Feb. 17, 1942. E. G. K. ANDERSON 2,273,167

ELECTRICAL FIXTURE

Filed Nov. 28, 1940

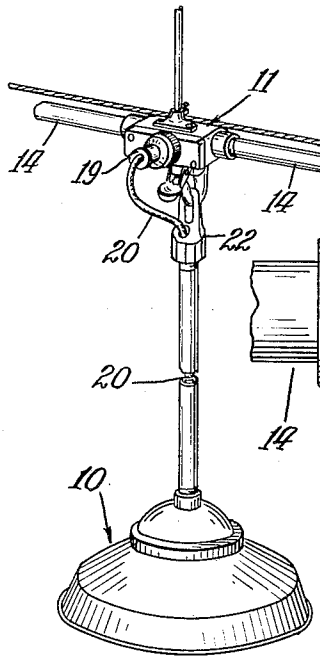


Fig. 1.

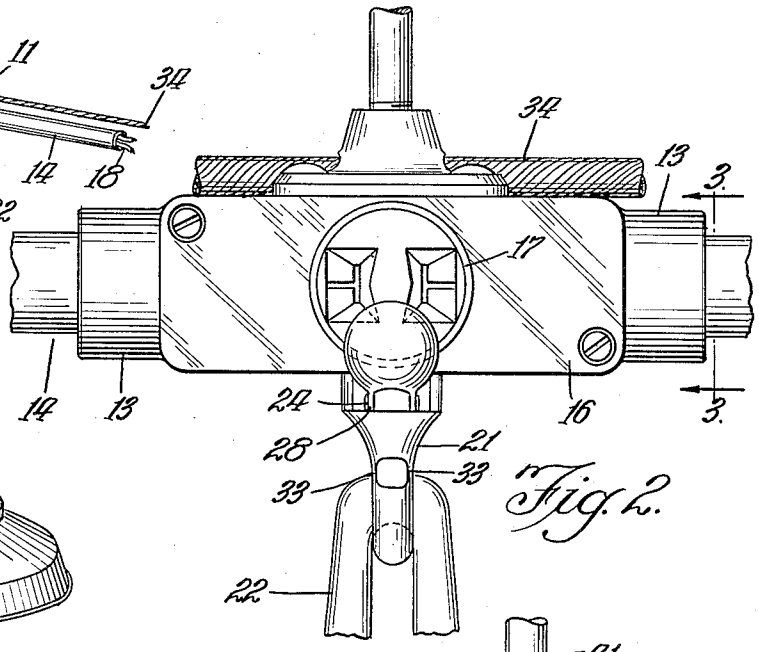


Fig. 2.

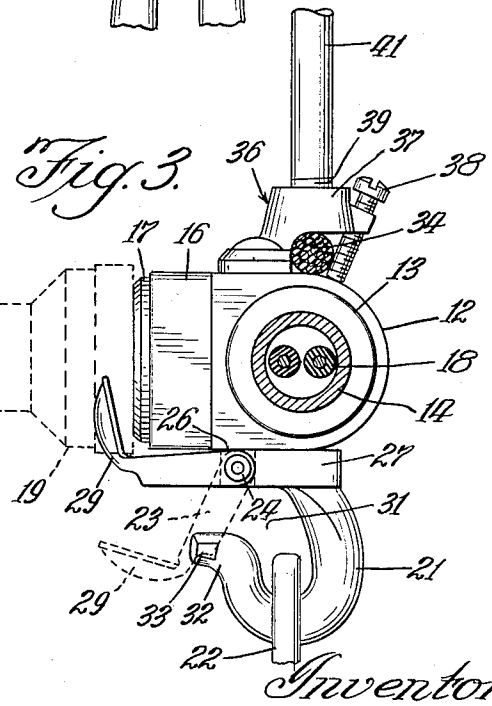


Fig. 3.

