Sept. 22, 1964 W. K. McGINTY ETAL 3,149,814

RECESSED LIGHTING FIXTURE

Filed Oct. 16, 1961 3 Sheets-Sheet 1

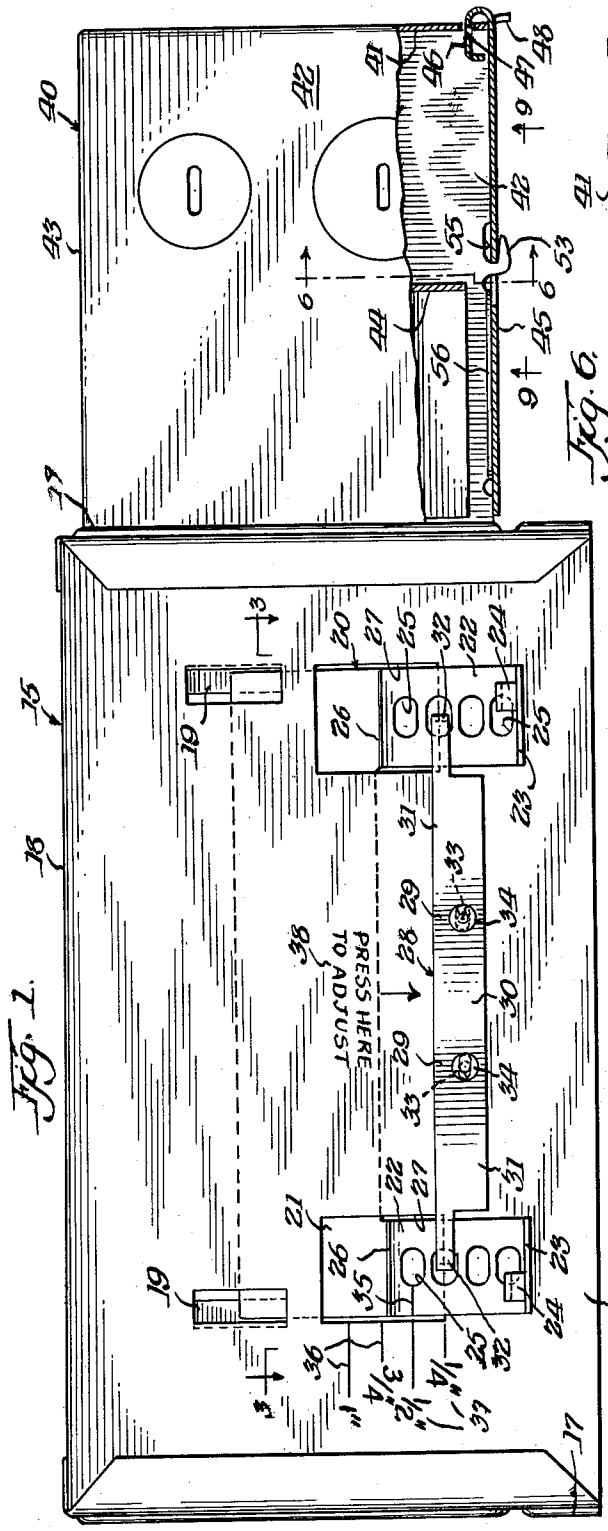


Fig. 1.

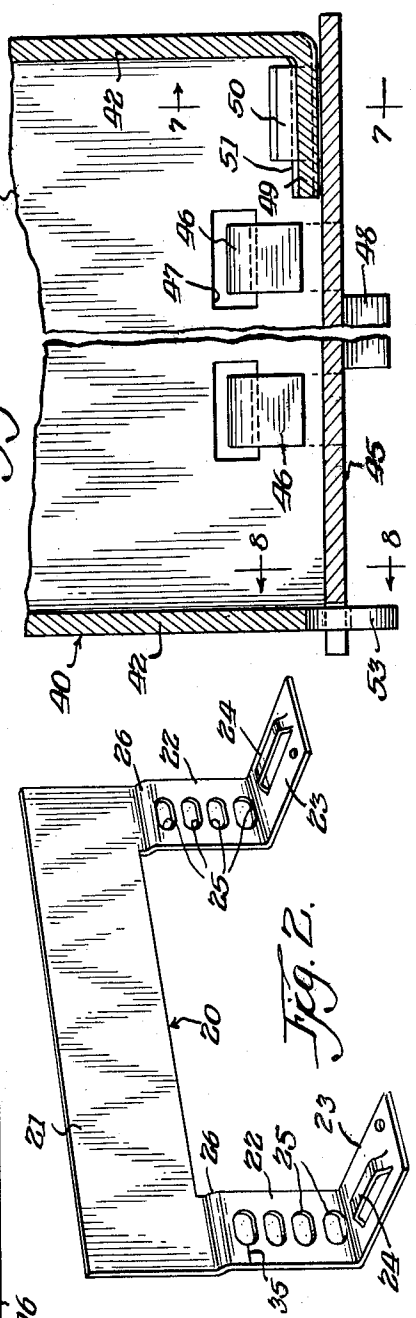


Fig. 6.

Fig. 2.

Inventors.
William K. McGinty &
Jed T. Hienz.
By Brown, Jackson,
Boettcher & Dienner Attys.

Sept. 22, 1964 W. K. McGINTY ETAL 3,149,814

RECESSED LIGHTING FIXTURE

Filed Oct. 16, 1961 3 Sheets-Sheet 2

Fig. 3.

