

March 5, 1935.

A. J. SWEET
CEILING LIGHTING UNIT

1,992,973

Filed Oct. 1, 1932

4 Sheets-Sheet 1

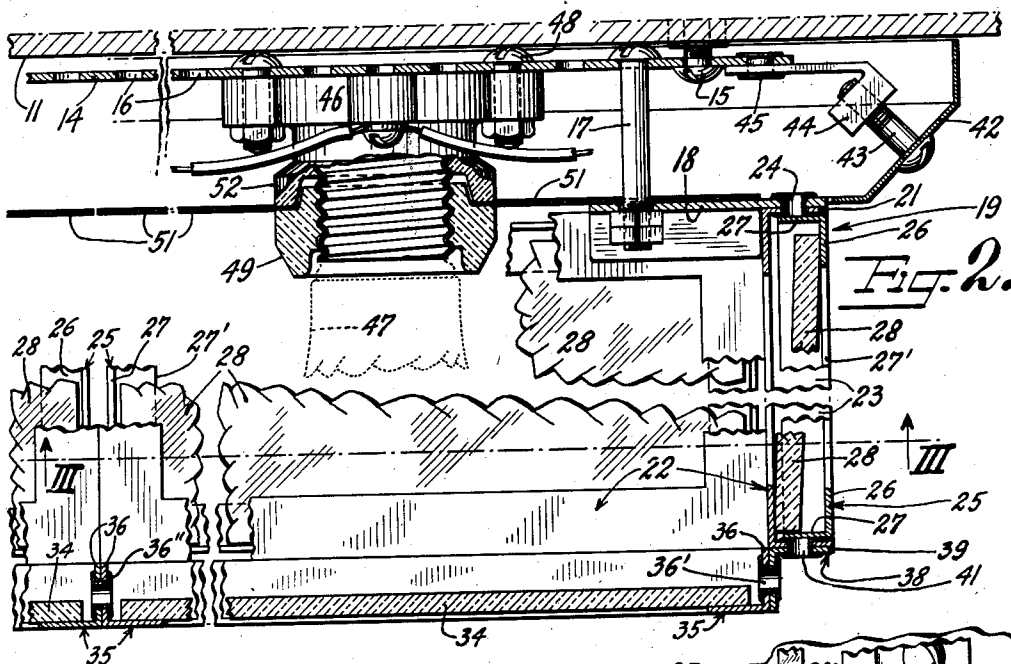
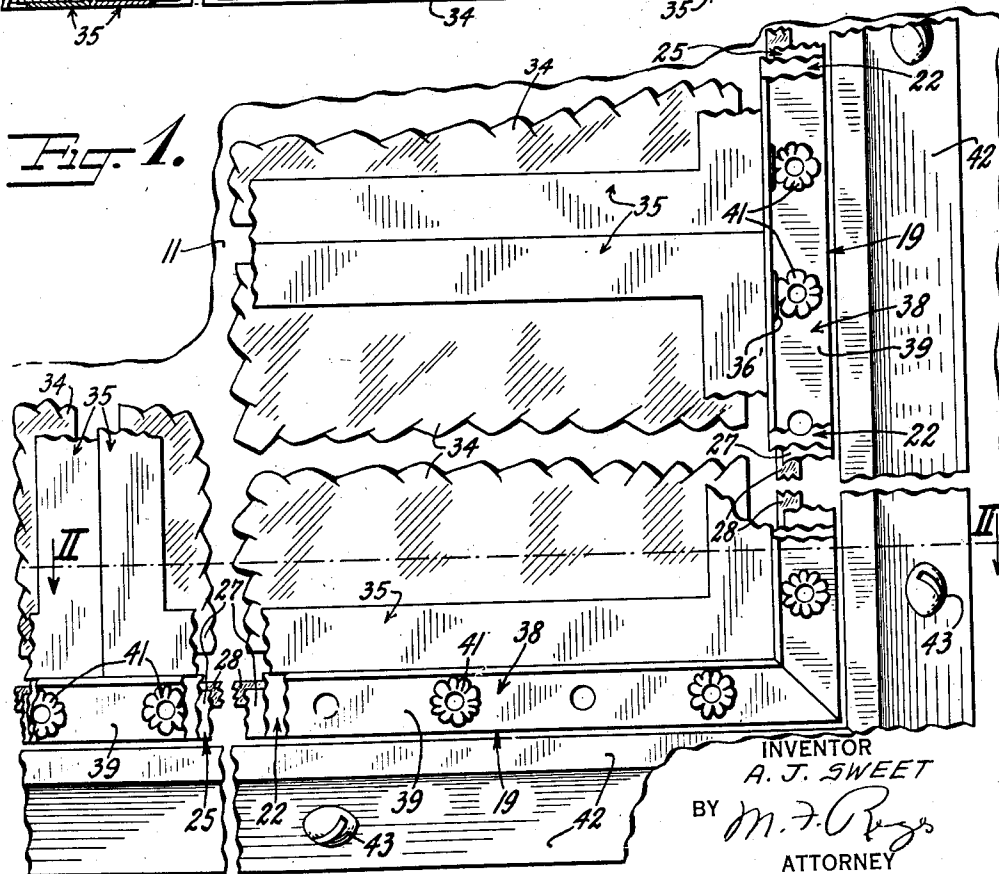


