Aug. 10, 1926. 1,595,919

H. T. PAISTE

OUTLET FIXTURE LOCK

Filed July 16, 1921 2 Sheets-Sheet 1

Fig. 1

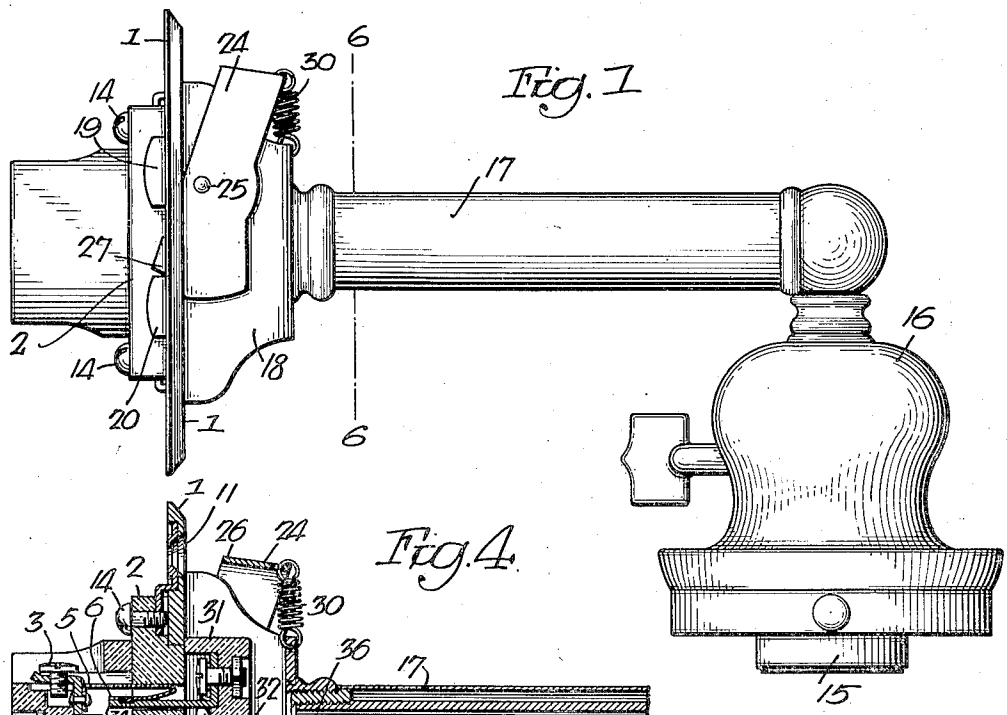


Fig. 4.

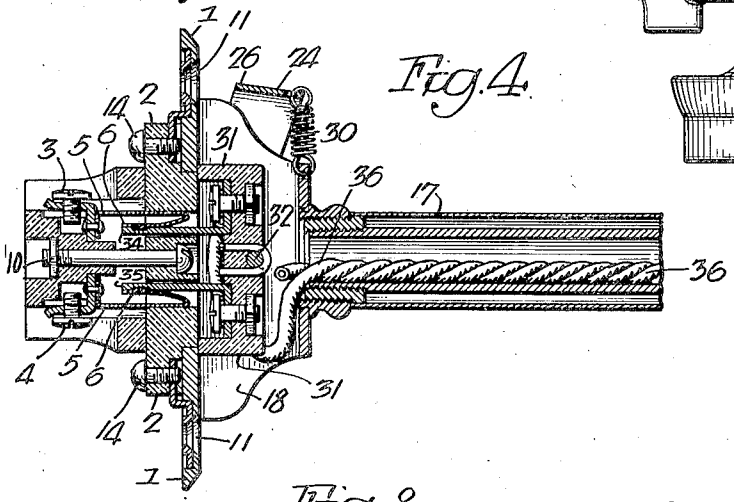


Fig. 8.

