

Aug. 10, 1926.

F. C. DE REAMER

1,595,973

LIGHTING FIXTURE

Filed Sept. 9, 1921

2 Sheets-Sheet 1

Fig.1.

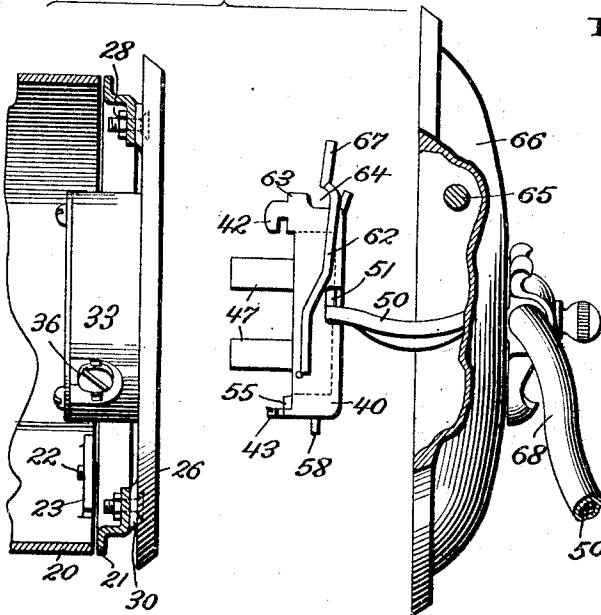


Fig.2.

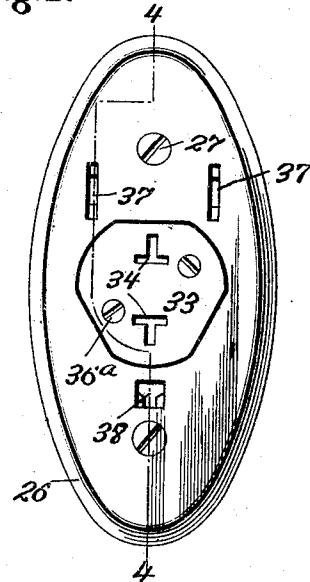


Fig.3.

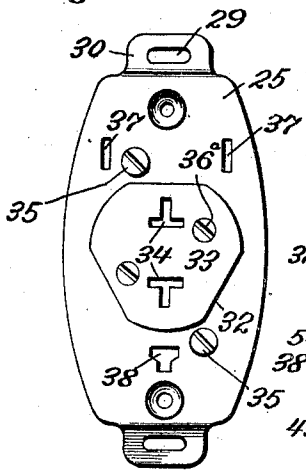


Fig.4.

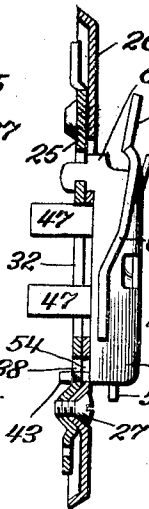


Fig.5.

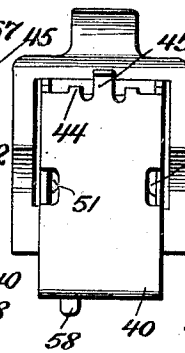


Fig.6.

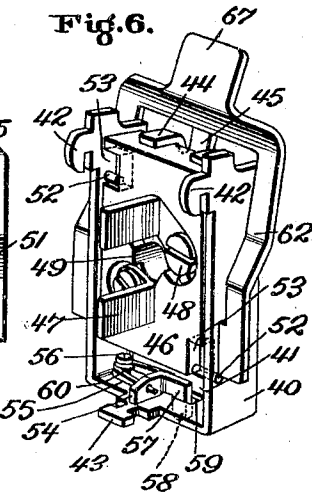
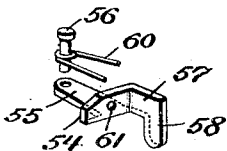


Fig.7.



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Aug. 10, 1926.

