Nov. 10, 1959 F. C. WINKLER 2,912,568

LIGHTING FIXTURE

Filed June 3, 1955 4 Sheets-Sheet 1

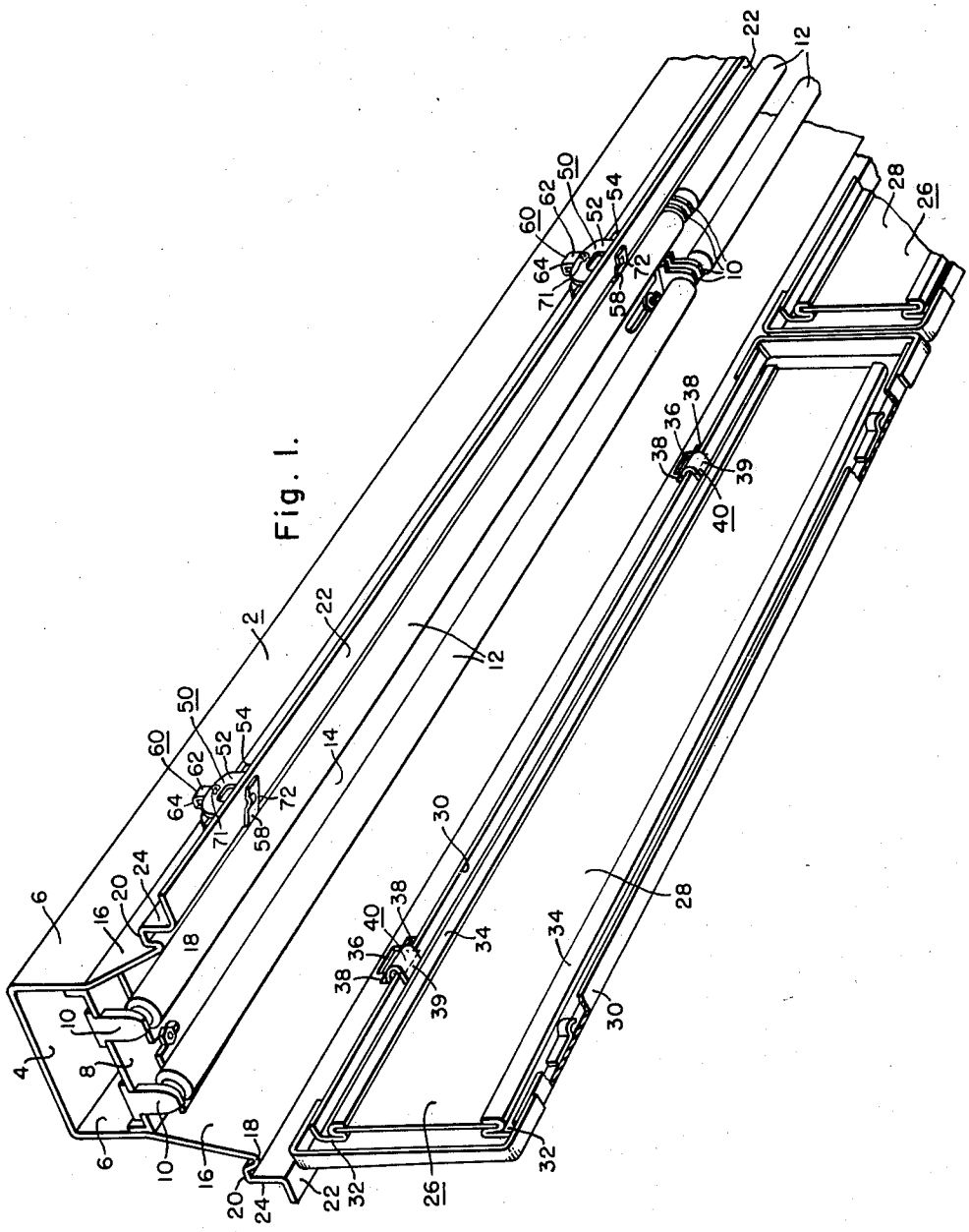


Fig. 1.

WITNESSES

Robert C. Baird

E. A. Breitstadt

INVENTOR

Frederic C. Winkler.

BY

Arthur T. Stratton

ATTORNEY

Nov. 10, 1959 F. C. WINKLER 2,912,568

LIGHTING FIXTURE

Filed June 3, 1955 4 Sheets-Sheet 2

Fig. 2.

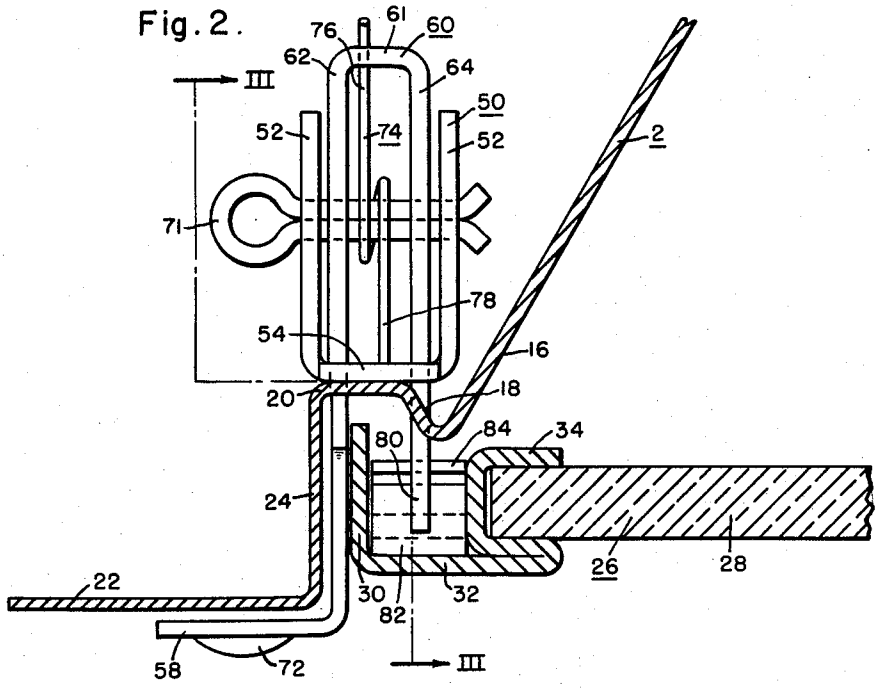


Fig. 3.