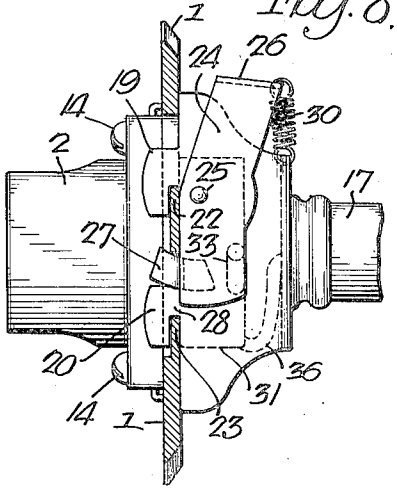
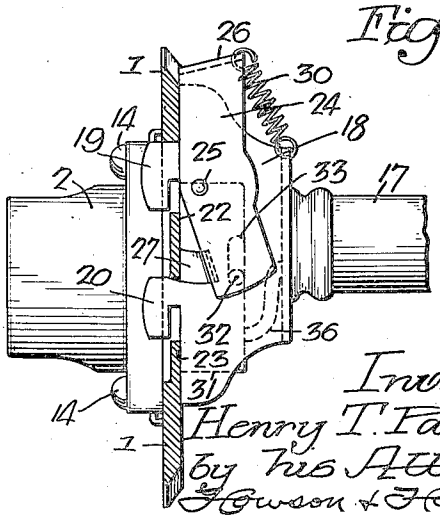


Fig. 9.



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Filed July 16, 1921 2 Sheets-Sheet 2

Fig. 2.

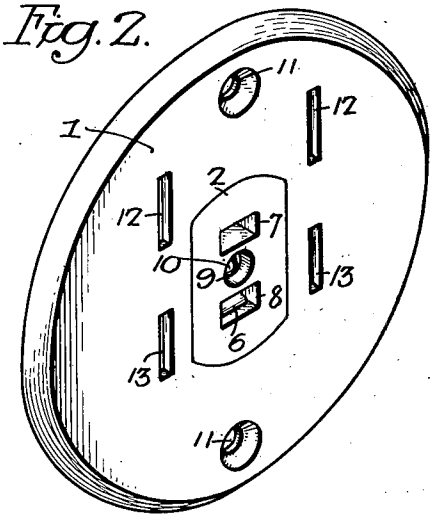


Fig. 3.

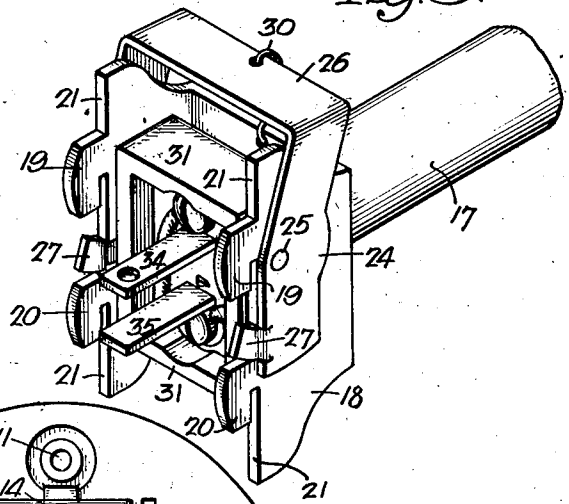


Fig. 5.