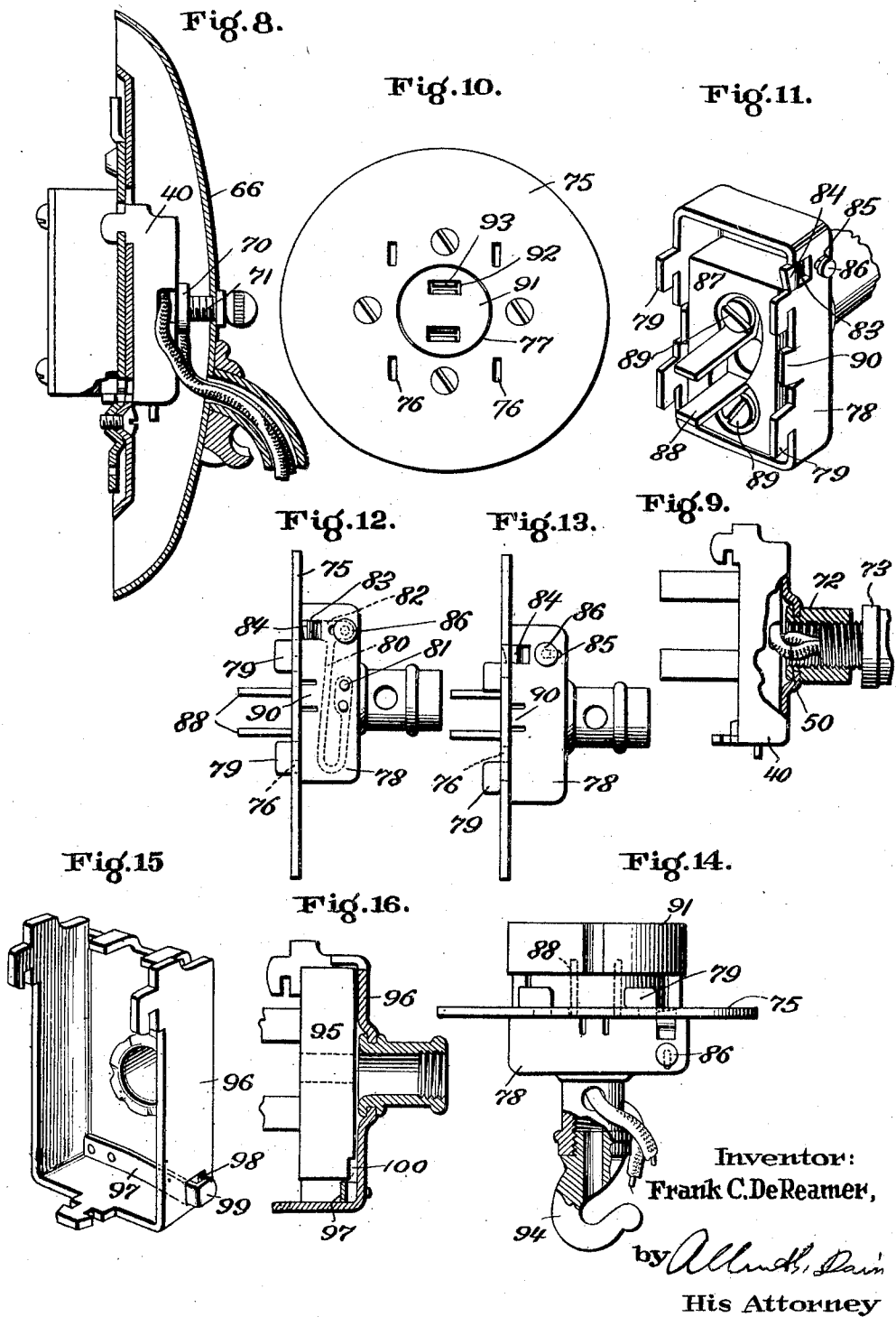
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2 Sheets-Sheet 2



Patented Aug. 10, 1926.

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UNITED STATES PATENT OFFICE.