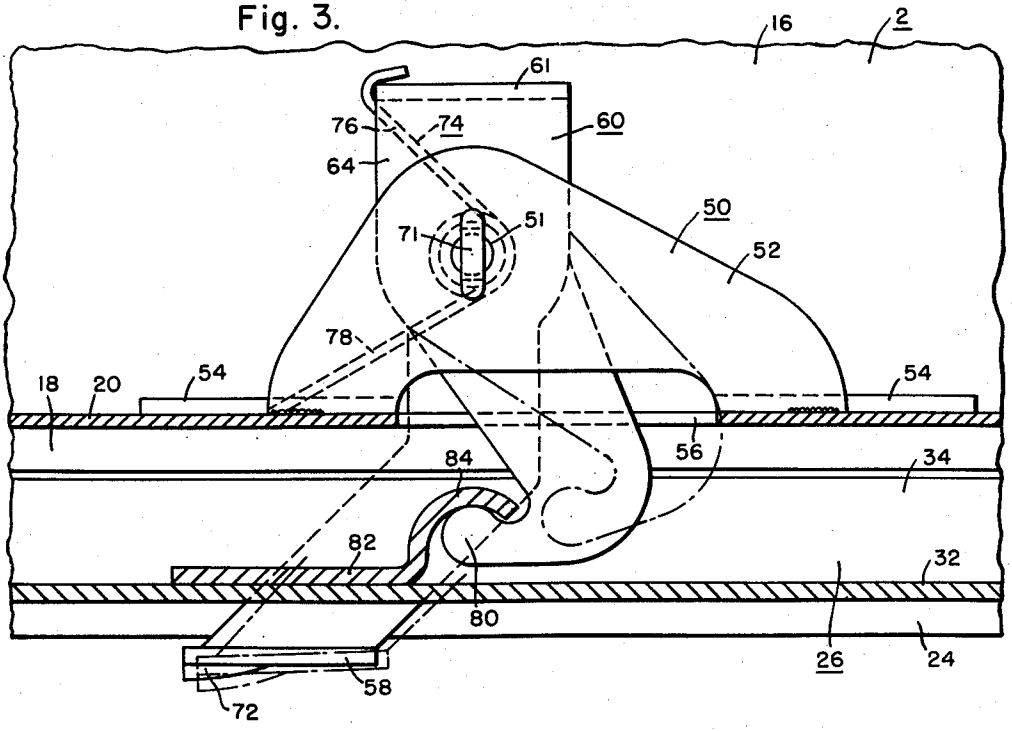


Fig. 4.

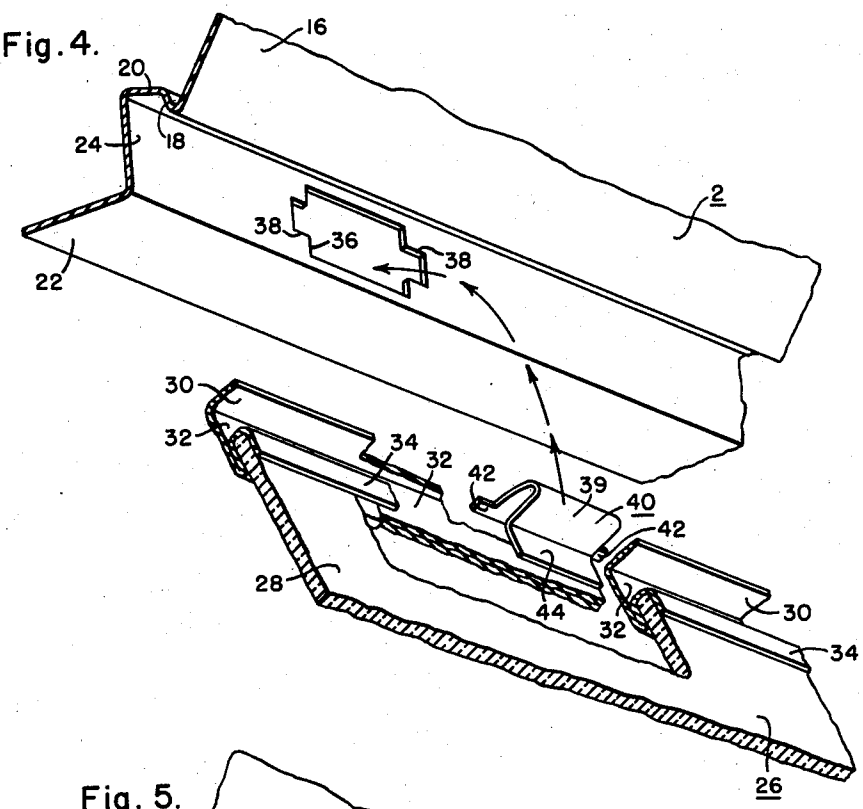
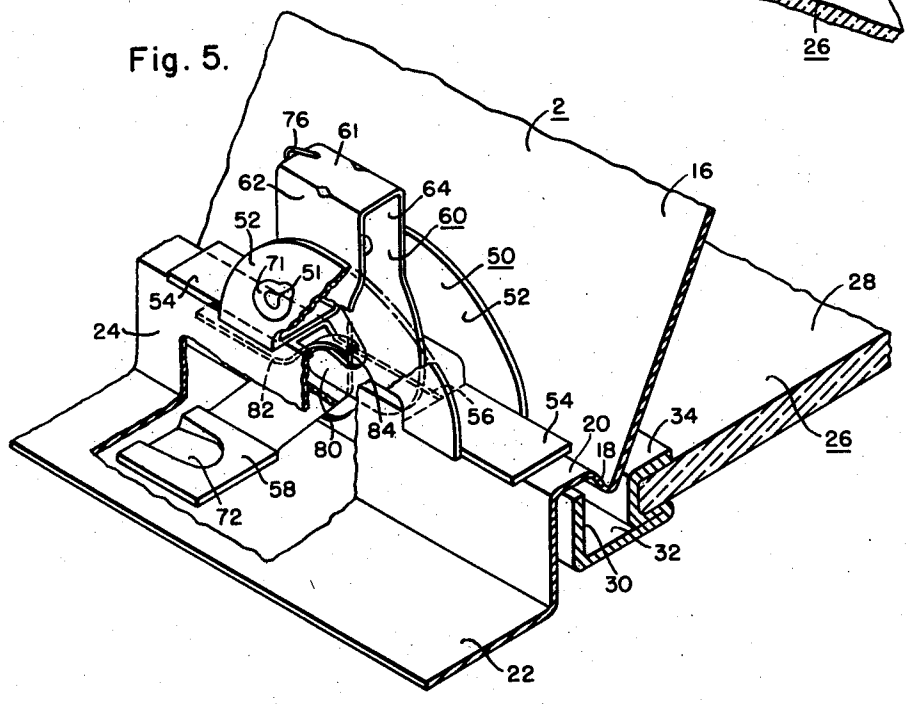