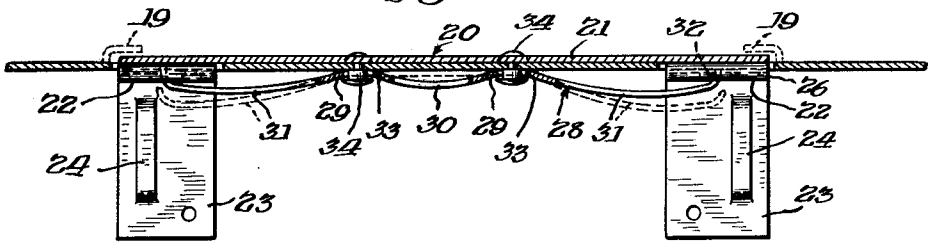


Fig. 4

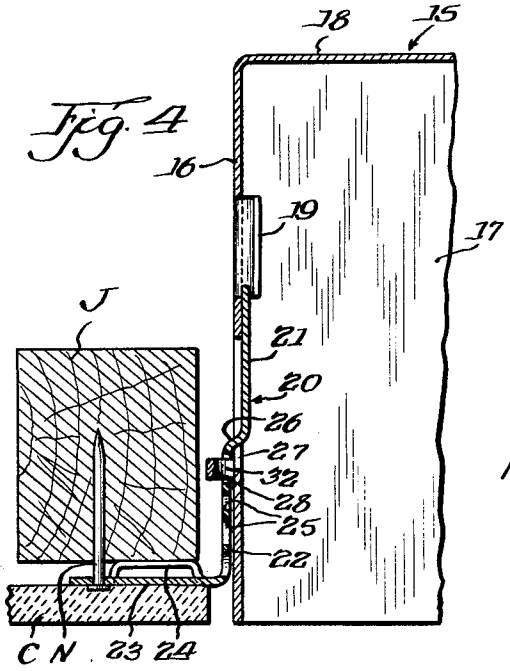


Fig. 5.

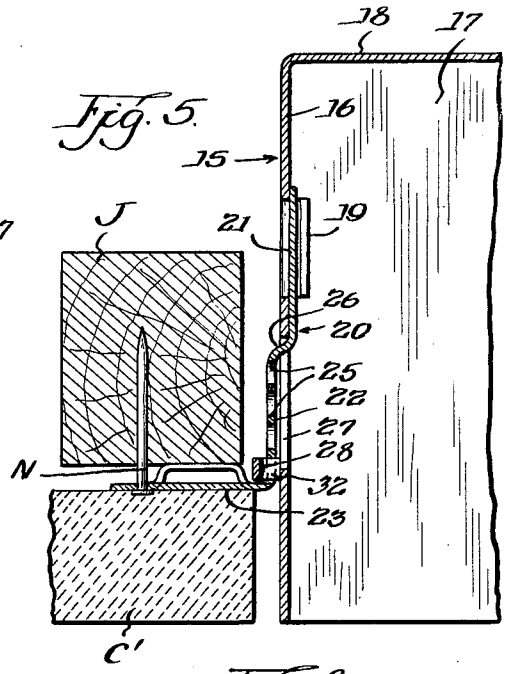


Fig. 7.

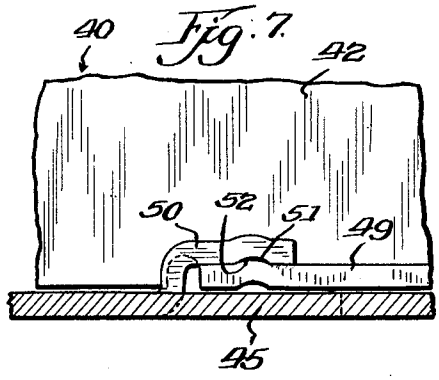
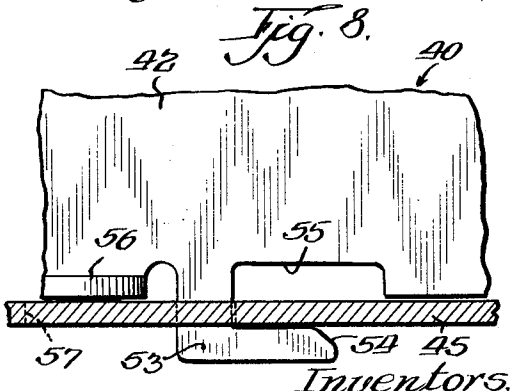


Fig. 8.



Inventors.
William K. McGinty, &
Ted T. Hjenz.
By. Brown, Jackson, Boettcher & Dienner
Attys.

Sept. 22, 1964 W. K. McGINTY ETAL 3,149,814

RECESSED LIGHTING FIXTURE

Filed Oct. 16, 1961 3 Sheets-Sheet 3

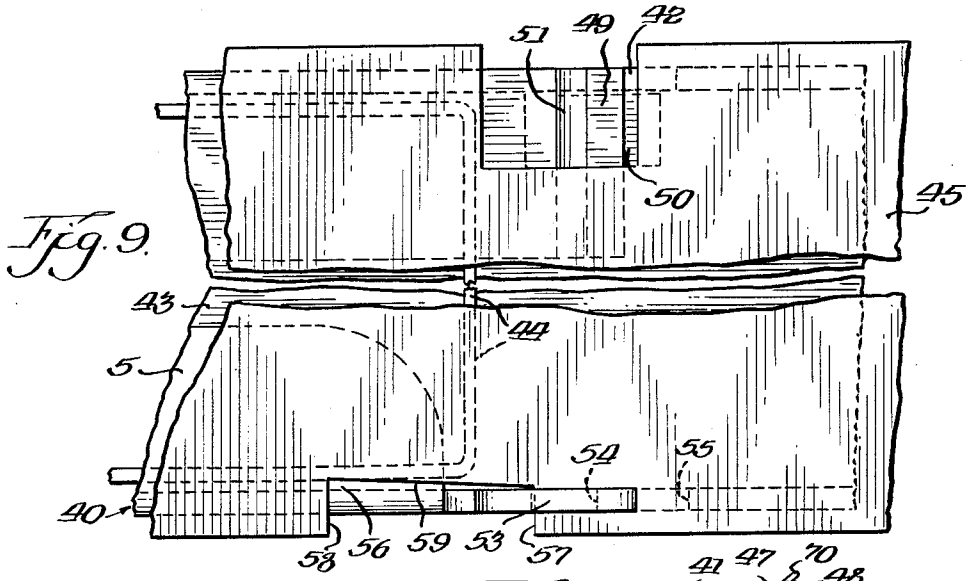


Fig. 9.