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

LIGHTING FIXTURE.

Application filed September 9, 1921. Serial No. 499,487.

This application is a continuation in part of my application Serial No. 439,331, filed January 24, 1921.

The invention relates to lighting fixtures such as wall brackets, ceiling fixtures and the like and particularly fixtures of the type wherein the wall or ceiling portion of the fixture comprises a wired unit and the bracket or hanging portion of the fixture comprises a second wired unit, the latter being adapted to be detachably connected mechanically and electrically to the former, electrical connections being made by means of a receptacle and plug connection.

The object of my invention is to provide an improved structure and arrangement in apparatus of this character, and 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.

More particularly the object of my invention is to provide an improved arrangement for attaching a lamp bracket or lamp hanging means to the wall portion of a fixture whereby the bracket or hanging portion of the fixture may be attached to and detached from the wall portion in a manner as simple and easy as that of attaching and detaching an ordinary plug to and from a receptacle, whereby any person may be enabled to mount the fixture in place or change it at will without the assistance of an electrician. In other words, the arrangement is such that there are no electrical connections to be soldered and taped as is usually the case. At the same time, the attachment of the fixture is strong and firm and imposes no strains on the electrical connections, this latter being a matter of primary importance.

It is to be understood that I use the term "wall" in a generic sense and by such term I mean to include either a side wall or a ceiling.

In the accompanying drawings wherein I have illustrated apparatus embodying my invention, Fig. 1 is a side elevation partly in section and partly broken away of a lighting fixture constructed in accordance with my invention, the bracket or hanging portion of the fixture being shown detached and slightly spaced away from the wall portion of the fixture; Fig. 2 is a face view of the wall portion of the fixture; Fig. 3 is a view similar to Fig. 2 but with the finishing face

plate removed so as to disclose the main face plate which may be termed a "subplate"; Fig. 4 is a side view showing the bracket or hanging portion of the fixture attached to the wall portion, the wall portion of the fixture being shown in section taken on line 4—4, Fig. 2; Fig. 5 is a face view of a part of the bracket portion of the fixture; Fig. 6 is a perspective view of the structure shown in Fig. 5; Fig. 7 is a detail perspective view of the locking structure; Fig. 8 is a side elevation partly in section illustrating a modification of the means of attaching the canopy; Fig. 9 shows a modification of the bracket portion of the fixture; Fig. 10 is a face view of a modification of the wall portion of a fixture; Fig. 11 is a perspective view of a bracket portion of a fixture adapted to cooperate with the wall portion shown in Fig. 10; Figs. 12 and 13 are side elevations illustrating the manner in which the bracket portion of the fixture shown in Fig. 11 is attached to the wall portion shown in Fig. 10; Fig. 14 shows the fixture structure of Figs. 10 to 13 inclusive arranged to particularly adapt it for a ceiling, and Fig. 15 is a perspective view and Fig. 16 a sectional view illustrating a modified construction of locking means.

Referring to the drawings, especially Figs. 1 to 7 inclusive which illustrate a form of my invention intended particularly for side wall fixtures, 20 indicates an outlet box and 21 a cover fastened to the box by screws 22 which pass through openings in the cover and thread into ears 23 which project from the edge of the box. Cover 21 is shown slightly spaced from the box for purposes of illustration, but it will be understood that in use it will be held against the box by the screws 22. The box may be of any suitable size and shape and may be provided with the usual knockout plugs, as is well understood.