16
20
18
24
2
38
36
38
22
30
32
34
32
42
39
40
42
28
44
32
30
34
26

Fig. 5.

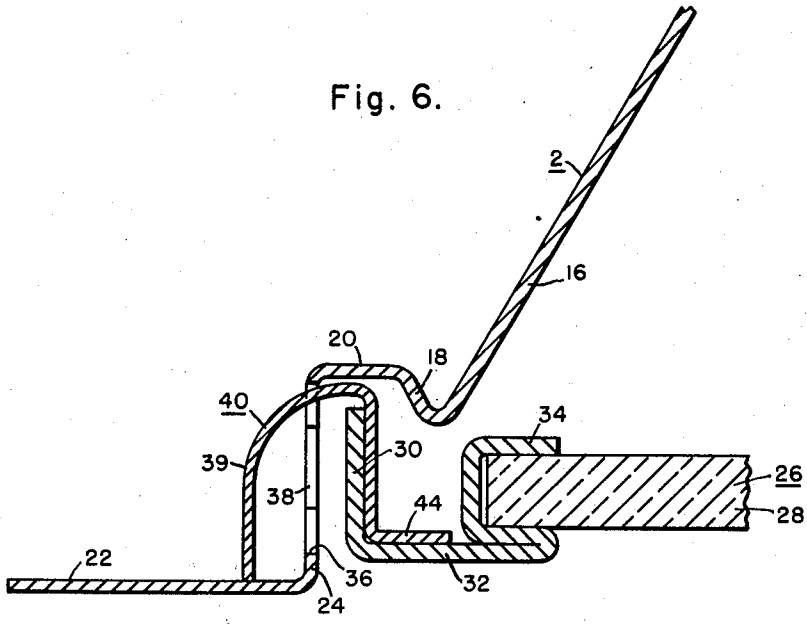

2
76
61
16
62
64
60
52
50
71
51
52
28
54
24
82
84
56
54
20
34
26
80
18
58
72
32
30
22

Nov. 10, 1959 F. C. WINKLER 2,912,568

LIGHTING FIXTURE

Filed June 3, 1955 4 Sheets-Sheet 4

Fig. 6.



United States Patent Office 2,912,568 Patented Nov. 10, 1959

2,912,568

LIGHTING FIXTURE

Frederic C. Winkler, Cleveland, Ohio, assignor to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania

Application June 3, 1955, Serial No. 513,039

7 Claims. (Cl. 240—147)

My invention relates to lighting fixtures and, more particularly, to a new and novel means for supporting and securing a door or louvered assembly to the housing of the lighting fixture.

As is well known in many lighting applications, it is desirable that the light source be supported in a fixture which may be located in a recess in the ceiling so that the lower edge of the lighting fixture is substantially flush with the ceiling. In many installations, it is also desirable that some means, such as a louvered assembly, or a light refracting or a light diffusing panel, be located below the light source so as to control the light distribution from the fixture. In fluorescent lighting installations, elongated housings are used to so support elongated fluorescent lamps, which has necessitated that elongated control panels be utilized. Such control panels are usually supported in elongated door assemblies which are removably secured to the body member of the troffer. Due to the fact that such door assemblies are located a considerable distance above the floor level and due to their elongated length, considerable difficulty is encountered in lowering or removing the door assembly for servicing needs such as cleaning or replacement of lamps. Further, as a safety precaution it is desirable that some positive locking means be employed to secure the door assembly to the housing of the troffer. Such locking means should also be quickly and easily operable without tools of any kind and should be located on the fixture so as not to provide any parts extending below the lower surface of the troffer which may be likely to cause injury or interfere with the outside maintenance of the fixture. With such a troffer it is also desirable that some means be provided for safely retaining the door assembly in the open position at the elevated heights in such a manner that there is substantially no likelihood that the door assembly could be accidentally detached and fall to the floor, and also so that it will not interfere with any maintenance operations.

Accordingly, one object of my invention is to provide a new and improved means for securing a door assembly to the housing of a lighting fixture which has releasing means located so as to be substantially flush with the lower surface of the fixture.

Another object of my invention is to provide a new and improved means for securing a door assembly to the housing of a lighting fixture which is completely concealed except for a small releasing portion located adjacent the lower surface of the fixture.