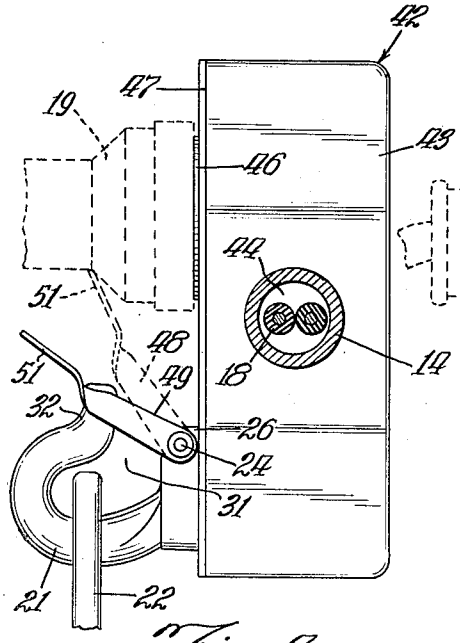


Fig. 4.

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ELECTRICAL FIXTURE

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8 Claims. (Cl. 173—338)

This invention relates generally to electrical fixtures and in particular to an electrical device for removably supporting an electrical unit from the ceiling or wall of a room.

An object of this invention is to provide an improved electrical device for suspending pendent electrical units from the wall or ceiling of a room.

Another object of this invention is to provide an electrical device for suspending an entire electrical unit, in which the unit must be electrically disconnected from the device before it can be mechanically disconnected therefrom.

A further object of this invention is to provide a suspension device which is inexpensive, simple and rugged in construction, and efficient in operation.

A feature of this invention is found in the provision of a suspension device which utilizes standard electrical fittings in its assembly so as to reduce manufacturing costs thereof to a minimum.

Another feature of this invention is found in the provision of a suspension device which is adapted to be slidably carried by a messenger wire suspended from the ceiling or wall of a room and which device includes means for suspending said device independently of the suspension wire.

Further objects, features and advantages of this invention will become apparent from the following description when taken in connection with the accompanying drawing in which:

Fig. 1 is a view in perspective showing the assembly of one form of the improved device with a lighting unit suspended therefrom;

Fig. 2 is a front elevational view of the device shown in Fig. 1;

Fig. 3 is an end elevational view as seen along the line 3—3 in Fig. 2; and

Fig. 4 is an end elevational view of a modified form of the invention.

The suspension fixture of this invention includes a body member having an electrical connecting receptacle and a hook portion which are adapted for electrical and mechanical connection, respectively, with an electric plug and eye portion provided on the electrical unit being suspended. A lever or latch is pivotally supported on the hook in a position such that it is pivotally movable to open and close the open side or gap of the hook. This lever, however, is so arranged relative to the electrical receptacle that when the plug is connected therein engagement is made with the plug before the lever has reached a position which completely opens the hook gap. So long, therefore, as the plug is connected in the receptacle, the pivotal latch partially restricts or closes the open side of the hook to prevent the eye portion of the pendent assembly being disconnected from the hook. Electrical connection between the suspending device and the pendent electrical unit thus precedes the mechanical disengagement of these parts, while conversely in the assembly of these parts the mechanical connection precedes the electrical connection.

With reference to the drawing, there is shown in Fig. 1 one form of the invention illustrated in assembly with an electric lighting unit 10. As shown in detail in Fig. 2 the improved suspension device or fixture 11 includes a body member 12 which is illustrated as being a standard conduit fitting, the tubular extensions 13 at each end thereof being adapted in the usual manner for connection with conduits 14. The front of the body member 12 is provided with a cover 16 of insulating material and is formed with a receptacle 17 which is in electrical connection with the lead or power lines 18 carried by the conduits 14. Receptacle 17 is adapted for connection with electrical plug elements of standard construction, such as the plug 19 which is electrically connected with the lighting unit 10 through a flexible cable 20.