Fig. 1.



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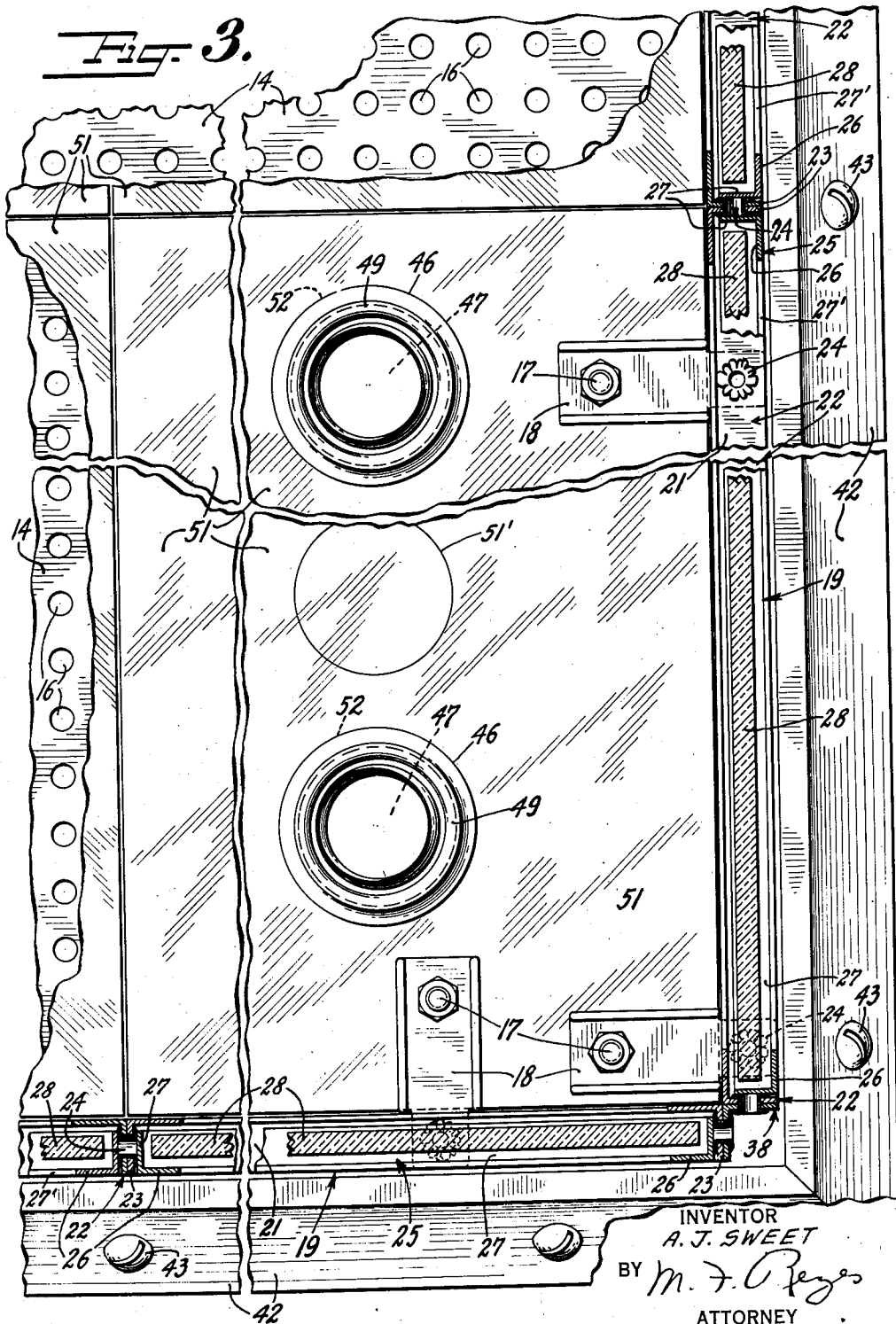
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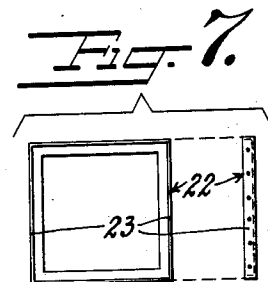
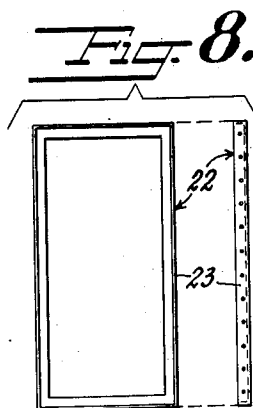