Another object of my invention is to provide a new and improved means for securing a control panel to the housing of a lighting fixture having one part on the housing which automatically engages another part on the control panel when the door assembly is placed in its operating position.

Another object of my invention is to provide a new and improved means for securing a door assembly to the housing of a lighting fixture which incorporates a spring loaded latch.

Another object of my invention is to provide a new and improved means for securing a door assembly to a lighting fixture which comprises a pivotally supported latch located externally of the housing for the fixture and which latch has one arm extending into the housing so as to be accessible from the underside of the lighting fixture.

Another object of my invention is to provide a new and improved means for pivotally supporting a door assembly from the side of the housing of a lighting fixture.

Another object of my invention is to provide a new and improved means for pivotally supporting a door assembly from one side of the housing of a lighting fixture comprising a concealed reversibly bent hinge plate.

Another object of my invention is to provide a new and improved means for pivotally securing a door assembly from one side of the housing of a lighting fixture which is pivotally movable on an upper surface of the housing.

A more specific object of my invention is to provide a new and improved means for pivotally supporting a door assembly along one side of a lighting fixture comprising an upwardly extending U-shaped member having one end of one arm secured to the control panel and the other end of the other arm provided with outwardly extending tabs at each side which extend through an elongated opening in the side of the housing.

Another object of my invention is to provide a new and improved means for pivotally supporting a door assembly along one side of a lighting fixture which cannot be removed from the fixture unless opened and moved upwardly with respect to the lighting fixture.

These and other objects of my invention will become more apparent upon consideration of the following detailed description of a lighting fixture constructed in accordance with the principles of my invention when taken in conjunction with the attached drawings, in which:

Figure 1 is a perspective view of an elongated fluorescent lamp fixture illustrating a door assembly supported along one side of the fixture housing in the open position, by means of hinges constructed in accordance with the principles of my invention;

Fig. 2 is a partial cross section view of one side of the fixture shown in Fig. 1 illustrating an end elevational view of a latch constructed in accordance with the principles of my invention for releasably securing a door assembly to the underside of the lighting fixture;

Fig. 3 is a partial side elevation and partial cross sectional view of the latch as shown in Fig. 2 taken along the line III—III thereof, and showing the operating arm thereof in elevation;

Fig. 4 is a perspective, exploded view of a segment of the housing shown in Fig. 1 through which a hinge extends, and the portion of the door assembly cooperable therewith;

Fig. 5 is a perspective view of the latch mechanism shown in Figs. 2 and 3 and a portion of the housing and door assembly; and

Fig. 6 is a cross sectional view of the segment of the housing and door assembly shown in Fig. 4, with the hinge and door assembly in the closed position.

When a lighting fixture is recessed into the ceiling so that the lower edge of the fixture is substantially flush with the ceiling, the lighting fixtures are more specifically designated as troffers and are provided with a housing which conforms to certain industry specifications so that such a housing may be supported in the various types of commercial ceilings in various well known manners. Referring to Fig. 1, it will be noted that such a troffer comprises an elongated, inverted, generally U-shaped housing 2 which may be made from any suitable material which has sufficient structural strength, and which

may readily be formed as hereinafter described, such as sheet steel. As shown, housing 2 comprises an elongated, longitudinally extending upper bight portion 4 which has a downwardly extending side wall at each of its sides, each of which extends the entire length of housing 2. Each side wall of housing 2 comprises an initial downwardly extending portion 6 which is approximately perpendicular to the bight portion 4 and which portions are substantially the same length so as to form an upper chamber in which various electrical components for electrically connecting and controlling the lamps in the troffer may be located.

A U-shaped bracket 8 is spaced downwardly from the bight portion 4 at each end of housing 2 which is of a size and which is formed from a suitable material, such as sheet steel, so that its upwardly extending arms may be secured to the downwardly extending portions 6 in any suitable manner, such as by being spot welded or fastened thereto. Brackets 8 are for the purpose of supporting lamp holders 10 thereon which may be secured to brackets 8 in any well known manner. Inasmuch as lamp holders 10 are located on brackets 8, brackets 8 are spaced according to the proper length of the lamp utilized in the fixture. Accordingly, it will be appreciated that in some cases where housing 2 has a sufficient length to support a plurality of lamps in tandem, additional brackets 8 must be provided intermediate the ends of housing 2. Thus, as shown, intermediate lamp holders 10 are supported in housing 2 by intermediate brackets (not shown) so that a standard fluorescent lamp 12 may be supported between spaced opposed pairs of lamp holders 10. Inasmuch as the spacing and number of lamps 12 and lamp holders 10 utilized in such a troffer may be varied and such components do not form a part of my invention, it is not believed that further description thereof is required. These particular components illustrated here are more particularly shown, described and claimed in the copending application Serial No. 348,666, filed April 14, 1953, now Patent No. 2,852,663, entitled "Luminaires" by Nick Stuffer and Leonard H. Seeley, which has been assigned to the same assignee as the assignee of this application. It will also be noted that brackets 8 are utilized to support an elongated reflector plate 14 therebetween above the lamps 12 in any suitable manner, which structure is also shown, described and claimed in the above-identified application. It will also be realized that various types and lengths of lamp 12, other than the particular representation of fluorescent lamps 12 illustrated, may be utilized in such a troffer.