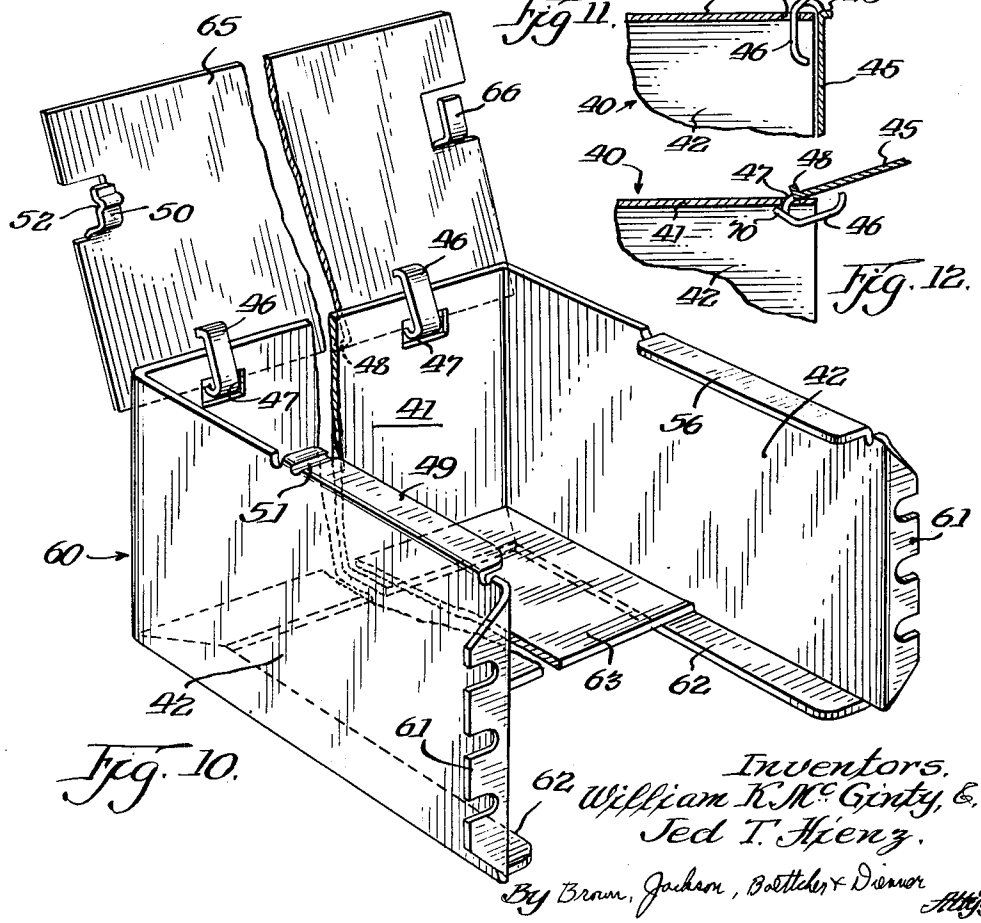


Fig. 10.

Fig. 11.

Fig. 12.

Inventors.
William K. McGinty, &
Jed T. Hienz.
By Brown, Jackson, Boettcher & Dienner
Attys.

United States Patent Office 3,149,814 Patented Sept. 22, 1964

3,149,814

RECESSED LIGHTING FIXTURE

William K. McGinty and Jed T. Hienz, both of Fort Atkinson, Wis., assignors to Thomas Industries Inc., Louisville, Ky., a corporation of Delaware

Filed Oct. 16, 1961, Ser. No. 145,284
4 Claims. (Cl. 248—343)

The present invention relates to a recessed electrical fixture, and more particularly to an electrical fixture adapted for easy and rapid installation.

The time required for installation of electrical fixtures is a prime factor in the cost of electrical wiring jobs involving such fixtures, because of the labor cost. It is therefore of great importance to electrical contractors to have available fixtures which can be mounted and electrically connected easily and quickly, that is, with a minimum of labor. One of the major difficulties in installing recessed fixtures lies in locating the fixture housing with its open side substantially in the plane of the lower surface of a ceiling or the outer surface of a vertical wall, the open side having a suitable light-transmitting closure to facilitate such location of the housing. Mounting brackets have been provided which are secured to the housing and have portions to engage on the upper or inner surface of the ceiling or wall, such portions being spaced from the open housing side a distance corresponding to the thickness of the ceiling or wall. Such thickness may vary, depending upon the particular type of construction employed, and accordingly the mounting brackets have been arranged for adjustment along the housing walls. Such adjustment, however, often involves a protracted trial-and-error operation in which the brackets, commonly secured by screws, must be repeatedly released and fastened and relative movement of the brackets and housing effected, until the proper position is achieved. Loss of the screws, requiring a further loss of time for replacement, may also occur. Besides, the workman may feel that exasperation or nervous tension entitles him to a period of rest, or to a slower working pace, thus increasing installation time and labor costs. Our invention provides a fixture having adjustable mounting brackets secured by means employing no screws or the like for fastening or release thereof and requiring no tools, and allowing quick and easy movement of the brackets to any of a number of predetermined adjusting positions on the housing corresponding to a like number of different ceiling or wall thicknesses. Moreover, the adjusting arrangement lends itself to indication of the positions corresponding to the several thicknesses, and includes means for such indication, so that repetitious and time-consuming cut-and-try adjustments are eliminated.

Another problem in fixture installation, particularly in existing buildings, is that of making connection of the fixture wiring to the building wiring. This is usually accomplished by providing a junction box in which the ends of the building conductors are joined to the wires of the fixture. This necessitates that the junction box have means for opening the same so that the ends of the two sets of wires may be drawn therefrom, properly joined, and returned to the box, a suitable amount of slack or extra length being provided. In addition, inspection of the connections requires access to the interior of the box, and the junction box is therefore conventionally provided with a removable cover secured on the box by screws, which, it will be obvious, is relatively difficult to remove and replace, especially in overhead installations such as in ceilings, because of the difficulty in properly locating the cover and starting the screws and in avoiding dropping and loss of the screws. Our invention provides means by which a cover is hinged on the box while allowing sliding movement thereon in closed

position, and means latching the cover in closed position upon sliding in one direction and unlatching upon reverse movement to allow opening thereof. The hinging means also provide for propping the cover in open position so that it is held against closing, and out of the way. There are no screws to be dropped or lost, no difficulty in removing or replacing the cover, and no danger of the cover falling. No tools are required, the cover being readily moved to open or closed position by simple manual operation.