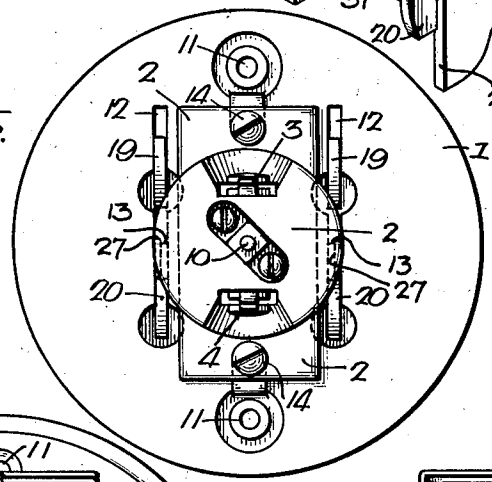


Fig. 6

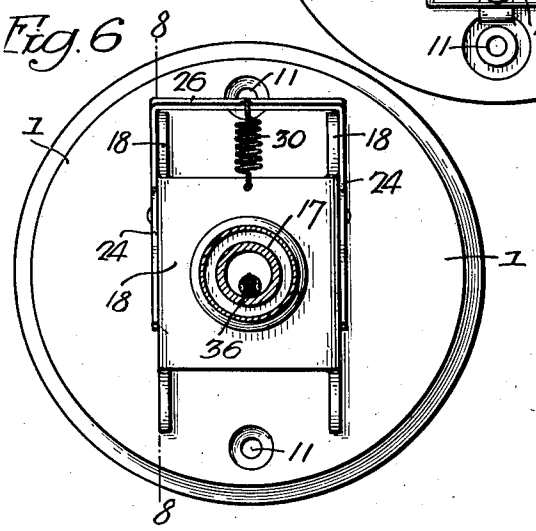
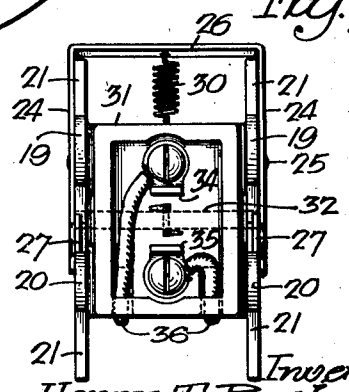


Fig. 7.



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UNITED STATES PATENT OFFICE.

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OUTLET-FIXTURE LOCK.

Application filed July 16, 1921. Serial No. 485,366.

One object of my invention is to provide relatively simple, substantial and conveniently operative means for detachably securing a lighting fixture to a receptacle suitably mounted on a wall, ceiling, or other supporting structure.

My invention more especially contemplates a mechanical device for coupling together a fixture and a receptacle so that current shall be free to flow through suitably engaged conducting elements.

It is further desired to provide a mechanical coupling or locking device of the character noted, which while being easily operative, shall be of such a nature that owing to the positive engagement of its parts, its accidental separation shall be a practical impossibility.

It is also desired to provide a fixture outlet lock which shall be of a positive nature, shall be relatively inexpensive to manufacture, not likely to get out of order and which shall serve to rigidly connect a fixture to a receptacle so as to insure continued good electrical connection of the set or sets of conductors of these devices.

These objects and other advantageous ends I attain as hereinafter set forth, reference being had to the accompanying drawings, in which,

Fig. 1 is a side elevation of an outlet fixture and receptacle connected in their assembled positions, in accordance with my invention;

Fig. 2 is a perspective view of the front face of the receptacle shown in Fig. 1;

Fig. 3 is a perspective view of the receptacle-engaging portion of an electric fixture constructed in accordance with my invention;

Fig. 4 is a longitudinal vertical section taken axially through the portion of the fixture shown in Fig. 3;

Fig. 5 is an elevation of the rear face of the receptacle showing the holding elements of the fixture in their engaging positions;

Fig. 6 is a vertical section on the line 6—6, Fig. 1;

Fig. 7 is an elevation of the receptacle-engaging face of the fixture; and

Figs. 8 and 9 are vertical sections taken on the line 8—8, Fig. 6, showing the receptacle with the fixture in its locked and unlocked positions, respectively.

In the above drawings, 1 represents the wall or face plate of a receptacle having a body 2 of insulating material, whose outer face extends into a central opening of said plate and lies flush with its outer or normally exposed surface. Mounted on opposite sides of the body are a pair of terminals 3 and 4 having connected to them spring contacts in the shape of fingers 5 and 6 extending within passages 7 and 8 which open on its outer face respectively above and below a central opening 9 for a screw or bolt 10 whereby the parts of the body are held together.

The face plate 1 of the receptacle is usually provided with openings 11 for the reception of screws or other members whereby it may be held to a supporting structure and in addition said plate has two pairs of relatively narrow, elongated slots 12—13. The slots of each pair are preferably in line with each other and are on opposite sides of the body 2 of the receptacle. As shown in Figs. 5, 8 and 9, the rear face of the plate 1 is cut away or counter-sunk between and below the slots 12 and 13 of each pair and the body 2 of the receptacle is held by screws 14 to said plate, preferably between these two pairs of slots.

The particular electrical fixture for cooperation with the receptacle may obviously be of any desired design and construction, in the present instance being shown as consisting of a lamp socket 15 enclosed within a canopy 16, from whose upper end a tubular arm 17 projects at right angles. Obviously without departing from my invention said arm may have other shapes than that shown and the canopy and lamp socket may be of any desired design and construction.

In accordance with my invention however, the otherwise free end of the tubular arm 17 has mounted upon it a frame 18 made in the present instance of a body of sheet material or casting which is U-shaped in horizontal section and has the free edges of its parallel side members each formed with a pair of downwardly opening hooks 19 and 20 of such length and spacing as to be capable of respectively entering the slots 12 and 13 of the face plate 1 of the receptacle.