Each side wall of housing 2 is also provided with an elongated downwardly and outwardly extending lower side wall portion 16 which extends from the lower edge of portion 6 so as to provide an enlarged opening for the housing below lamps 12. Each side wall 16 of housing 2 is, in turn, provided with a particular structure at its lower edge which is of standard size and shape so that housing 2 may be located in a definite well-known manner in various ceiling structures. Inasmuch as such lower structure of housing 2 is substantially fixed, it can be appreciated that any hinge and latch mechanism for use with housing 2 must be such that it can be used with such required lower structure of housing 2. As shown in Figs. 2, 3 and 6, the lower edge of each side wall portion 16 is provided with an upwardly and outwardly extending connecting portion 18 so as to form an upwardly open V-shaped bead at the lower edge of each side wall portion 16. Each side wall of housing 2 is also formed so as to provide a narrow upper flange portion 20 which extends laterally outward from the upper edge of connecting portion 18. Each side wall of housing 2 is also provided with a lower flange portion 22 which extends outwardly beyond the outer edge of upper flange portion 20 and which is spaced downwardly therefrom. As shown, the outer edge of flange portion 20 is substantially in vertical alignment with the inner edge of flange portion 22 so that flange portions 20 and 22 may be joined together by an integral vertically extending side portion 24.

As shown in Figs. 1 and 3, and as more fully shown and described and claimed in the above-identified application, an assembled door 26 is located so as to extend, when closed, between the opposed surfaces of side portions 24. For the purpose of describing my invention, it will suffice to note that each door 26 may comprise a rectangular frame having formed side members and end members for supporting the light control means such as a glass plate 28 therebetween. Although a glass plate 28 is shown, it is to be realized that other light control means such as a louver assembly may be similarly employed. It will be noted that a side member of door 26 is located adjacent each side portion 24 of housing 2 and comprises an elongated portion which is L-shaped in section having an outer upwardly extending leg 30 closely adjacent to, but spaced inwardly of, the side portion 24 of housing 2 adjacent thereto. Each leg 30 extends the length of housing 2 and has its upper free edge, when the door 26 is closed, spaced upwardly from the lower edge of the V-shaped bead formed by side wall portion 16 and connecting portion 18, so as to cooperate therewith to form a light trap. The other leg 32 of each of the L-shaped portions of each of the side members of door 26 extends inwardly below housing side wall portions 16 and is formed at its inner end to provide a U-shaped support 34 for the plate 28. Each support 34 is formed so that each of its arms is approximately parallel to leg 32 of the side member of panel 26 and so that their inner ends are substantially flush with the inner end of leg 32.

Referring to Figs. 1, 4 and 6, it will be noted that one side portion 24 of the housing is provided with a pair of longitudinally spaced rectangular openings 36 each of which is elongated longitudinally of housing 2 and has its sides spaced laterally inwardly of the upper and lower edges of side portion 24. Each end of each opening 36 is centrally provided with a longitudinally outwardly extending notch 38. Openings 36 are provided so that hinges 40, which are secured to and extend outwardly from a side member of the door 26 can pivotally support the door 26 from housing 2.

Hinges 40 are irregularly shaped and comprise a generally elongated inverted U-shaped portion 39, one arm of which is provided at each of its sides at its outer end with laterally outwardly extending tabs 42, and the other arm is provided at its outer end with a laterally outwardly extending flange portion 44. As shown in Figs. 6, the flange 44 of hinge 40 engages the upper surface of the side member of door 26 between leg 30 and the inwardly located U-shaped portion 34 and is secured thereto in any suitable manner, such as by being spot welded thereto. When hinges 40 are so secured to the door, the U-shaped portion 39 extends around the upwardly extending leg 30 of the side member of door 26 so that the arm having the tabs 42 thereon extends outwardly of, and is approximately parallel to the side member of door 26. By such a construction, the door 26 may readily be pivotally secured to the side member 24 of housing 2 by merely inserting the opposed tabs 42 on each hinge 40 into the opposed notches 38 at each end of its cooperable opening 36 inside member 24 until the tabs 42 are located outwardly of the side member 24 of housing 2. It will be noted however that the arms of hinge 40 are spaced apart a distance which is less than the distance between the lower edge of side member 24 and the lower edge of the notches 38 in side member 24. In view of such limited spacing of the arms of hinge 40, it will be obvious that the tabs 42 cannot be inserted through notches 38 when the arms of the hinge 40 are approximately perpendicular to the inner side of side member 24. Such insertion can be accomplished by raising the door 26 so that the arms of hinge 40 are disposed at a different angle with relation

to side member 24 and are located below flange 20 of housing 2. In actual practice, such insertion can readily be accomplished by holding the door so that the arms of hinge 40 extend upwardly and away from side member 24 at approximately an angle of 45 degrees, which corresponds to a position of the door at about 45 degrees to the vertical. Such angle is not critical, however, and a range of angles may be employed at which the tabs 42 may quickly and easily be inserted into notches 38. However, the angle that the arms of hinge 40 and door can be held, where tabs 42 can be inserted through notches 38, also has an upper limit due to the engagement of the bight portion of hinge 40 with the V-shaped portion of the side wall of the housing 2. Once such insertion of tabs 42 has been accomplished, the door 26 may be lowered so that the tabs 42 are located behind the portion of side portion 24 below each of the notches 38 at each end of opening 36. When tabs 42 are so located, the outer arm of hinge 40 will be located within the lower portion of opening 36 and will thus support door 26 when the door 26 is in the open position. In order to remove the door 26, the reverse procedure is obviously followed. Thus, it will be noted that with such a hinge construction the door 26 may easily be left in the open or vertical position with no possibility that it can be removed from the housng 2 by accidental bumping during servicing of the troffer, as the tabs 42 will engage the outer surface of side member 24, and leg 30 of the side member of door 26 will engage flange 22 of housing 2 upon upward movement of door 26 to prevent tabs 42 from being aligned with notches 38.