Carried by the outlet box is a face plate which in the present instance comprises two members, a subplate 25 and a finishing plate 26 fastened together by screws 27. The subplate may be made of steel, while the finishing plate is preferably made of brass or other suitable metal which will take and keep a good finish. The finishing plate 26 is used primarily to give a finished appearance to the face plate and may be omitted when found desirable in which case plate 25 alone

will serve as the face plate. The face plate may be attached to the outlet box in any suitable manner and supported from any suitable part of the box. In the present instance it is shown attached to cover 21 by screws 28 which pass through slots 29 in ears 30 formed at each end of plate 25. By providing slots 29, the face plate can be adjusted on the box so as to bring it straight, this being desirable because outlet boxes are often put in a wall crooked, no special effort ever being made to have them exactly straight. At the center of the face plate is an opening 32 and fastened to the rear of the face plate with its forward end presented to opening 32 is a plug receptacle 33 having the usual openings 34 to receive the contact members of a plug. The plug receptacle is fastened to the face plate by screws 35. It may be of any suitable structure but is preferably a standard form of plug receptacle. The binding screws for the plug receptacle are indicated at 36, and the screws which fasten the receptacle contacts to the mounting block of the plug receptacle are indicated at 36^a. As is well understood, an outlet box is usually mounted in a wall so the face plate comes flush with the surface of the wall, although there are occasions when the outlet box may project beyond the wall. In any event, the face plate presents a smooth flat surface. Formed in the face plate are a suitable number of slots grouped around central opening 32 in spaced relation to each other. In the present instance I have shown three slots, two vertical slots 37 and a T-shaped slot 38, the former being above opening 32 one each side of the center and the latter being below opening 32 and on the center line of the face plate. These slots are adapted to cooperate with hook members formed on the hanging or bracket portion of the fixture and ordinarily it is desirable that the hook members engage with the subplate only so as not to mar the surface of the finishing plate. The portions of slots 37 in the finishing plate are accordingly made longer than in the subplate as clearly shown in Figs. 2 and 4 and the portion of slot 38 in the finishing plate is rectangular.

The hanging or bracket portion of the fixture comprises a supporting member which may take various specific forms but which present a flat surface or marginal edge adapted to be presented to a face plate and from which project hook members which are adapted to pass through the slots in the face plate and hook on it. In the present instance the supporting member is shown in the form of a rectangular casing 40 having an open side 41. Projecting forwardly from the side edges of casing 40 at its open side and adjacent its top are two hook members 42 adapted to enter slots 37 of the face plate and projecting forwardly from the

lower edge of casing 40 at its open side is a hook member 43 adapted to enter slot 38 of the face plate. Hook member 43 is T-shaped, and the head of the T is adapted to pass through the wide portion of slot 38 and then engage behind the face plate when slid down, the neck of the T passing into the narrow part of slot 38. The upper end of casing 40 comprises two spaced fingers 44 between which is a stop finger 45.

In casing 40 is a contact plug comprising a mounting block 46 of insulating material to which are attached contacts or contact strips 47 connected to which are binding screws 48. Contacts 47 are of dimensions suitable to enter openings 34 and engage the contacts of the plug receptacle in the well understood manner. At the center of mounting block 46 is an opening 49, through which the lead wires 50 extend, casing 40 being provided with openings 51 at its two edges for such wires. Mounting block 46 is of a width substantially equal to the inside width of casing 40 but it is shorter than the casing so the casing can move relatively to the plugs a limited distance. The plug is preferably fastened in the casing in some suitable manner so it cannot come out and to this end the casing is shown as provided with inwardly projecting pins or screws 52, the ends of which enter longitudinally extending slots 53 in block 46, the slots being sufficiently long to permit of the desired amount of movement of the casing relatively to the plug.

To lock casing 40 to the face plate after the hook members have been moved into engagement with it, I provide a locking means comprising a head 54 carried by a short arm 55 pivoted at its one end on a pin 56 fixed in the lower end wall of casing 40. Head 54 has an angular extension 57 provided with a finger piece 58 which extends through an opening 59 in the casing wall. Head 54 stands in line with hook member 43 and is biased outwardly toward the end of the hook by a spring 60 which is wrapped around pin 56 with one end resting against casing 40 and the other end projecting through a hole 61 in head 54. Outward movement of the head is limited by finger piece 58 engaging the edge of opening 59.