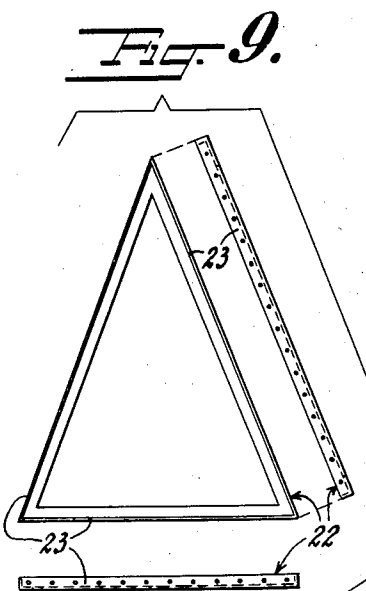
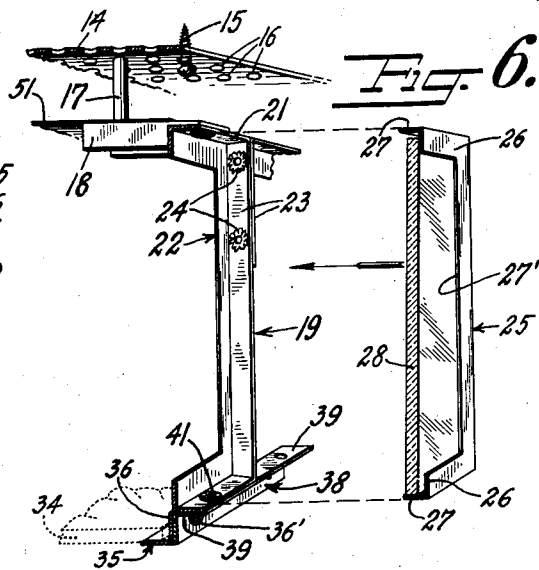
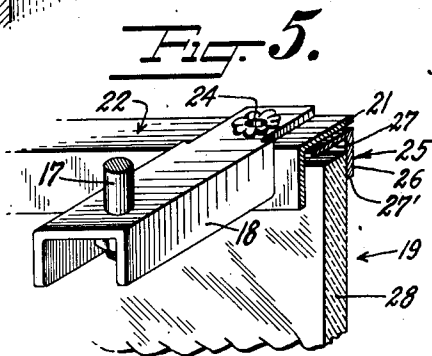
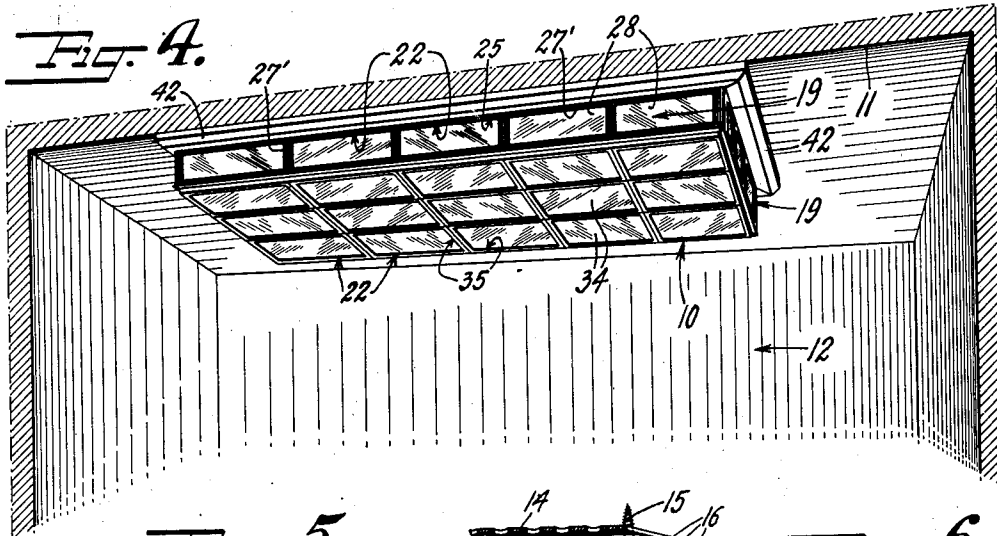
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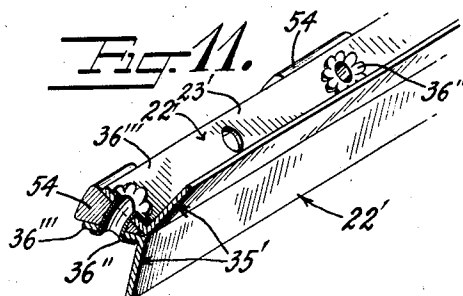