It will also be noted that when door 26 is in the vertical or open position that the undersurface of the outer arm of hinge 40 will engage the lower edge of opening 36, or that the lower edge of opening 36 functions as an initial pivot point around which the door 26 may initially be rotated or swung. When door 26 is swung from the open to the closed position shown in Fig. 1, the outer edge of the outer arm of hinge 40 will swing about the initial pivot point until it engages the upper surface of the lower flange portion 22 of housing 2 so as to provide a second pivot point for the hinge 40 on the housing 2 which is a major structural member. When door 26 reaches its closed position, the bight portion of U-shaped portion 39 will then be located in the upper portion of opening 36 so that its arms are approximately parallel to side portion 24. In order that the hinge 40 may function as so described, it is obvious that the longitudinal length between opposed ends of tabs 42 must be slightly less than the longitudinal distance between the bottoms of opposed notches 38 in side member 24 in order that tabs 42 may be inserted therein. Further, in order to insure that the tabs 42 engage the outer surface of side member 24 and that the U-shaped portion 39 may be swung through opening 36, the longitudinal length of the bight portion and the outer arm of the U-shaped portion 39 is just slightly less than the longitudinal length of opening 36. It is equally obvious that the hinges must be spaced on the adjacent side member of door 26 to correspond with the spacing of the openings 36 in side member 24. It should be noted that this particular type of hinge construction wherein the pivot point thereof shifts during pivotal movement of the door 26 not only permits the door to be moved to an open position where it depends vertically from the hinge, but in closing the door it will be moved up into the housing 2 to a position at least flush with the lower housing flanges 22, and even somewhat thereabove.

Referring to Figs. 2, 3 and 5, a latch mechanism, constructed in accordance with the principles of my invention, includes a holder 50 having a pair of elongated laterally spaced irregularly shaped side members 52 which are joined together at their lower ends by means of an integral laterally extending flat plate portion 54. Flat plate portion 54 of holder 50 also extends longitudinally outwardly beyond the sides 52 of holder 50 so that the holder 50 may be secured to the upper surface of the upper flange portion 20 of housing 2 in any suitable manner, such as by being spot welded thereto. As is obvious, holder 50 is secured to the flange portion 20 which is at the opposite side of the housing 2 from hinges 40. An intermediate opening is provided in plate portion 54, between the side portions 52 which is in alignment with a similarly sized longitudinally elongated opening 56 in flange portion 20 of housing 2, when the holder 50 is secured to the upper side of flange 20. As shown in Fig. 1, for an elongated door 26, a pair of longitudinally spaced holders 50 are secured to the same flange portion 20 and, accordingly, a pair of spaced openings 56 (Fig. 3) are provided in this flange portion 20 of housing 2. However, for the purpose of my invention, the manner in which holders 50 are secured to flange portion 20 is unimportant as long as openings 56 in flange portion 20 of housing 2 are in alignment with the opening between the side portions 52 in the flat plate portion 54 of holder 50.

Holder 50 is for the purpose of pivotally supporting a latch 60, and each side portion 52 of holder 50 is provided with an opening 51, which openings 51 are in alignment so that any suitable means for providing a pivot axis may extend therethrough. As shown, a steel cotter pin 71 extends through such aligned openings 51, although obviously other similar means could be provided.

Latch 60 (Figs. 3 and 5) comprises a generally inverted U-shaped upper portion 61 having laterally spaced arms 62 and 64 extending downwardly between the side portions 52 of holder 50. Each arm 62 and 64 is provided with an opening which may be aligned with openings 51 in side portions 52, so that the cottor pin 71 may extend therethrough to pivotally support arms 62 and 64 on the support 50. It will be noted that only a portion of arms 62 and 64 are in alignment with each other. As shown, the outer arm 62 is provided with an upper portion which extends downwardly from the upper bight portion 61 to the lower edge of opening 56 in flange 20, and, thereafter, arm 62 is provided with a lower portion which extends angularly toward the adjacent end of the housing. The outer arm 62 is located inwardly of adjacent side portion 24 and the inner surface of the outer side portion 52 of holder 50, and is provided at its lower edge with an integral tab 58 which extends outward below the lower flange portion 22 of the housing. By such construction, tab 58 may be engaged by hand and moved about the pivot axis formed by cotter pin 71 so as to cause its arms 62 and 64 to pivotally rotate about the cotter pin 71. If desired, tab 58 may be provided with a downwardly offset portion 72 to facilitate its being engaged manually.

Arm 64 of latch 60 is provided with an upper portion which extends downwardly from the bight portion 61 so as to be approximately parallel to the upper portion of arm 62 of latch 60. Such upper portion of arm 64 extends downwardly slightly below the cotter pin 71 and thereafter is provided with a lower portion which extends angularly outward from its upper portion in the direction opposite to that in which the lower portion of arm 62 extends from its upper portion. Such lower portion of arm 64 is provided at its lower end with an integral hook portion 80 which extends outward therefrom in the same direction as the lower portion of arm 62 extends from its upper portion. Hook portion 80 is rounded at its outer end so as to be cooperable with an elongated formed plate 82 which is secured to the door 26 so that the door 26 may be releasably secured to the housing 2 in its closed position.

As shown, plate 82 is provided with a flat elongated portion which is in engagement with the upper surface of leg 32 of the side member of door 26 adjacent the latches and is secured thereto in any suitable manner such as by being spot welded thereto. One end of plate 82 is provided with an upwardly extending arcuately shaped segment 84 which has a curvature so as to extend over the upper rounded end of hook portion 80 of arm

64. Plate 82 is of a width so as to be closely received between the leg 30 and support 34 of the side member of door 26, and has its uppermost point approximately in alignment with the upper edge of support 34 so as not to interfere with the operation of the door 26. As shown in solid outline form in Fig. 3, segment 84 of plate 82 is secured to the side member of door 26 so that when door 26 is in the closed position the hook portion 80 of arm 64 extends below segment 84 with the lower surface of segment 84 engaging the upper edge of hook portion 80. With such a structure, door 26 may easily be opened by merely manually pushing door 26 upwardly so that segment 84 disengages the hook portion 80 and thereafter pushing tab 58 of arm 62 so that latch 60 pivots about the cotter pin 71 to the dotted line position shown in Fig. 3, where the hook portion 80 of arm 64 has been rotated from beneath the segment 84. While so holding tab 58, door 26 may then be lowered about its hinges 40 as hook portion 80 is no longer located so as to be engageable with segment 84.