Securely mounted in a fixed position in the lower side of the body member 12 is a hook 21 for engaging a corresponding eye portion 22 of the light assembly 10. The eye portion 22 is locked on the hook 21 by a latch or lever member 23 which is pivotally supported at one end on a pin 24 carried by a laterally projecting portion 26 formed at the secured end 27 of the hook. The latch 23 is integrally constructed with a pair of leg members 28 which straddle the portion 26 at one of their corresponding ends, the opposite ends thereof being connected together by a lateral extension 29. The leg members 28 are of a length to extend completely across the open side or cavity 31 which extends between the hook ends 27 and 32, extension 29 being at substantially right angles to the leg members 28. As is clearly shown in Figs. 2 and 3, the latch 23 and receptacle 17 are thus constructed and arranged so that when the latch is moved to its hook opening position, the projection 29 extends over the receptacle. The lever 23, therefore, is pivotally movable to a position, as shown in full lines in Fig. 3, which completely opens the cavity 31 and to a closed position, shown in dotted lines in Fig. 3, which completely closes or restricts such cavity. The hook end 32 is formed with a pair of opposite flat portions 33 which frictionally en-

gage the inner side of the legs 28 to retain the latch in its closed position.

However, when the plug 19 is connected into the receptacle 17, the latch 23 is not movable to its hook opening position by virtue of the fact that the projection 29 engages the plug shortly after the latch is moved from its hook closing position. Since the space 31 must be entirely open in order to remove the eye portion 22 from the hook 21, any partial closing or restricting of this opening prevents any disengagement between the hook and eye portions. As long as the plug 19 is connected in the receptacle 17, therefore, the latch 23 serves to partially restrict the cavity 31 so that the eye portion 22 cannot be removed from the hook. Because of this action of the latch 23 and receptacle 17, it is impossible to mechanically connect or disconnect the lighting unit 10 and electrical fixture 11 while these parts are electrically connected. As a result, any possibility of the lighting unit being suspended only through the connection of the plug 19 in the receptacle 17 is entirely eliminated.

In the application of electrical suspension fixtures of the type described, it is common practice to slidably support a plurality of such fixtures from a suspension or messenger wire. The messenger wire is usually of cable form and is generally suspended across a span between the walls of a room, the ends of the wire being either secured to the walls or, in some instances, to the ceiling of the room. In Figs. 1 to 3 the fixture 11 is illustrated as being suspended from a messenger wire 34. In this application of the device 11 the conduits 14 are generally provided in a suitable flexible material so that adjacent fixtures 11 may be moved relative to each other, by sliding along the wire 34. Also other electrical units such as motors or the like may be substituted for the lighting unit 10. In cases of this kind, it is readily apparent that the electrical fixture and its associated electrical unit may be slidably moved along the messenger wire over relatively large distances, this movement providing for an increased maneuverability of the electrical unit relative to any particular work being done on the floor of the room.

To facilitate this application of the electrical fixture 11, there is provided a mounting bracket or carriage 36, which is securely mounted on the top of the body member 12. The bracket 36 is formed with an overhanging portion 37 which is slidably supported on the suspension wire 34. This support of the portion 37 on the wire 34 is retained by a screw 38 which is threadably connected in the portion 37 and rotatable into engagement with the top of the member 12. With the screw 38 in its retaining position, therefore, the wire 34 is positively connected in sliding engagement with the fixture 11 by virtue of its being locked in an aperture formed by the bracket 36, the screw 38 and the top of the member 12. Removal of the fixture from the wire 34 is simply accomplished by merely rotating the screw 38 away from the body member 12 and slipping the bracket 36 off of the wire 34.

Where the span covered by the messenger wire is of relatively long length, the sag in the wire caused by the weight thereon of the electrical fixtures and their associated electrical units may be very appreciable. To eliminate any excessive sagging of the messenger wire 34 the overhanging portion 37 is formed with a threaded aperture 39 for threadable connection with one end of a connecting member or hanger rod 41. The opposite end of the hanger rod (not shown) is adapted to be threadably secured directly in the ceiling of the room so that the electrical fixture and its corresponding unit may be suspended directly from the ceiling and independently of the suspension wire. It is clearly apparent that not only is the weight of the particular fixture and pendent assembly thus removed from the suspension wire, but also that the hanger rod may be adjusted to provide an intermediate support for the suspension wire.