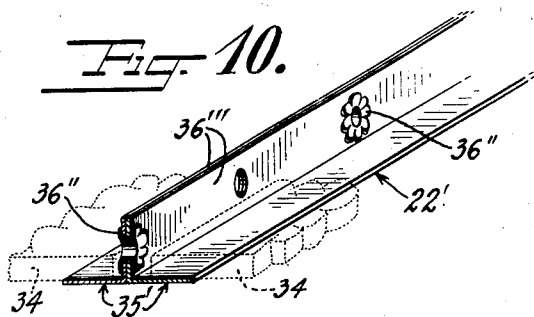
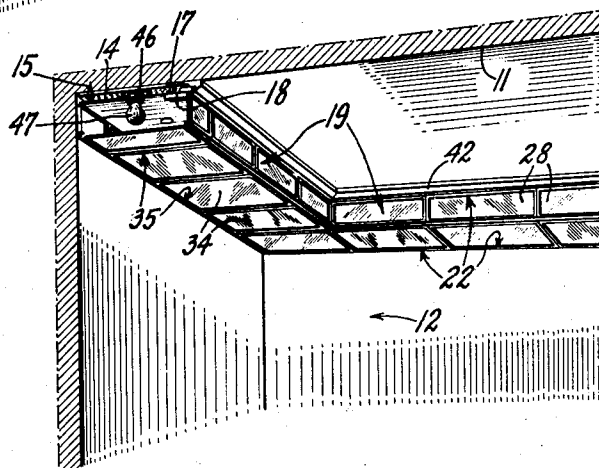
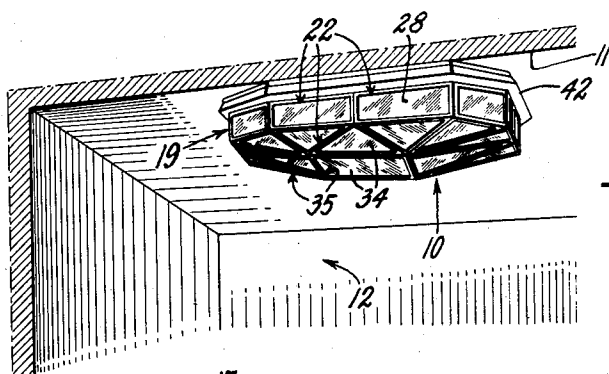
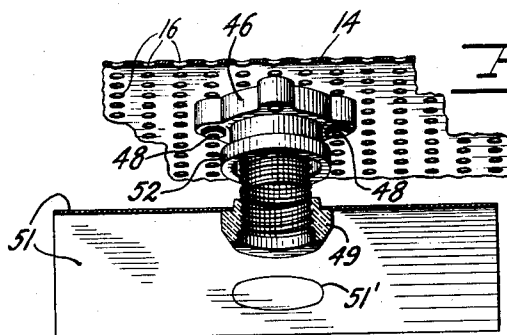
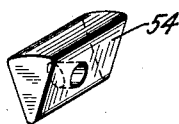