Carried by casing 40 is a U-shaped spring frame 62 the yoke of the U extending across the top of the casing in proximity to stop finger 45 which serves to limit its movement in one direction. The side members of the frames are curved and cooperate with projections 63 on top casing 40 to form recesses 64 adapted to receive a rod or cross piece 65 carried by a canopy 66. Projecting from the central part of the yoke of frame 62 is an angularly extending guide member 67 which serves to catch rod 65 and guide it into recesses 64 when the canopy is slid

down relatively to casing 40. Carried by canopy 66 are one or more tubes 68 through which lead wires 50 pass to a lamp socket or sockets (not shown) at the outer end of tube or tubes 68.

In use the wall portion of the fixture is fastened in the wall in the usual manner, the face plate in general being flush with the surface of the wall as is well understood, and the plug receptacle is permanently wired to the power circuit. The bracket or hanging portion of the fixture is wired permanently, one end of the lead wires 50 being connected to plug contacts 47 by binding screws 48 and the other end to the lamp socket or sockets or other devices carried by tube or tubes 68. This thus forms a completely wired unit.

To connect the bracket or hanging portion of the fixture to the wall portion, contacts 47 are inserted through openings 34 into engagement with the receptacle contacts and pushed inwardly to their ends, hooks 42 and 43 being passed through slots 37 and 38 respectively. At this time mounting block 46 stands toward the lower end of casing 40 so the casing may be slid down relatively to it. Hook 43 passes through the wide portion of slot 38 and the end of locking head 54 strikes against the surface of the face plate just above the slot and is pushed back, putting spring 60 under compression. The casing is now slid downward relatively to the face plate and mounting block 46 thereby brings hooks 42 and 43 into engagement with the face plate as shown in Fig. 4. When the end of this movement is reached, locking head 54 comes into line with slot 38 and spring 60 moves it into the slot back of hook 43 thus locking the hooks in engagement with the face plate. The supporting member of the bracket or hanging portion of the fixture is thus both mechanically and electrically connected to the wall portion and locked thereto. Canopy 66 is now attached to the supporting member of the fixture by placing it over the face plate with rod 65 above the top of guide member 67 and sliding it down until the rod enters recesses 64.

To remove the hanging or bracket portion of the fixture from the wall portion it is only necessary to detach canopy 66 by moving it upward, then move locking head 54 back out of slot 38 by lifting on finger piece 58, push casing 40 upward to bring the hooks from engagement with the face plate and then pull out on casing 40 to remove the supporting member and contacts 47 from the wall portion of the fixture.

Mounting block 46 is preferably of a thickness equal to the depth of casing 40 so that when the hanging or bracket portion of the fixture is attached to the wall portion the plug will be held against or in close

proximity to the face plate. However, it will be understood that this is not essential for as is well known, the engagement of the plug contacts with the receptacle contacts will ordinarily be sufficient to hold the plug firmly in position.

It will be noted that while the electrical and mechanical connections are made practically simultaneously they are quite independent of each other, and that the electrical connections are not called upon to help support the weight of the bracket. This is an important consideration as it removes all strains from the contacts; at the same time a good electrical connection and a good mechanical connection are obtained.

While I prefer to fasten the plug in casing 40 after the manner described so the two can be attached to and removed from the wall portion of the fixture as a unit, it will be understood that this is not necessarily required, and the plug and casing may be applied separately to the wall portion of the fixture.

It will be understood that my invention may be carried out in connection with various types of fixtures, the specific type shown in Figs. 1 to 7 being what is known as the French canopy type. In Fig. 8 I have illustrated my invention carried out in connection with what is known as the center stud type of fixture. For this type of fixture casing 40, instead of being provided with a spring frame canopy holder is provided with a central threaded boss adapted to receive a stud 71 which serves to hold canopy 66 in place. Otherwise the arrangement of Fig. 8 may be the same as that of Figs. 1 to 7 inclusive.