By reason of its elimination of separable parts requiring fasteners and tools, and its provision for facile movement and positioning of the parts manually, the invention provides for installation of the fixture in minimum time, thus holding labor cost to the lowest possible level.

It is an object of the invention to provide an electrical fixture of the recessed type particularly adapted for installation in a minimum of time.

Another object is the provision of a recessed electrical fixture including mounting brackets and a junction box, which requires no screws or similar fastening means for adjustment of the brackets and opening and closing of the junction box, allowing manual operation of the parts without need of tools, so that installation time of the fixture is substantially reduced.

Another object is the provision of a recessed electrical fixture having an adjustable mounting bracket secured in any of a plurality of adjusted positions without screws or like securing means and releasable for movement to another position simply by digital pressure upon bracket locking means, to reduce to a minimum the labor and time required for adjustment.

Another object of the invention is the provision of a recessed electrical fixture having a mounting bracket movably secured thereon for adjustment in accordance with any of a plurality of ceiling or wall thicknesses requiring no screws or similar securing means for fastening and securing the bracket for adjustment, and having means providing clear visual indication of the adjusted position corresponding to any of said thicknesses.

A further object is the provision of a recessed electrical fixture having a junction box mounted thereon provided with a cover hinged on the box for swinging and sliding movement for movement between open and closed positions and movement in closed position to and from a latched or locked position, requiring no screws or similar securing means and allowing opening and closing of the cover manually or digitally without the use of tools, and preventing loss or misplacing of the cover or damage thereto, whereby the time required for making connections of conductors passing through the box or inspecting connections is reduced to a minimum.

Another object is the provision of an electrical fixture with an associated junction box having a cover secured to the box movable to and from closed and locked position on the box by mere manual manipulation of the cover, without the employment of screws or other similar securing means or the use of tools, to allow quick and easy opening and closing of the box to minimize the time required for making connections of conductors in the box or inspecting connections.

Another object of the invention is the provision of an electrical fixture having an associated junction box with a cover movably secured to the box for opening and closing the same for access to conductors in the box, the cover being secured without the use of screws or similar fastening elements and requiring no tools for its securement or release, and including means releasably latching the cover when in closed position, simple digital manipulation being sufficient for moving the cover between

closed and locked position and open position affording access to the interior of the box.

Another object of the invention is the provision of an electrical junction box having a cover hingedly secured thereon for swinging and hinging movement relative to the box and an unlocked open position affording access to the interior of the box by simple manipulation of the cover and including simple means for holding the cover in open position against the force of gravity.

Other and further objects, advantages, and features of our invention will be apparent to those skilled in the art from the following detailed description, taken in conjunction with the accompanying drawings, in which:

FIGURE 1 is a side elevational view, partly in section, illustrating a recessed electrical fixture according to our invention;

FIGURE 2 is a perspective view of the mounting bracket employed in the fixture, adapted for adjustable positioning on the fixture housing;

FIGURE 3 is a fragmentary horizontal sectional view taken substantially as indicated by the line 3—3 of FIGURE 1;

FIGURE 4 is a fragmentary vertical sectional view taken through a wall of the fixture housing having a mounting bracket adjustably secured thereon, showing by the relation of the housing to a support and a ceiling of one thickness the relative position of the bracket and housing for positioning the housing with its open side substantially flush with the lower surface of the ceiling;

FIGURE 5 is a view similar to FIGURE 4, but showing the relative positions of the mounting bracket and housing upon adjustment for flush mounting of the housing in a ceiling of greater thickness than that of FIGURE 4;

FIGURE 6 is an enlarged sectional view taken substantially as indicated by the line 6—6 of FIGURE 1;

FIGURE 7 is a vertical sectional view taken substantially as indicated by the line 7—7 of FIGURE 6;

FIGURE 8 is a vertical sectional view taken substantially as indicated by the line 8—8 of FIGURE 6;

FIGURE 9 is a bottom plan view, partially broken away, of a junction box with the cover in closed position, taken substantially as indicated by the line 9—9 of FIGURE 1;

FIGURE 10 is a perspective view, partly broken away, of a junction box slightly different from that of FIGURE 1 and having a cover with somewhat different latching means;

FIGURE 11 is a fragmentary sectional view of a junction box having a cover hinged thereon substantially as in FIGURES 1 and 10, in which the hinge structure includes means for holding the cover in open position, while allowing the cover to be disposed in closed position without interference as shown in the figure; and

FIGURE 12 is a view similar to FIGURE 11, but showing the cover in open position and held against movement toward closed position by means for holding.

Referring to the drawings, and particularly to FIGURES 1 to 3 inclusive, there is shown an electrical lighting fixture adapted to be mounted in recessed position in a ceiling or wall, and including adjustable mounting brackets movably mounted on the fixture housing, and a junction box secured on the housing in accordance with known practice. For convenience in description, the fixture is assumed to be mounted in a ceiling, substantially in the position shown in FIGURE 1, although it is to be understood that the fixture might be mounted in recessed position in a vertical wall, the outer surface of the vertical wall, or in other words the surface defining a portion of a room, corresponding to the outer or lower surface of a ceiling. The fixture comprises a fixture housing generally indicated at 15, in this case of generally rectangular or cubical form including a pair of parallel walls, only one of which, designated as 16, is shown, connected by similar parallel walls 17, with a top wall 18 connecting the walls