Fig. 12.



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UNITED STATES PATENT OFFICE

1,992,973

CEILING LIGHTING UNIT

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Application October 1, 1932, Serial No. 635,758

6 Claims. (Cl. 240—78)

This invention relates to artificial lighting and relates more particularly to fixtures arranged to provide a ceiling or skylight type of unit.

Heretofore, it has been proposed to provide 5 rooms with various types of lighting fixtures and such fixtures have been in the nature of overhead lighting units.

It is an object of the present invention, how-
ever, to provide an overhead unit which may be
10 supported on the ceiling of a room in such a man-
ner as to provide a skylight for artificial illumi-
nation.

Another object of the invention is to provide
a skylight type of unit of simple construction and
15 convenient to install.

Another object of the invention is to provide
a skylight unit for the ceiling of a room in which
the various component parts may be quickly as-
sembled and wherein means are provided to
20 facilitate the operation of supporting the fixture.

A further object of the invention is to provide
a supporting structure for ceiling lighting where-
by units of various constructional forms may be
conveniently and adequately supported.

Another object of the invention is to provide
a supporting plate for a lighting source within
a ceiling light unit whereby the light source may
be quickly and conveniently secured in a given
position within the unit.

Other objects and advantages of the invention
will be more clearly understood from the follow-
ing description together with the accompanying
drawings in which:

Figure 1 is a fragmentary view of a ceiling
35 lighting unit constructed in accordance with the
present invention, the view being taken from
beneath the fixture and looking upwardly;

Figure 2 is a fragmentary cross-sectional view
taken on line II—II of Figure 1, and shows the
40 position of the light units with respect to the
light transmitting portions of the unit;

Figure 3 is a view taken on line III—III of
Fig. 2;

Figure 4 is a perspective view of a fixture con-
45 structed in accordance with the present inven-
tion showing a box-like or parallelogram forma-
tion;

Figure 5 is a detail perspective view showing
a portion of the frame for holding a glass plate
50 and means for connecting the frame to a sup-
porting plate;

Figure 6 is a perspective view showing a sup-
porting plate and means for connecting a struc-
ture in position with respect to the supporting
55 plate;

Figure 7 shows a front and edge view of a
square frame for holding a glass plate;

Figure 8 shows a front and edge view of an ob-
long frame for holding the glass plate;

Figure 9 shows front and edge views of a tri-
angular frame for holding a glass plate; 5

Figure 10 is a perspective view showing the
edges of two frames secured together;

Figure 11 is a perspective view showing the
edges or flanges of two frames secured together 10
and having wedge members to hold the frames
in angular relation;

Figure 12 is a perspective view of a wedge for
insertion between the flanges of the frames;

Figure 13 shows a perforated supporting plate 15
and a lamp socket attached thereto having means
for supporting a reflector;

Figure 14 is a perspective view of another de-
sign of ceiling fixture or skylight of a substan-
tially dome shape; and 20

Figure 15 is a perspective view of another modi-
fied form of the skylight structure wherein the
unit constitutes a border lighting around the
ceiling.

The structure of the present invention insofar
as the fabrication of the various framework for
holding the light transmitting plates is con-
cerned, follows the construction as set forth in
my copending application Serial No. 630,503 filed
August 26, 1932. 30

As described in the said copending application,
the unit is built up of separate members in the
form of individual frames. These frames are
each provided with flanges and are connected by
35 riveting to provide a proper formation of wall
structure to constitute the lighting unit. The
structure described in the said copending appli-
cation, however, was particularly related to what
is termed therein as cove lighting for the interior
of a room and the light transmitting wall was 40
secured to the ceiling and side wall so that it
bridged the corners giving an arcuate arrange-
ment.

The present invention is directed to the provi-
sion of an overhead artificial skylight and pro-
45 vides a structure wherein the various elements
of the skylight structure may be quickly assem-
bled and positioned, and furthermore, the struc-
ture is so arranged that the assembly may be
quickly and conveniently rearranged and the 50
position of the light units may also be changed
and conveniently positioned to meet the design
of the unit.

As shown in Fig. 4, the present invention pro-
vides an overhead or ceiling unit 10 which may 55

be secured to a ceiling 11 of a room 12. Ordinarily, in the construction of such a unit it would be necessary to provide special means such as supporting bolts and stays which would have to be secured to the ceiling by drilling et cetera, to provide the necessary depending supporting means.