In Fig. 9 I have shown my invention carried out in connection with the rigid arm type of fixture, and to this end casing 40 is provided with a nipple 72 attached to the casing at its central portion. The inside of nipple 72 is threaded to receive a bracket arm or tube 73 through which lead wires 50 extend. The outer end of arm 73 may carry a suitable lamp socket or other device as found desirable. Otherwise the arrangement of Fig. 9 is the same as that of Figs. 1 to 7 inclusive.

The three types of fixtures illustrated, the French canopy type, the center stud type and the rigid arm type are the types in general use and, as is clear, my invention may be carried out with equal facility in connection with each of them.

In Figs. 10, 11, 12 and 13, I have illustrated a modification of my invention, the same being shown as carried out in connection with the rigid arm type of fixture. It differs from the arrangement already described principally in the form and arrangement of the hook members and the arrangement of the locking means. In this modifi-

cation the face plate 75 (which is shown as comprising a single plate only) is provided with four slots 76 spaced around central openings 77, and the edge of casing 78, (corresponding to casing 40 of Figs. 1 to 7) which is presented to the face plate is provided with four forwardly projecting hook members 79 adapted to enter slots 76 and engage edges of the slots by a sliding movement of the casing relatively to the face plate. The locking arrangement illustrated comprises a U-shaped flat spring 80 having one end riveted at 81 to casing 78. The other end of spring 80 terminates adjacent the upper end or what may be termed the back of a hook member 79 and on such end is a transverse head 82 which lies against the inner surface of casing 78. In casing 78 above, i. e., behind the hook 79 adjacent which lies head 82 is a recess 83, and the adjacent end of head 82 is offset to form a locking member 84 which slides in recess 83. The other end of head 82 is riveted to a pin which projects through a slot 85 in casing 20 and has a button 86 on its outer end.

In casing 78 is a contact plug comprising a mounting block 87 and contacts 88 to which the lead wires are connected by binding screws 89. The mounting block is of less length than the casing so that the casing may be moved relatively to it, and the block is held in the casing by tongues 90 struck in from the sides of the casing. Connected to face plate 75 is a plug receptacle 91 having openings 92 in line with which are contacts 93.

The manner of attaching and detaching the fixture structure just described will be obvious from the explanation already given in connection with Figs. 1 to 7 inclusive. To connect the bracket or hanging portion of the fixture to the wall portion, contacts 88 are inserted through openings 92 in plug receptacle 91 into engagement with contacts 93 and pushed inward to their ends, hooks 79 being passed through slots 76. This brings the parts to the positions shown in Fig. 12, locking member 84 being above the upper edge of the adjacent slot 76, and, due to its engagement with the face plate, forced back into recess 83, spring 80 being put under compression. Casing 78 is now slid downward to the position shown in Fig. 13 thereby fastening hooks 79 over the edges of slots 76 and bringing locking member 84 into line with the upper edge of the slot 76 to which it is adjacent. Spring 80 then forces the locking member 84 into the slot above the hook thus locking the supporting member or hanging portion of the fixture to the wall portion. To disengage the bracket portion of the fixture from the wall portion it is only necessary to pull locking member 84 out of the slot 76 by pushing back on button 86, slide casing 78 up-

wards to disengage the hooks from the face plate and then pull outward on the bracket.

The structures so far described have been illustrated in the form of side wall fixtures although the supporting member when fastened to a face plate would be equally well adapted to support a ceiling fixture. In Fig. 14 I have illustrated the arrangement of Figs. 10 to 13 inclusive used in connection with a fixture particularly intended for a ceiling. The arrangement is in general the same as that already described and the same reference numerals are applied to corresponding parts. In the present instance the fixture carries a bracket member in the form of a hook 94 on which may be hung a lamp fixture of any desired type. Or the hook may be replaced by a length of pipe on the lower end of which a lamp socket or socket and shade are supported.