16 and 17 and closing at one side of the housing. The other side of the housing is open, and may be provided with any suitable closure if desired, such as light-transmitting closure for allowing light from a light bulb or other suitable light source in the housing to illuminate the area below the fixture. The interior of the housing 15 may be adapted to support a light bulb or other illuminating means and a reflector, in a manner well known in the art, or other electrical means, but since such do not form any part of the present invention the housing is illustrated without the same. Each of the walls 16 has struck therefrom a pair of vertically extending guides 19 having free end portions thereof offset inwardly from the adjacent wall and extending parallel thereto so as to define with the wall 16 a pair of channels for guiding an adjustable mounting bracket generally designated 20. The bracket 20, as best shown in FIGURE 2, comprises an elongated plate portion 21 having extending therefrom at opposite ends thereof a pair of depending legs 22 each of which has extending from its lower end a generally horizontally disposed projection or foot 23 adapted to engage under a ceiling joist or similar support for the fixture and to be secured thereto, and to rest on the upper surface of a ceiling. A spacing ear or projection 24 may be provided on each of the feet 23. In each leg 22 are a plurality of apertures 25 spaced vertically from each other, with corresponding apertures of each leg being in alignment transversely of the bracket with each other. Each leg 22 is offset outwardly from the plane of the plate 21, as at 26, to extend outwardly of the housing through an aperture 27 in the wall 16, so as to extend substantially parallel to the wall. The plate portion 21 of the bracket is engaged between the guide brackets 19 and the inner surface of the wall 16 so that the bracket may be guided in slidable movement along the wall toward and from the open side of the housing. As best evident from FIGURE 4, the distance between the lower ends of the apertures 27 and the lower ends of the guides 19 is somewhat greater than the width of the plate portion 21, or the distance from the top edge of the plate portion to the offsets 26, so as to permit of the bracket being engaged with the guides.

Adjustment of the brackets 20 on the housing 15, and securement thereof in the desired adjusted position, are accomplished by a resilient locking member generally designated 28 secured on the housing wall 16. The resilient locking member is formed of a strip of resilient material to which is given an undulatory form, as best shown in FIGURE 3, which extends transversely of and with its ends overlying the legs 22. The member 28 has a pair of spaced points or areas 29 which bear against the outer surface of the wall 16, with a central or intermediate portion 30 between these bearing points bowed away from the wall, and end portions 31 also bowed away from the housing wall, but with the ends 32 thereof bent to engage in the apertures 25 of the respective legs. At the bearing points 29, the resilient member 28 is provided with elongated slots 33 receiving shouldered rivets 34 which extend through the wall 16, so that the resilient member 28 is secured on the wall and is allowed a certain amount of movement longitudinally by reason of the slots. The bent ends 32 of the member 28 normally engage in an aligned pair of apertures 25 of the bracket legs to hold the bracket against movement vertically on the housing, or in other words in the direction toward or from the open side of the housing. As will appear particularly from FIGURES 1, 4 and 5, with the bent ends 32 of the resilient locking member 28 disposed in the uppermost aperture 25 of each leg of the bracket, or in other words the aperture closest to the connecting plate portion 21, the bracket is disposed in its lowermost adjusted position, or in other words with the feet 23 closest to the plane of the open side of the housing 15. This is clearly shown in FIGURE 4. On the other hand, with the bent ends 32 disposed in the lowermost apertures

25, or in other words the apertures closest to the feet 23, the bracket is disposed in its uppermost adjusted position, that is, with the feet 23 farthest from the plane of the open side of the housing, as shown in FIGURE 5. With the parts in the position shown in FIGURE 1, the bracket is disposed in a position intermediate its extreme positions. As clearly appears from a comparison of FIGURES 4 and 5, the adjusting arrangement allows the housing 15 to be disposed with its lower edge or open side substantially flush with the lower face of the ceiling C, which is of minimum thickness, and the ceiling C' of FIGURE 5, which is of maximum thickness. Similarly, the housing 15 might be disposed with the plane of its open side substantially coinciding with the plane of the lower surface of a ceiling of a thickness intermediate that of the ceilings C and C'. Ceiling thicknesses normally range from a minimum of substantially one-fourth inch when hardboard is used for ceiling panels, through one-half inch for dry wall ceilings to three-quarters of an inch and one inch average thicknesses for lath and plaster construction. As will be obvious, the ceiling thickness increases substantially by increments of one-fourth inch, and accordingly the apertures 25 are arranged with their centers spaced one-fourth inch apart. It will be also evident that wall constructions normally vary in thickness substantially in the same manner as ceilings, depending upon the particular material or manner of construction. It may be noted that most recessed light fixtures are mounted in the ceiling, and it is therefore most convenient to refer only to the ceilings in describing the invention, but in view of the fact that some recessed fixtures are mounted in vertical walls or the like the term "ceiling" is intended to refer to and include such walls, unless the context clearly indicates the contrary.

When it is desired to change the relative vertical positions of the bracket 20 and housing 15 to change from one adjustment to another, it is necessary only to press the intermediate portion 30 of the resilient locking member 28 toward the housing wall 16, causing a rocking or swinging of the end portions 31 on the wall retracting the bent end portions 32 from the apertures 25 in which they are engaged, as indicated in dotted lines in FIGURE 3, for example, so as to release the bracket legs 22. The bracket 20 may then be shifted in either direction vertically along the wall 16 until the apertures 25 in the legs 22 corresponding to the desired adjusted position for the thickness of the ceiling are located in alignment or registration with the bent end portions 32. Release of the pressure on the intermediate portion 30 of the member 28 then allows the resilience of the member to cause the bent end portions to engage in the apertures, as the portions 31 swing back to their normal positions. The slots 33 accommodate the elongation or extension of the intermediate portion 30 as it is brought to flatter condition from its bowed position.

To facilitate adjustment of the brackets 20, at least one leg of each bracket has a mark thereon, such as the line 35 shown in FIGURES 1 and 2, and the wall 16 is provided with a number of vertically spaced lines 36 or other appropriate marks spaced apart in quarter-inch graduations corresponding to the increments of ceiling or wall thickness, arranged so that the line 35 on the leg 22 will come into substantial registration with one or another thereof as the bracket is shifted to engage one or another of the apertures 25 in the leg with the adjacent bent end 32 of the resilient member 28. At least certain of the graduation lines 36 are provided with suitable marking, such as the dimensional indications 37, showing the ceiling thickness for which the housing is adjusted when the line 35 is in registry therewith, thus making it a simple matter to make certain that the adjustment desired has actually been made. The wall 16 may, if desired, carry an appropriate legend at 38 indicating that pressure is to be applied to the bowed intermediate portion 30 of the member 28 when adjustment of the bracket on the housing is desired.