Under these conditions, the installation of a unit is not only troublesome and costly from a labor standpoint, but it becomes necessary to mar the ceiling and also makes it impractical to change or otherwise substitute one form of light unit for another.

In accordance with the present invention, I provide what may be termed a universal overhead support in the form of a perforated plate 14, (see Figs. 2, 3, 6 and 13). The plate 14 may be secured to the ceiling by means of tap or expansion bolts 15. These bolts may be secured to the ceiling in accordance with the practice of securing weighted bodies to plaster or similar walls. By reason of the universal plate, however, only a minimum amount of supporting bolts are necessary and when the plate is once secured to the ceiling, various types of fixtures may be held in position without further connection with the actual ceiling of a room and one or more light giving elements may be secured in various positions in the fixture.

In accordance with the present invention, the plate 14 is provided with perforations 16 which perforations are sufficient in number to provide apertures to receive bolts 17. The bolts 17 may extend downwardly and through a channel bar 18 extending inwardly from and secured to a side wall 19 of a unit. The channel bar may be riveted or otherwise secured to a top flange 21 of what may be termed a carrier frame 22. The carrier frames 22 are provided with side flanges 23 and are positioned end to end and secured by rivets 24 (see Fig. 6), constituting the side walls 19 or skeleton structure.

The carrier frames 22 are, as shown, positioned with their border or lateral flanges extending outwardly and thus each frame is in the nature of a receptacle to receive a frame consisting of a flange 26 and surrounding border or lateral flanges 27. The frame 25 is relatively narrow and thus provides an opening 27' so that a light transmitting element, as for example a glass plate 28, when positioned in the frame, as shown more clearly in Fig. 6, will be held by the edges of the frame but light will be permitted to pass through by reason of the opening 27'. The frame 25 which may be termed a plate retainer is so constructed as to tightly fit the inner surfaces of the lateral flanges of the fixed frame 22. Thus when the frames 22 are connected to provide a skeleton structure, the retainer frames 25 with the plates positioned therein may be forced into position in the frames 22 and the plate transmitting frames will thus be retained.

It has been found that by constructing the retainer frames with suitable outside dimensions that these frames when forced into position by a straight thrust; that is, by keeping the frames 25 and 22 parallel, the frictional engagement is sufficient to hold the retainer frames in position. With this construction it will be evident that any tendency of the retainer frame to tip out holds it tighter and that in order to remove the same it must be pulled out in a straight line or with the frame portions of these elements in parallel relation. By reason of this construc-

tion it is possible to conveniently remove a frame and change the glass plate whereas the retainer frame plate when once positioned cannot become accidentally dislodged.

For the purpose of holding bottom light transmitting plates 34, frames 35 are provided. These frames are similar to the frames 22 above described and each is provided with flanges 36. As shown more clearly in Fig. 1 each of the four sides of the construction shown is provided with an angular member 38 and the lower frames are secured to these members by means of rivets 36' passing through flanges 36 and the flanges of the angular members 35 in contact with the flanges 36. The side carrier frames 22 rest on the flanges 39 of the angular members and these parts are secured by rivets 41. The flanges of adjacent carrier frames 22 may be secured by rivets extending through their side adjacent flanges and the same is true of the frames which constitute the bottom wall of the unit which latter frames are secured together by rivets 36' as shown in Figs. 2, 10 and 11.

For the purpose of enclosing and giving a symmetrical appearance to the upper edge of the unit, a cover or casing 42 is provided. This cover may be of relatively light weight metal and is held in place by a tap bolt 43 threadedly engaged with a lug 44 extending from and secured by rivet 45 to the plate 14. It will be evident that it is important in a fixture of the present make to provide means for conveniently and expeditiously supporting the light units such as electric incandescent lamps in proper position with relation to the light transmitting walls of the unit.

In the present construction, by reason of the perforated supporting plate 14, sockets 46 for supporting lamp 47 may be conveniently and quickly secured by means of bolts 48 to the plate 14. By reason of the numerous perforations and their arrangement with respect to centers, a socket may be secured in one of a great number of different positions. In the construction shown in Fig. 2, the socket is provided with a screw collar 49 of insulative material and a reflector 51 is clamped between the collar and the body 52 of the base.

