a separable attaching plug associated with the member which serves to carry current from the receptacle to the fixture and also to lock the hooks in their adjusted positions.

9. In a device of the character described, the combination of a fixed supporting plate which has a flat front face and also a plurality of slots therein, a receptacle carried by the plate which is adapted to be permanently wired to supply conductors, and has fixed contacts extending perpendicular to the plate, a fixture member which is permanently wired, a part having hooks thereon which enter the slots and engage the rear of the plate when in adjusted position, and a separable attaching plug associated with the member which has contacts that engage those in the receptacle when pushed into its seat, said plug serving to lock the hooks in their adjusted position.

10. In a device of the character described, the combination of a supporting plate which has a plurality of slots in its face, a receptacle carried by the plate which is

adapted to be permanently wired to supply
conductors, a fixture element which has
hooks arranged on opposite sides which en-
ter the slots and engage the rear wall of
5 the plate when in adjusted position, and an
attaching plug which is adapted to elec-
trically connect the receptacle with the wir-
ing of a lighting fixture, said plug when in
position standing in the way of said fixture
10 element to lock it in adjusted position.

11. In a device of the character described,
the combination of a flat plate which is
adapted to be permanently secured in posi-
tion and is provided with slots, a receptacle
15 attached to the back of the plate which is
adapted to be permanently wired to supply

conductors, a base member, hooks formed
integral with the rear side of the base and
which are arranged to first enter the slots
and then slide into their seats, a fixture 20
which is permanently wired and is sup-
ported by the member, and an attaching
plug which is associated with the fixture
and is arranged to establish electrical con-
nections with the receptacle, said plug when 25
seated standing in the path of movement
of said base member to form a lock to pre-
vent accidental disengagement of the hooks.

In witness whereof I have hereunto set
my hand this 22nd day of January, 1921.

FRANK C. DE REAMER.