The manner in which the fixture is mounted in a ceiling is well illustrated in FIGURES 4 and 5, in which the foot 23 of one of the legs 22 of a bracket 20 is shown as extending under a joist J, and secured thereto by means of a nail end N or similar fastening means driven through the foot 23, which may have an appropriate nail aperture therein, into the joist. This manner of mounting is generally typical of a fixture installation in a new construction. A fixture to be mounted in an existing ceiling may be installed by employing the mounting brackets 20 to engage on the upper surface of the ceiling substantially as indicated in FIGURES 4 and 5, but without securement by nails or the like to the joists or other supports. To hold the fixture securely in place, the lower portion of the housing 15 is provided with a horizontal lip or flange which engages the lower surface of the ceiling, and may be provided by one wing of an angle bracket the other wing of which is attachable to the housing. To mount the fixture in an old ceiling, a hole is cut in the ceiling slightly larger than the dimensions of the housing, which is inserted through the aperture into the ceiling recess until the adjusted mounting brackets 20 are above the ceiling, and then lowered into position with the bracket feet 23 resting on the ceiling, and the angle brackets or like means attached to the housing with portions extending under the ceiling, so that the housing is in effect clamped on the ceiling.

It will be evident that the adjustable mounting bracket arrangement described hereinabove allows a very quick and simple adjustment at both sides of the fixture housing, without requiring the loosening or removal of screws or similar fastening means and the tightening or replacement thereof, and without need for any tools, so that the time required for installation of the fixture is considerably reduced, particularly when the time lost due to screws or the like dropping from a fixture having screw-secured brackets is considered. The present invention, however, further provides for reduction of installation time in making provision for quick and convenient connection of the fixture to the building wiring system.

Mounted on one of the walls 17 of the housing 15 in any suitable manner is a junction box generally designated 40, as shown in FIGURE 1. In the present case, the junction box comprises a wall 41 arranged substantially parallel to the housing wall 17, and having extending from its ends toward the housing a pair of walls 42 which at their ends remote from the wall 41 may be secured to the housing wall 17 to mount the junction box thereon. The upper side of the junction box is closed by a top wall 43, the opposite or lower side of the box being open but arranged to be closed by a suitable cover or closure as hereinafter described. In the present instance, a baffle 44 is provided extending within the junction box, of generally U-shape in horizontal section, having a transverse wall extending substantially parallel to the wall 41 and a pair of legs generally parallel to the walls 42 extending from the transverse baffle portion to the housing and supported thereon. The baffle 44 divides the interior of the junction box into a wiring compartment between the wall 41 and the baffle portion 44, and an air space between the transverse baffle portion and the housing. It will be understood, of course, that the baffle 44 need not be employed, if so desired.

A closure or cover 45 is provided for the open bottom side of the junction box 40, the cover comprising a plate which is hinged on the wall 41 of the box. The hinging of the cover is done in such a manner as to allow not only swinging of the cover to and from closed position, but sliding movement thereof, at least in the closed position, so that it may be latched against undesired opening and unlatched when it is to be opened, by sliding movement in one or another direction. In the present instance, the cover is hinged by a pair of strap-like in-

tegral projections or extensions 46 on the edge thereof adjacent the wall 41, which are bent back upon themselves to form loops elongated in the direction from the wall 41 toward the housing 15, and extending through suitable apertures 47 formed in the wall 41 adjacent its lower edge, as clearly shown in FIGURES 1 and 6. It will be evident that by means of these hinge loops 46 the cover may swing vertically from the horizontal closed position as shown in FIGURE 1 to a depending open position, and also that in the horizontal closed position of FIGURE 1 the cover 45 may be shifted toward or from the housing by reason of the elongation of the hinge loops. This sliding movement allowed the cover 45 provides for latching and unlatching the cover and is facilitated by means of a lip 48 on the hinged edge of the cover which projects downwardly from the plane of the cover in its closed position, as clearly shown in FIGURES 1 and 6. The lip 48 permits manual latching or unlatching of the cover 45 by pushing or pulling on the lip, as may be most convenient.

The cover is latched in its closed position by means of a flange 49 and a latching tongue 50 on the cover engageable with the flange. The flange 49 extends inwardly from one of the walls 42 at the lower edge thereof, or the open side of the box 40, and terminates in spaced relation to the wall 41, and the tongue 50 is struck from the marginal portion of the cover 45 adjacent the flange 49 at a point correspondingly spaced from the hinged edge of the cover. As best shown in FIGURES 6 and 7, the tongue is bent so that its free portion is offset inwardly from the cover substantially parallel thereto, the amount of offset being substantially equal to the thickness of the flange 49, so that there is provided a bight or pocket in which the end of the flange is frictionally engaged when the cover is moved in its box-closing position in the direction of the housing. In this sliding movement of the cover, the tongue, which as shown is directed toward the housing 15, is also moved slidingly to engage over the flange 49, thus latching the cover against swinging to open position. To open the cover, it is, of course, only necessary to slide it in the opposite direction, so that the tongue disengages from the flange 49 and moves clear of the end thereof, so that the cover may swing on its hinges. To assure that the tongue will not become disengaged from the flange to unlatch the cover unintentionally, as for example because of jarring or vibration, the flange 49 is provided with a raised portion or bead 51 extending transversely thereof, and the tongue 50 is provided with a corresponding depression 52 which engages over the bead 51 in the latched position of the cover, as clearly shown in FIGURE 7. This interengagement effectively maintains the parts against unintentional separation, yet allows ready latching and unlatching of the cover by manual pushing or pulling thereof by means of the lip 48 as previously described. As best shown in FIGURES 6 and 9, the tongue 50 is offset inwardly from the edge of the cover by a distance greater than the thickness of the adjacent wall 42 of the box, so as to allow a certain degree of tolerance and avoid the possibility of binding of the tongue against the wall. In the present instance, the cover 45 is illustrated as so dimensioned as to project outwardly beyond the planes of the walls 42, but it will be obvious that the inward spacing of the tongue 50 from the edge of the cover would be less if the cover were of less width, but would be sufficient to provide the clearance between the tongue and wall.