The throat or opening of each of the

hooks is parallel sided and of a width substantially the same as the counter-sunk portion of the wall plate adjacent said slots and the rear or plate-engaging edges 21 of said frame 18 are both straight or flat and lie in the same plane so that they simultaneously engage the flat outer face of the plate 1 when the hooks 19 and 20 have been entered in the slots 12 and 13 and brought into their normal holding positions by sliding said frame with the fixture bodily downward so that the retaining portions 22 and 23 of the plate 1 enter the throats of said hooks.

The parts are so constructed that when the hooks are so entered, the frame with the fixture is rigidly held to the plate 1 of the receptacle and is immovable except vertically upward. For preventing such vertical movement and locking the hooks of the fixture in their given positions (Fig. 8) in the receptacle, I pivot to each of the side members of the frame 18 a locking arm 24 by means of a pin 25. These two locking arms are connected by a cross member 26 at their upper ends, while their lower ends have laterally off-set extensions 27 displaced so as to lie respectively in the planes of the hooks 19 and 20, in the present instance, immediately above the lower hooks. The vertical width of each of the locking fingers 27, plus the vertical width of the neck of each lower hook 20, is preferably substantially the same as the vertical length of the slot 13.

As shown in Figs. 8 and 9, the upper portions of the locking arms 24 are bent away from the plane of the plate-engaging edges 21 of the frame 18 and the cross bar 26 is acted on by a coil spring 30 so that the fingers 27 tend to normally remain in positions immediately above the lower hooks 20.

Between the side members of the frame 18 is mounted a block 31 of insulating material, through which a pin 32 extends transversely. Said pin is of such length that its ends project beyond the sides of the block into slots 33 formed in the side members of the frame, so that the block is free to move up or down relatively to the frame and also to rotate axially of the pin through a greater or less angle. A pair of parallel contact members 34 and 35 project outwardly from the block 31 and have terminals to which are connected conductors 36 leading through the tubular arm 17 to the lamp socket 15. These contacts are so spaced as to be capable of entering the openings 7 and 8 of the receptacle and electrically engaging the spring contact fingers 5 and 6 therein, when the hooks 19 and 20 are entered within the slots 12 and 13 respectively.

With the above described arrangement of parts when it is desired to apply the fixture to the receptacle, the contacts 34 and 35 are first entered in the openings 7 and 8 and immediately thereafter the two pairs of hooks 19 and 20 are entered in the slots 12 and 13. As the receptacle is forcibly pushed toward and into engagement with the plate 1, the ends of the locking fingers 27 strike said plate between the slots 12 and 13 of each pair, causing the arms 24 to turn on their pivots into the position shown in Fig. 9, against the action of the spring 30. After the hooks have been fully entered in their slots, the fixture is moved bodily downward so that the portions 22 and 23 of the plate enter the throats of said hooks, whereupon when the fixture reaches its lowest position the locking fingers, under the action of the spring 30, enter the upper parts of the slots 13 above the hooks 20, as shown in Fig. 8.

The fixture is now rigidly held to the receptacle and cannot be moved in any direction, while at the same time the contacts 34 and 35, being in electrical engagement with the spring fingers 5 and 6, permit current to flow from the receptacle to the lamp socket 15. During this inserting and locking operation the block 31 remains practically stationary while the frame 19 and the balance of the fixture are moved and this is made possible by reason of the movable mounting of said block in said frame and of the flexibility of the conductors 26 connected to its terminals. Obviously no amount of vibration or force applied to the fixture can loosen or disconnect it from the receptacle, although when it is desired to separate it from the latter, the cross bar 26 is moved toward the face of the plate 1, thus swinging the locking arms 24 on their pivots and withdrawing the locking fingers 27 from the slots 13. The fixture may now be moved bodily upward to free the hooks 19 and 20 from the portions 22 and 23 of the face plate, after which it may be disengaged from the receptacle by a straight outward movement.

From the above description it will be appreciated that while the fixture may be quickly and conveniently applied to or removed from the receptacle, it is rigidly and immovably held to the latter after the parts have been connected as above described. Moreover the locking device is relatively simple and inexpensive in construction and may easily be applied to fixtures of the class illustrated, without requiring serious modification thereof.