In the modified form of the invention shown in Fig. 4, the electrical suspension device 42 includes a body member 43 which is illustrated as being an electrical outlet of standard round cup-shaped construction, an outlet being indicated at 44. An electrical receptacle 46 for the plug 19 is mounted in a side cover plate 47, the receptacle being in electrical connection with the leads 18 carried to the device 42 through the conduits 14. Also mounted in the side plate 47 is the hook 21 for engaging its corresponding eye portion 22 for a pendent electrical assembly (not shown). A latch 48 is pivotally connected at one end to the hook portion 26 by the pin 24.

The latch 48 is integrally constructed with a pair of leg members 49 having their corresponding ends straddling the hook portion 26, their opposite ends being connected together by a longitudinally extending projection 51. On pivotal movement of the latch 48 to its hook closing position, as indicated in full lines in Fig. 4, the hook end 32 frictionally engages the inner sides of the leg members 49 to retain the latch in such closing position. With movement of the latch 48 to its hook opening position the latch 48 and receptacle 46 are so arranged that the longitudinally extending latch portion 51 extends over the receptacle. In this position the gap or cavity 31 at the open side of the hook 21 is entirely open, so that the eye portion 22 may be freely slipped over the hook end 32 for removal from the hook. On connection of the plug 19 in the receptacle 46, however, it is impossible to obtain this complete opening of the gap 31 since the latch projection 51 engages the plug 19 shortly after the latch is moved from its hook closing position. This plug engaging position of the latch is indicated in Fig. 4 by dotted lines. As is clearly apparent from Fig. 5, the gap 52 thus formed between the hook end 32 and the latch 48, when the latch is in engagement with the plug 19, is entirely too small to permit the eye portion 22 being slipped over the hook end 32. As long as the plug 19 is connected to the receptacle 46, therefore, it is impossible to remove the eye portion 22 from the hook 21.

It is to be understood for both Figs. 3 and 4 that the efficient function of the latches 23 and 48, respectively, is not dependent upon the use of any plug having a particular shape or contour, since in each illustrated form of the improved device the latch portions 29 and 51 must be moved to a position extending over their corresponding receptacles before the cavity or hook gap 31 is opened sufficiently to permit the passage of the eye portion 22 therethrough. By virtue of this relative arrangement of the latches 23 and 48 and the receptacles 17 and 46, respectively, any standard plug may be used in the invention with equal operating results. It is to be understood also that the use of the improved suspension device is not limited to any particular operating positioning of the hook 21. As shown in Fig. 3 the eye portion 22 is suspended from

the bottom of the hook while in Fig. 4 the portion 22 is indicated as being suspended from a side of the hook. Since the latches 23 and 43 are positively locked in their hook closing or partially closing positions, the eye portion 22 is accordingly also locked within the hook so that the devices 11 and 42 of Figs. 3 and 4, respectively, may be arranged in a plurality of operating positions.

The invention thus provides for a suspension device or fixture which is cheap, and rugged in construction and which utilizes in its assembly standard electrical fittings. Since a positive mechanical connection must always be accomplished between the suspension fixture and its associated pendent assembly, prior to any electrical connection therebetween, all dangers resulting from any possible suspending of the pendent assembly entirely through its electrical connection with the fixture are entirely eliminated. Also, the suspension devices of the invention are readily applicable for use on suspension wires with but very slight increase in cost.

Although the invention has been described and illustrated with specific reference to several preferred embodiments thereof, it is to be understood that alterations and changes in the arrangement of the parts of these embodiments may be made which are within the full intended scope of this invention as defined by the appended claims.

I claim:

1. In an electrical fixture having a pair of inter-connected members, and a body portion for supporting said members with one of said members mounted on said body portion and having an opening therein for disconnection of the other member therefrom, the means for preventing the disconnection of said two members except only under predetermined conditions, said means including a latch, means for movably mounting said latch at one end on said one member in a position to open and close the opening therein, said latch having an extension at the other end thereof, and an electric receptacle on said body portion in a position relative to the opening in said one member and relative to said latch such that said latch extension is positioned over said receptacle when said opening is in a condition for disconnection of said members, and a plug in said receptacle engageable by said latch extension to limit the movement of said latch extension over said receptacle so that said opening is not open sufficiently to permit disconnection of said two members.