At the opposite side of the box, additional cover latching means are provided. As clearly shown in FIGURES 1, 6, 8 and 9, the latching means comprises a hook-like or L-shaped projection 53 integral with the other wall 42 and extending substantially in the plane thereof, projecting beyond the adjacent edge of the wall for a distance sufficient to accommodate the thickness of the cover 45 for frictional engagement therewith. The free end of the hook-like projection 53 may be provided with an angled or curved edge portion 54 to facilitate entry of the cover into engagement with the latch 53 as the cover is moved toward latched position. A relief 55 may be provided in the edge of the wall 42 adjacent the latch 53, and an inwardly directed flange 56 may be provided on the edge of the wall between the hook-like latch member 53 and the housing 15, similar to the flange 49 on the opposite wall 42 of the box 40. Although the flanges 49 and 56 are indicated as extending along the respective walls 42 substantially to the end of the junction box adjacent the housing wall 17, it will be apparent that the flange 49 may be eliminated except for the portion thereof engaged by the tongue 50, while the flange 56 may be completely eliminated. To accommodate the hook-like latch 53 and provide for engagement of the cover 45 therewith, the cover is formed with a marginal recess or cutout defined by a pair of inwardly extending edge portions 57 and 58 spaced apart along the edge of the cover by a distance greater than the extent of the latch 53 along the wall 42, the edge portion 57 nearer the hinged edge of the cover being shorter than the edge portion 58 nearer the opposite edge of the cover, with an edge portion 59 connecting the inner ends of the edge portions 57 and 58. As will be obvious, the edge portion 59 angles outwardly toward the adjacent edge of the cover 45, in the direction from the free or opposite edge of the cover toward the hinged edge, so that in latching movement the cover, if disposed too far off center, will be properly centered on the box 40 by engagement between the edge portion 59 and the L-shaped latch 53.

In FIGURE 10, there is shown a junction box generally designated 60 which is substantially similar to the junction box 40, having an intermediate hinging wall 41 from the opposite ends of which extend substantially parallel walls 42 provided at their ends remote from the wall 41 with flanges 61 by which the box 60 may be mounted on the fixture housing 15. The walls 42 along the edges thereof which are uppermost in a ceiling installation such as illustrated in FIGURE 1 are provided with flanges 62 to which is secured a top wall 63 extending from wall 41 and between the opposite walls 42. The wall 63 is similar to the top wall 43 of the junction box 40, but extends only part way from the wall 41 toward the flanged ends of the walls 42, substantially half the length thereof. The wall 41 may have a flange similar to the flanges 62 for securement of the wall 63. A cover 65 is hingedly and slidably mounted on the box 60 by means of hinged loops 46, as already described, extending through apertures 47 in the wall 41. The cover 65 is similar to the cover 45 of the box 40, but is of a dimension in the direction from the wall 41 toward the housing 15 substantially equal to that of the top wall 63. By reference to FIGURE 1, it will be evident that when the box 60 is mounted on the housing 15 and the baffle 44 is provided, a wiring compartment is defined by the transverse portion of the baffle, the walls 41 and 42, and the top wall 63 and cover 65, and that the air space between the wiring compartment and the housing is open at the top and bottom to provide for cooling flow of air. The cover 65 is provided with the latch tongue 50 having the indentation or depression 52 therein and engageable with the flange 49 provided on the edge of the adjacent wall 42, as in the case of the junction box 40, with a raised projection or bead 51 already described. In this instance, however, instead of the hook-like latch 53 provided on the opposite wall 42 of the box, latch means on the opposite side of the box and cover are afforded by a tongue and flange. The latch in this case is shown as provided by a tongue 66 substantially similar to the tongue 50, struck from the opposite marginal portion of the cover 65 and bent so that the free end extends generally parallel to the plane of the cover and offset therefrom by substantially the thickness of the inwardly directed flange 56 opposite the flange 49, provided on the opposite wall 42 substantially as in the case of the box 40. As in the case of the latch tongue 50, the tongue

66 is offset inwardly from the adjacent edge of the cover 65 a sufficient distance to provide a certain degree of clearance or tolerance relative to the inner surface of the adjacent wall 42. The tongue 66 is not provided with an indentation or depression, and the flange 56 is not provided with a raised element or bead 51 since frictional locking of the tongue and flange against relative movement from the latched cover position is sufficiently accomplished by the interengaging construction of the tongue 50 and flange 49, as previously explained. Of course, if desired, the flange 56 and tongue 66 might be provided one with a projection and the other with a hollow or indentation to supplement the locking engagement of the tongue 50 and flange 49 in latched position of the cover on the box. As in the case of the junction box 40, the flanges 49 and 56 may be eliminated except for the portions thereof required for engagement with the tongues 50 and 66. The push-pull lip 48 on the hinged edge of the cover 65 is provided as in the case of the cover 45.

It will be apparent that when the electrical fixture is installed in a ceiling, as shown in FIGURE 1, with a junction box such as the box 40 or 60 arranged in association therewith, open side down, the junction box cover when opened will hang substantially vertically from the wall 41, thus leaving the open bottom side of the box clear for access to the connections or to the wires to be connected together or inspected, and allowing manual reaching into the interior as may be necessary. If the junction box should be mounted in the ceiling with the open side in a vertical plane or at the top of the box, or when the fixture is mounted in a vertical wall instead of a ceiling, the cover in open position may tend to swing to or toward closed position under the influence of gravity or other forces, and thus interfere with access to the interior of the junction box. It is therefore desirable, at least in some cases, that some means be provided to insure that the cover of the junction box will be maintained in open position and prevented from unintended swinging toward closed position. In fact, this is desirable even when the junction box is mounted in the relation shown in FIGURE 1, since positive holding of the cover in the open position is thus assured. In FIGURES 11 and 12, there is illustrated one manner of making provision for such positive positioning of the junction box cover in open position which, while positive and effective, is very simple both to provide and to use and involves no significant increase in cost. A junction box, in this case designated as the junction box 40, is shown as arranged with its open side in vertical position, with the hinge wall 41 thereof in substantially horizontal position and defining the uppermost surface of the box. A cover 45 is hinged on the wall 41 by means of the elongated hinge loops 46 engaged through the apertures 47 in the wall 41, the cover in closed position depending substantially in engagement with the edges of the walls 42, as shown in FIGURE 11. At least one of the hinge loops 46 has struck therefrom a tang 70. The tang extends substantially tangentially of the curve of the loop at the end thereof adjacent the junction thereof with the cover 45, in a direction toward the plane of the cover. In the present case, the tang 70 is struck from an edge of the hinge loop 46, but it will be clear that it might be struck from the loop between the edges thereof. The tang is sufficiently short so that it may readily pass through the associated aperture 47, as will be clear from the drawings. In the closed position of the cover, the tang 70 is located exteriorly of the wall 41, as seen in FIGURE 11, but when the cover is swung to open position, the tang 70 is moved inwardly through the aperture 47 and by a slight movement of the cover is brought into engagement with the interior surface of the wall 41 adjacent the hinge aperture, thus holding the cover 45 against return to the closed position, as will be evident from FIGURE 12. When it is desired to close the cover 45, it is merely swung to a slightly more open position and shifted slightly to permit the tang 70 to pass through the aperture 47 to the outside of the wall 41, and by its disengagement from the wall 41 to allow the cover 45 to swing to the closed position. It will be evident that in the position of box 40 illustrated in FIGURES 11 and 12, the cover 45 in open position is subjected to the force of gravity tending to close it more than in any other position. Obviously, the cover may be maintained in open position by means of the tang or tangs 70 regardless of the direction in which the open side of the box faces. The angle at which the cover is disposed relative to the wall 41 in open position may be varied as desirable by changing the particular curvature of the hinge loop adjacent the cover, and the point at which the tang 70 is located along this curve.