I claim:

1. In a lighting fixture, a wall portion comprising a receptacle having a face plate with a flat front provided with slots, a bracket portion comprising a casing having hooks which enter the face plate slots, and a recess behind one of said hooks, a supporting means carried by said casing, a connecting plug mounted in said casing and adapted to make electrical connection with said receptacle, said casing being adapted to

slide relatively to the plug to bring the hooks into engagement with the edges of the slots, and a spring pressed latch which lies in said recess and enters a face plate slot behind one of said hooks.

2. In a lighting fixture, a plug receptacle having contacts, a face plate having a flat front provided with spaced slots therein, a bracket arm having a lamp fixture at one end and casing at the other end, a plug in said casing, said plug being provided with contacts wired to the lamp fixture, forwardly projecting hooks on the side edges of said casing, there being a recess behind one of said hooks, said hooks and plug contacts being adapted to be inserted simultaneously into the face plate slots and into the plug receptacle respectively, and said casing being slidable on the plug to permit of the hooks being brought into locking engagement with the edges of the face plate slots, a latch member located in said recess, and spring means connected to it and serving to force it toward the face plate whereby when the hooks are moved into engagement with the edges of the face plate slots, the latch member will enter a slot behind the one hook.

3. In combination, a plug receptacle having contacts, a flat face plate in front of the receptacle and having a central opening affording access to said receptacle and a plurality of additional openings spaced around said central opening, means for mechanically supporting a fixture in position with respect to said receptacle comprising a bracket having hooks which engage with the edges of said additional openings, means for electrically connecting said fixture with respect to said receptacle comprising a plug having contacts for engaging the receptacle contacts, said plug and bracket being movable relatively to each other whereby said hooks may be brought into engaging position with the face plate after the plug contacts have been engaged with the receptacle contacts, and means for locking the hanging portion of the fixture to the wall portion.

4. In a lighting fixture, a wall portion comprising a receptacle having contacts and a face plate having a flat front provided with slots, and a bracket portion comprising a casing having hooks adapted to enter said face plate slots and be moved into engagement with their edges, and a plug in said casing having contacts adapted to be pushed into engagement with the receptacle contacts at the same time the hooks enter the face plate slots, said casing being movable relatively to the plug to bring the hooks into engagement with the edges of the face plate slots.

5. In a lighting fixture, a wall portion comprising a receptacle having contacts and a face plate having a flat front provided with slots, and a bracket portion comprising a casing having hooks adapted to enter said face plate slots and be moved into engagement with their edges, a plug in said casing having contacts adapted to be pushed into engagement with the receptacle contacts at the same time the hooks enter the face plate slots, said casing being movable relatively to the plug to bring the hooks into engagement with the edges of the face plate slots, and means for locking the casing to the face plate.

6. In a lighting fixture, a wall portion comprising a receptacle having contacts and a face plate having a flat front provided with slots, and a bracket portion comprising a casing having hooks adapted to enter said face plate slots and be moved into engagement with their edges, a plug in said casing having contacts adapted to be pushed into engagement with the receptacle contacts at the same time the hooks enter the face plate slots, said casing being movable relatively to the plug to bring the hooks into engagement with the edges of the face plate slots, and a latch which enters a face plate slot above the hook therein to lock the casing to the face plate.

7. A fixture element comprising a casing having an open side, hook members formed integral with the marginal edge of such open side and projecting forwardly therefrom, said casing having a recess behind one of the hook members, and a yielding locking member which lies in said recess.

8. The combination with a face plate having a slot therein, of a supporting member having a smooth face adapted to lie against the face plate, a forwardly projecting hook adapted to enter said slot and be engaged with its edge by a movement of the member relatively to the face plate, and a locking member adapted to enter the slot to lock the supporting member to the face plate.

9. A receptacle, a flat supporting plate in front of said receptacle, having an opening affording access to said receptacle, and having a plurality of holes surrounding said opening and distinct therefrom, said receptacle being substantially flush with said flat plate, means for mechanically connecting a lamp fixture with respect to said receptacle comprising a bracket on which said fixture is mounted, said bracket having a plurality of hooks for hooking into the holes of said plate, a plug mounted on said bracket and having blades for engaging the receptacle contacts, and spring actuated latching means for holding said bracket connected with said plate.

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