In Figs. 15 and 16 I have illustrated a modified form of locking device wherein the contact plug forms a part of the locking means. In this arrangement the mounting block 95 of the contact plug is made somewhat shorter than casing 96 as shown in Fig. 16 and extending across an end of the casing is a spring locking member 97 having one end fastened to the casing and the other end projecting through an opening 98 in a side wall of the casing to form a finger piece. Preferably the outer portion of such end is bent at an angle as shown at 99 to give a finished appearance to the device. The parts are shown in locked position in Fig. 16. To bring them to unlocked position the free end of locking member 97 is pushed toward the bottom of casing 96 to bring it from behind mounting block 95 after which the casing is slid up relatively to the block which would bring the hooks out of engagement with the slots of a face plate. This will bring locking member 97 up behind block 95, the latter being cut away as indicated at 100 to accommodate it. When being attached to a face plate, it will be clear that as soon as casing 96 is slid downward relatively to block 95, locking member 97 will spring it beneath the block to lock the casing to the face plate.

One of the characteristic features of my invention is the movement of the supporting member or casing relatively to the mounting block to bring the hook members into engagement with the face plate slots and in the illustrated arrangements this has been performed by a linear movement of the casing. It will be understood, however, that my invention can be carried out in other specific ways. For example, in some instances a turning movement may be utilized.

It will be noted that when I use a face plate comprising a finishing plate, as in Figs. 1 to 9 inclusive, the hook members are set out away from the edge of the casing

a distance approximately equal to the thickness of the finishing plate, while when no finishing plate is used the hooks are directly at the edge of the casing as shown in Figs. 10 to 13. In any event, however, the undercut portion of the hook is of a width equal to the thickness of the plate to which it fastens.

In the use of my invention the house or other building will be provided at the desired points with wired receptacles such as form the wall portion of my improved fixture. For example, there may be several in each room. As many bracket fixtures may be provided as found desirable and these may be transferred from one wall receptacle to another at will in the manner already explained, and this as easily as connecting an ordinary plug to a receptacle.

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 and where a house is already wired with flush plate receptacles the plates already there may be modified by providing openings in them or new plates may be substituted. In the case of the bracket portion of the fixture, any existing bracket may have attached to it a supporting member or casing structure with the plug therein.

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. A fixture unit comprising a supporting member which presents an end face and spaced hook members formed integral with and projecting forwardly from the marginal edge of such face, said hook members lying in planes at right angles to the flat surface.

2. The combination with a plug receptacle and a face plate having spaced slots therein, of a supporting casing having an open side, the marginal edge of which presents a flat

surface, spaced hook members formed integral with and projecting forwardly from such edge, said hook members being adapted to enter said spaced slots to bring the flat surfaces into direct engagement with the face plate and then be moved relatively to the face plate to engage the hook members with the edges of the spaced slots, and a contact plug in the casing adapted to connect with the plug receptacle.

3. A fixture unit comprising a supporting casing having bottom and side walls, spaced hook members formed integral with and projecting forwardly from the marginal edges of said side walls, and a contact plug mounted in said supporting casing and having a limited amount of movement relatively to the supporting member.

4. A fixture element comprising a casing having an open side, the marginal edge of which presents a flat surface, spaced hook members formed integral with and projecting forwardly from the marginal edge of the side walls adjacent their upper ends, and a hook member formed integral with and projecting forwardly from the marginal edge of the lower wall of the casing adjacent its central portion.

5. A fixture element comprising a casing having an open side, the marginal edge of which presents a flat surface, spaced hook members formed integral with and projecting forwardly from the marginal edge of the side walls adjacent their upper ends, a hook member formed integral with and projecting forwardly from the marginal edge of the lower wall of the casing adjacent its central portion, and a spring-locking member associated with said last-named member.

6. In combination with a plug receptacle and a face plate having spaced slots therein, of a fixture unit comprising a supporting casing having bottom and side walls, spaced hook members formed integral with and projecting forwardly from the marginal edges of said side walls and a contact plug in the casing adapted to connect with the plug receptacle, said contact plug having a limited amount of movement relatively to the supporting casing.

In witness whereof, I have hereunto set my hand this 2nd day of September, 1921.

FRANK C. DE REAMER.