Provision of a junction box with a cover which may readily be moved between open and closed positions and latched and unlatched, all without requiring tools or the use of removable or tightenable fastening means, greatly speeds the installation of the electrical fixture, and with the adjustable bracket arrangement disclosed reduces the necessary time to a minimum.

It will be understood that the disclosed embodiments of the invention are illustrative, and that many changes and modifications may be made without departing from the inventive concept disclosed, and accordingly it is not intended to limit the invention otherwise than as required by the appended claims.

We claim:

1. A recessed electric fixture adjustable for varying wall or ceiling thicknesses, comprising a fixture housing having a pair of opposed walls and an open side partially defined by said walls, a mounting bracket mounted on each of the opposed walls for slidable adjusting movement toward and from the plane of said open side, a pair of spaced portions on each bracket each having a plurality of apertures spaced therealong in the direction of said movement, corresponding apertures in said portions being aligned transversely of said direction, the spacing of said apertures along said bracket portions corresponding to different wall or ceiling thicknesses, an elongated resilient locking member of undulatory form extending transversely of said direction with end portions in overlying relation to the spaced bracket portions and bent for engagement in said apertures, a pair of elongated slots in said member, a pair of fastening means extending through said slots and securing the member to the adjacent wall, the resilient member having the portion intermediate the slots bowed away from the wall, whereby flattening pressure on the intermediate portion effects rocking of the outer portions on the wall about the areas containing the slots to retract said bent end portions from the apertures for allowing adjusting movement of the mounting bracket, and release of the intermediate portion allows the resilience of the member to bring the bent end portions into engaged position, and means on at least one of said housing walls and at least one of the bracket portions associated therewith co-operable to indicate the relative position of the bracket and housing.

2. A recessed electric fixture adjustable for varying ceiling thicknesses, comprising a fixture housing having a pair of opposed walls and an open side partially defined by said walls, a mounting bracket mounted on each of the opposed walls for slidable adjusting movement toward and from the plane of said open side, a leg portion on each bracket having a plurality of apertures spaced therealong in the direction of said movement by distances corresponding to different ceiling thicknesses, an elongated resilient locking member extending transversely of said direction with an end portion in overlying relation to said leg portion and bent for engagement in said apertures, a pair of longitudinally spaced openings in said member, a pair of fastening means extending through said openings and securing the member to the adjacent wall, the resilient member having the portion intermediate the slots bowed away from the wall, whereby said outer portions are rocked on said bearing portions from and to-

ward the wall by pressure upon and release of the intermediate portion to retract and return said bent end portions from and to the apertures for respectively allowing adjusting movement of the mounting bracket and securing the bracket in adjusted position.

3. A recessed electric fiixture adjustable to different ceiling thicknesses, comprising a fixture housing having a a pair of opposed walls and an open side partially defined by said walls, a mounting bracket mounted on each of the opposed walls for slidable adjusting movement toward and from the plane of said open side having a leg portion, a plurality of apertures spaced along said leg portion in the direction of said movement by distances corresponding to different ceiling thicknesses, an elongated resilient locking member extending transversely of said direction with an end portion in overlying relation to the leg portion and bent for engagement in said apertures, a pair of longitudinally spaced openings in said member of which at least the opening nearer said end portion is of elongated slot form, a pair of fastening means extending through said openings and securing the member to the adjacent wall, the resilient member having the portion intermediate said openings bowed away from the wall, whereby flattening of said intermediate portion effects rocking of the end portion away from the wall to retract the bent end portion from the apertures and allow adjusting movement of the mounting bracket, and release of the intermediate portion allows the resilience of the member to bring the bent end portion into engaged position.

4. A recessed electric fixture adjustable to different ceiling thicknesses, comprising a fixture housing having a wall

and an open side partially defined by said wall, a mounting bracket mounted on the wall for slidable adjusting movement toward and from the plane of said open side and having a leg portion, an elongated resilient locking member extending transversely of said direction having an end portion in overlying relation to the leg portion and a portion adjacent said end portion bowed away from the adjacent wall, fastening means between said portions of the resilient member mounting the member on said wall, whereby flattening pressure on said adjacent portion of the member effects rocking of the end portion on the wall to space the end portion from the bracket leg portion for allowing adjusting movement of the mounting bracket and release of the intermediate portion allows the resilience of the member to return the end portion into close relation with the leg portion, and means on the end portion and the bracket leg portion co-operable to effect engagement thereof upon said release for securing the bracket in adjusted position and to effect disengagement thereof upon application of said pressure for releasing the bracket for adjusting movement.

References Cited in the file of this patent

UNITED STATES PATENTS

166,183	Bridge	Aug. 3, 1875
2,121,231	Hartog	June 21, 1938
2,415,357	Kucki	Feb. 4, 1947
2,898,075	McGinty	Aug. 4, 1959
2,966,325	Pascucci	Dec. 27, 1960
2,979,223	Rideout	Apr. 11, 1961
3,018,083	Bobrick	Jan. 23, 1962