In order to provide a spring bias for the latch 60 a formed spring 74, which may be made of any suitable spring material which may be formed as described, such as spring steel wire, is provided, which comprises a single center coil through which the cotter pin 71 extends and a pair of outwardly extending arms 76 and 78. Arm 76 extends angularly from cotter pin 71 and is provided with a hook portion at its outer end which engages the end of the upper bight portion 61 of latch 60 located on the same side of the center of opening 56 as the pivot axis. Arm 78 extends angularly downwardly from cotter pin 71 and has its free end in engagement with the plate portion 54 of holder 50 located on the same side of the center of opening 56 as the pivot axis. By such construction movement of arm 62 of latch 60 in a counterclockwise direction (Fig. 3) about the pivot axis formed by the cotter pin 71 causes the arms 76 and 78 of spring 74 to be bent toward each other to stress the center coil so that upon release of tab 58, arm 76 of the spring 74 forces latch 60 in a clockwise direction and holds it at the latched position. When door 26 is open, spring 74 forces the arm 62 of latch 60 into engagement with the end of opening 56 adjacent thereto or forces the tab 58 into engagement with the lower surface of flange 22, or both.

In closing door 26 it is only necessary that the door 26 be forced about its hinges 40 upwardly towards the latch 60 so that the upper curved surface of segment 84 of plate 82 engages the lower rounded surface of hook portion 80 of arm 64 to rotate latch 60 in a counterclockwise direction about its pivot axis. Such counterclockwise rotation of hook portion 80 permits the segment 84 to slip past hook portion 80 and be again located above the upper surface of hook portion 80 whereat the spring 74 will force the latch 60 to move in a clockwise direction so that hook portion 80 again engages the undersurface of segment 84 as previously described. With such construction it will be noted that the spring 74 forces the hook portion 80 into engagement with the segment 84 at all times when the door 26 is in the closed position so as to provide a spring loaded latch for retaining door 26 in the closed position. As has also been indicated it is necessary to raise door 26 in order to lower the door 26 so that accidental engagement of tab 58 will not result in the door 26 being released.

Although the action of only one latch mechanism has been described it is obvious that the operation of a door having longitudinally spaced identical latches as shown in Fig. 1 can easily be operated in the same manner. Thus for example, one of the latch mechanisms may be reversed so that the lower exposed tabs 58 may be forced longitudinally toward or away from each other. Inasmuch as the lower surface of the door 26 is closely adjacent each of the tabs 58, tabs 58 may easily be pushed apart while still holding the door 26 upwardly away from the hook portions 80 of the spaced latched mechanisms.

Although the material from which the frame for the door 26, the holder 50, latch 60, plate 82 and hinge 40 may be selected from a wide variety of materials, it is to be realized that for the economy in manufacturing a material, which may readily be formed to provide the above-described structure which has sufficient structural strength such as sheet steel, is preferred for such components. Thus, it will be noted that by my invention I have provided both a hinge and a latching mechanism which are substantially completely hidden except for the minor outwardly extending tab or tabs 58 which is biased to a position close to the lower surface of the lower flange portion 22 of the adjacent side member of door 26 so as not to materially interfere with the overall appearance of the fixture. Such construction also provides a hinge and a latch which cannot be accidentally released under ordinary servicing conditions, nor do such operations require the use of any tools. A still further advantage of my invention is the fact that the door 26 may be slammed inwardly of the housing to provide the necessary actuation for the latch 60 to hold the door 26 in the closed position.

Having described a preferred embodiment of my invention it is desired that the invention be not limited to the particular form specifically illustrated and described herein as it will be readily apparent to persons skilled in the art that various changes and modifications may be made in the particular structures shown without departing from the broad spirit and scope of my invention. Accordingly, it is desired that my invention be given a broad scope and that it be limited only as required by the prior art.

I claim as my invention:

1. A lighting fixture comprising, a housing having a bottom opening, at least one side wall of the housing having at the lower edge thereof a flange which extends laterally outwardly thereof, an opening in said one side wall having its lower edge spaced above and parallel to said flange, a door having a closed position where it is located within said bottom housing opening, said door having at its side adjacent said one housing side wall a hinge member in the form of an elongated arm which extends laterally outwardly from the door through said one side wall opening from the inner side of said one side wall at a location above the lower edge of said wall opening, with its outer end being bent downwardly into engagement with the upper surface of said flange portion, said outer end of said arm being of a length greater than the distance from the lower edge of said opening to said flange portion so as to pivotally support said door when it is at its closed position, means preventing withdrawal of said arm through at least the lower part of said one side wall opening, so that during opening movement of the door from its closed position it will first move pivotally about the point of engagement of said arm and flange until the arm engages the lower edge of said side wall opening and thereafter it will move pivotally about that point of engagement.

2. A lighting fixture comprising, a housing having a bottom opening, at least one side wall of the housing having at the lower edge thereof a flange which extends laterally outwardly thereof, an opening in said one side wall having its lower edge spaced above and parallel to said flange, a door having a closed position where it is located within said bottom housing opening, said door having at its side adjacent said one housing side wall a hinge member in the form of an elongated arm which extends laterally outwardly from the door through said one side wall opening from the inner side of said one side wall at a location above the lower edge of said wall opening, with its outer end being bent downwardly into engagement with the upper surface of said flange, said outer end of said arm being of a length greater than the distance from the lower edge of said opening to said flange portion so as to pivotally support said door when it is at

its closed position, and said arm having a widened outer end portion of greater width than upper and lower portions of said side wall opening but of less width than an enlarged intermediate portion of said side wall opening so that the arm can be removed from the side wall opening only when the door is at an intermediate open position and is raised to align the outer end portion of the arm with said enlarged intermediate portion of said side wall opening.