By this arrangement the reflectors may be readily applied or removed as desired. The reflector may extend in the form of a plate above the lighting elements and may be provided with a series of "knock-out" portions 51' so that the apertures may be provided at different places to receive the sockets 46. If desirable a decorative molding or fillet may be provided along the edge of the unit.

Although structures, shown in Figs. 4 and 15, are provided with planary walls, it may be desirable to make a structure as shown in Fig. 14 wherein the various plates which constitute the bottom wall and the plates constituting the side walls are disposed in angular relation. For this purpose, wedge members 54, as shown in Figs. 11 and 12, may be interposed between the side flanges 23' of the carrier frames 22' so that when the frames are riveted together, by rivets 36'' the flanges 35' will be disposed in the proper angular relation depending upon the dimensions of the wedge pieces 54. This structure and the method of fabrication is more clearly described in the above mentioned copending application.

It will be evident that by reason of the present invention a ceiling or skylight lighting unit may be constructed in all its parts in a factory and

packed in a very compact form for shipment to the particular room in which it is to be installed. The workmen then position the various bolts 17 in the plate 14 and secure the sockets 46 thereto in the designated positions after which the plate 14 is secured to the ceiling by the bolts 15. The threaded lugs 44 for supporting the casing 42 may be secured to the plate 14 at the factory or may be riveted thereto on the job. The light transmitting unit may then be assembled by riveting the various carrier frames together to provide a skeleton structure the side walls 19 of which receive the retainer frames 25. The light transmitting plates 34 are held by gravity in the frames 35. The skeleton frame may then be secured in position by means of the bolts 17 and the retainer frames with the light transmitting plates therein may be forced into their respective positions to complete the light-transmitting walls.

It will be appreciated that although a sky-light unit constructed in accordance with the present invention has all the appearance of being a part of the architecture of the room, it is, in fact, readily removable and may be changed from a rectangular or square design type of unit to a more ornamental or polygonal sided design.

The invention, therefore, is of relatively great importance in providing an effective ornamental lighting unit which at the same time may be installed at relatively low cost with respect to the structure thereof and with a minimum amount of labor in assembly and installation.

Although preferred embodiments of the invention are shown and described herein, it is understood that other modifications may be made thereto without departing from the spirit and scope of the invention as set forth in the appended claims.

What is claimed is:

1. A light unit comprising a plurality of frames having flanges, means for securing flanges of adjacent frames together to provide a skeleton structure, retainer frames for light transmitting plates, said retainer frames having flanges arranged to frictionally engage the flanges of said first mentioned frames and plates loosely retained between said frames.

2. A lighting unit comprising a plurality of frames having flanges, means for securing flanges of adjacent frames together to provide a skeleton

structure, retainer frames for light transmitting plates, said retainer frames having flanges arranged to frictionally engage the inner surfaces of the flanges of said first mentioned frames.

3. A lighting unit comprising a plurality of carrier frames for light transmitting plates, each of said frames having laterally extending peripheral flanges, a removable retainer frame frictionally engaging said flanges to removably retain a plate with its edges between said retainer plate and said carrier frame and means for connecting the flanges of said carrier frames in adjacent relation to form a light transmitting partition.

4. A lighting unit comprising a structure composed of carrier frames for light transmitting plates, each of said frames comprising strips bent to form angle members having one flange to receive a plate and a removable plate retainer member formed from strips bent to form angle members and proportional so that the peripheral flanges thereof frictionally engage the inner faces of the peripheral flanges of a carrier member to removably retain a plate in said carrier frame.

5. A lighting unit comprising a structure composed of carrier frames for light transmitting plates, each of said frames comprising strips bent to form angle members having one flange to receive a plate and a removable plate retainer member formed from strips bent to form angle members and proportioned so that the peripheral flanges thereof frictionally engage the inner faces of the peripheral flanges of a carrier member to removably retain a plate in said carrier frame, and means for securing the peripheral flanges of said carrier frames together to provide a light transmitting partition.

6. A structure for holding light transmitting plates comprising a plurality of frames having peripheral flanges, means for connecting the flanges of adjacent frames together to provide an enclosure having a bottom wall and side walls consisting of a plurality of frames to receive plates, retainer frames for loosely holding said plates in said first mentioned frames, means for securing the edges of said side walls adjacent to the wall of a room and means for supporting a light source within said enclosure.

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