2. An electrical fixture including a body portion, a hook mounted on said body portion, a member suspended from said hook and interconnected therewith, an electric receptacle and removable line plug therein mounted on said body portion and spaced from said hook a distance such that said plug normally will not interfere with the disconnection of said member from said hook, a latch, means for mounting said latch at one end on said fixture so that said latch may be pivoted to a position to open or close said hook, and an extension on said latch movable over said receptacle when said plug is removed therefrom to open said hook for disconnection of said member from said hook, with said extension engaging said plug when the plug is in said receptacle to limit the movement of said latch so that said member cannot be disconnected from said hook.

3. Suspension means for a pendent electrical unit having an electric plug and an eye portion, said suspension means including a receptacle electrically connectible with said plug and a hook portion mechanically engageable with said eye portion, means for retaining said mechanical engagement when said plug and receptacle are electrically connected including a pivoted latch for opening and closing the opening of said hook, and axis means pivotally supporting one end of said latch adjacent one end of said opening, with the opposite end of said latch on connection of said plug and receptacle, engaging said plug and confining the movement of said latch to a position which partially closes said opening.

4. Suspension means for a pendent electrical unit having an electric plug and an eye portion, said suspension means including a receptacle electrically connectible with said plug and a hook portion mechanically engageable with said eye portion, and a pivoted latch on said hook portion movable to open and close the opening thereof, said receptacle and latch being relatively arranged so that said latch is movable over said receptacle to its hook opening position, with said latch on connection of said plug and receptacle engaging said plug and being limited in its movement to restrict said opening.

5. An electrical device for suspending an electrical unit having an electric plug and an eye portion, said device including a receptacle electrically connectible with said plug and a hook portion mechanically engageable with said eye portion, a pivoted latch movable to open and close the gap in said hook, and axis means pivotally supporting said latch near one end of said gap, said latch when in a position for opening said gap having a portion thereof extending over said receptacle, with said latch portion on electrical connection of said plug and receptacle engaging said plug so that said latch is confined in its movement to a position which partially closes said gap and prevents the passage of said eye portion therethrough.

6. An electrical fixture for removably suspending an electrical unit having an electric plug and an eye portion, with said fixture having a receptacle electrically connectible with said plug and a hook portion mechanically engageable with said eye portion, and a latch pivotally supported on said hook and movable to open and close the opening thereof, said latch and receptacle being so arranged that when said plug is connected in said receptacle the latch engages the plug before it is moved to a position which opens said hook opening sufficiently to permit the passage of the eye portion therethrough.

7. An electrical fixture for suspending an electrical unit having an electric plug and an eye portion, said fixture including a body member having a receptacle electrically connectible with said plug mounted in one side thereof, and a hook mechanically engageable with said eye portion secured in another side thereof, a pivoted latch movable to open and close the gap of said hook having a body portion with a projecting portion at one end of said body portion extending at substantially right angles therefrom, and axis means pivotally supporting the other end of said body portion adjacent one end of said gap, said projecting portion on movement of said latch to a gap opening position being movable over said receptacle, but on connection of said plug in said receptacle engaging said plug to retain the latch in a position which partially closes said gap.

8. An electrical fixture for suspending an elec-

trical unit having an electric plug and an eye portion, said fixture including a body having a receptacle electrically connectible with said plug and a hook portion mechanically connected with said eye portion, said receptacle and hook portion being mounted on one side of said body, a pivoted member including a pair of separated legs at one end movable to open and close the gap of said hook, and axis means pivotally supporting said member adjacent one end of said gap at one end of said legs, a longitudinally extending extension at the other end of said member being movable over said receptacle on movement of the member to its gap-opening position, but on connection of said plug in said receptacle engaging said plug to confine the member to a position which closes said gap to such an extent that the hook and eye portions cannot be disconnected.

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