3. A lighting fixture comprising, a housing having a bottom opening, at least one side wall of the housing having at the lower edge thereof a flange which extends laterally outwardly thereof, an opening in said one side wall having its lower edge spaced above and parallel to said flange, a door having a closed position where it is located within said bottom housing opening, said door having at its side adjacent said one housing side wall a hinge member in the form of an elongated arm which extends laterally outwardly from the door through said one side wall opening from the inner side of said one side wall at a location above the lower edge of said wall opening, with its outer end being bent downwardly into engagement with the upper surface of said flange, said outer end of said arm being of a length greater than the distance from the lower edge of said opening to said flange portion so as to pivotally support said door when it is at its closed position, means preventing withdrawal of said arm through at least the lower part of said one side wall opening, so that during opening movement of the door, it will first move pivotally about the point of engagement of said arm and flange until the arm engages the lower edge of said side wall opening and thereafter it will move pivotally about that point of engagement, and during initial closing movement of the door it will move pivotally about the latter point of engagement until the outer end of said arm engages the upper surface of said flange whereupon the door will move to its closed position by pivotal movement about the point of engagement of the outer end of the arm and the flange which is located outside the housing, to thus effectively lift the door bodily into the housing opening to its closed position.

4. A hinge mechanism for a receptacle and closure therefor, said mechanism comprising an arm which extends laterally outwardly from said closure with the outer end of said arm being bent at an angle to said closure, said outer end of said arm having an outwardly extending portion of greater width than the remainder of said arm, said receptacle having an opening therein and having a flange portion extending outwardly therefrom at a position adjacent said opening, said opening having an intermediate portion of a slightly larger size than said outer end of said arm and having portions adjacent each side of said intermediate portion respectively which portions are relatively shorter than the width of the remainder of said arm, said opening having its lower edge spaced above and parallel to said flange, said outer end of said arm being capable of engaging the upper surface of said flange member, said outer end of said arm being of a length greater than the distance from the lower edge of said opening to said flange portion so as to pivotally support said closure when it is in its closed position, said arm being removable from the opening only when the closure is at a partially open position and is moved toward said receptacle to align the outer end portion of the arm with said enlarged intermediate portion of said opening.

5. A hinge mechanism for a receptacle and closure therefor, said mechanism comprising a receptacle having an outwardly bent flange at one side, an opening in said receptacle having its lower edge spaced above and parallel to said flange, a closure having a closed position such that it lies in a plane substantially parallel to said flange, said closure having at its side adjacent said flange a hinge member in the form of an elongated arm which extends laterally outwardly from said closure through said receptacle opening at a location above the lower edge of said receptacle opening, with the outer end of said arm being bent at an angle to said closure so as to engage the upper surface of said flange, said outer end of said arm being of a length greater than the distance from the lower edge of said opening to said flange portion, to pivotally support said closure in its closed position, means preventing withdrawal of said arm through at least the lower part of said flange opening, so that during opening movement of said closure, it will first move pivotally about the point of engagement of said arm and said flange until the arm engages the lower edge of said flange opening and thereafter said arm will move pivotally about that point of engagement, and during initial closing movement of the door said arm will move pivotally about the latter point of engagement until the outer end of said arm engages the upper surface of said flange whereupon the door will move to its closed position by pivotal movement about the point of engagement of the outer end of the arm and the flange to thus effectively lift the closure bodily into a position substantially parallel to the flange.

6. A lighting fixture comprising, an elongated housing having a bottom opening, at least one side wall of the housing having at the lower edge thereof a flange which extends laterally outward thereof, an opening in said one side wall having its lower edge spaced above and parallel to said flange, a door of a size to be received in said housing bottom opening at its closed position, means for supporting said door including at least one hinge member secured to a side frame member and extending laterally out of the open side of said one channel frame member, said hinge member being bent downwardly to engage the upper surface of said flange, said outer end of said hinge member being of a length greater than the distance from the lower edge of said opening to said flange portion, said door being pivotally mounted about the point of engagement of the hinge member and the upper surface of said flange until the door is rotated to an intermediate open position thereafter said hinge member engaging the lower edge of said opening after which the door will move pivotally about this point of engagement, said door upon being closed pivotally rotating about the latter point of engagement until the outer end of the hinge member engages the upper surface of the flange whereby the door is pivoted about the point of engagement formed by the hinge member and the flange.

7. A lighting fixture comprising, a receptacle having a bottom opening at least one side wall of the receptacle having at the lower edge thereof a flange which extends laterally outwardly thereof, an opening in said one side wall having its lower edge spaced above and parallel to said flange, a closure having a closed position within said receptacle opening, said closure having at its side adjacent said side wall a hinge mechanism in the form of an elongated arm which extends laterally outwardly from the closure through said one side wall opening from the inner side of said one side wall at a location above the lower edge of said wall opening, with its outer end being bent downwardly into engagement with the upper surface of said flange portion, said outer end of said arm being of a length greater than the distance from the lower edge of said opening to said flange portion so as to pivotally support said closure when it is in its closed position, means preventing withdrawal of said arm through at least the lower part of said one side wall opening, so that during opening movement of the closure it will move pivotally about the point of engagement of said arm and flange until the arm engages the lower edge of said side wall opening and thereafter it will move pivotally about that point of engagement.

(References on following page)

References Cited in the file of this patent

UNITED STATES PATENTS

1,029,629	Pleins	June 18, 1912
1,485,398	Ledwinka	Mar. 4, 1924
2,302,661	Benson	Nov. 24, 1942
2,321,099	Naysmith	June 8, 1943
2,394,395	Morand	Feb. 5, 1946
2,440,186	Runge	Apr. 20, 1948
2,504,716	Morand	Apr. 18, 1950
2,566,015	Borchers	Aug. 28, 1951
2,684,498	Zingone	July 27, 1954