

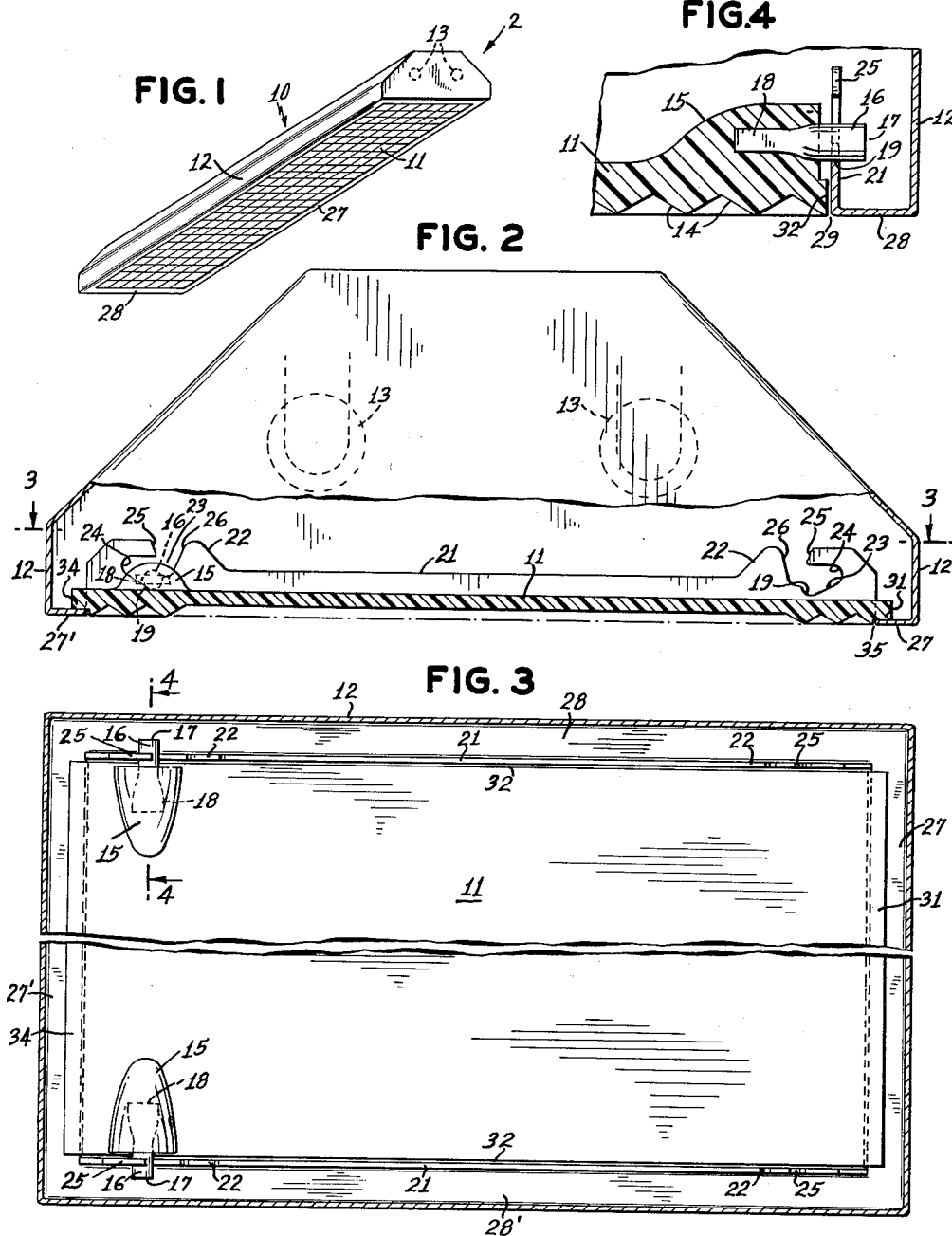
April 4, 1961

L. B. COHEN
LIGHT FIXTURE

2,978,575

Filed April 9, 1958

2 Sheets-Sheet 1



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FIG. 5

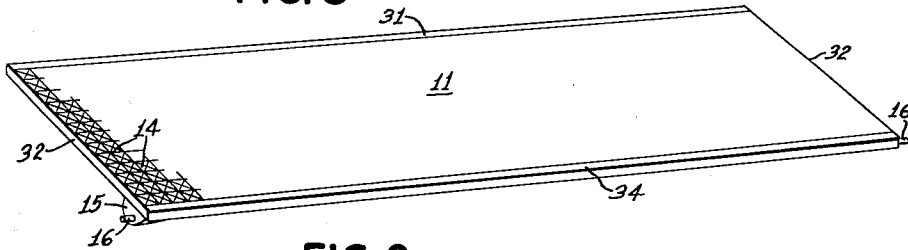


FIG. 6

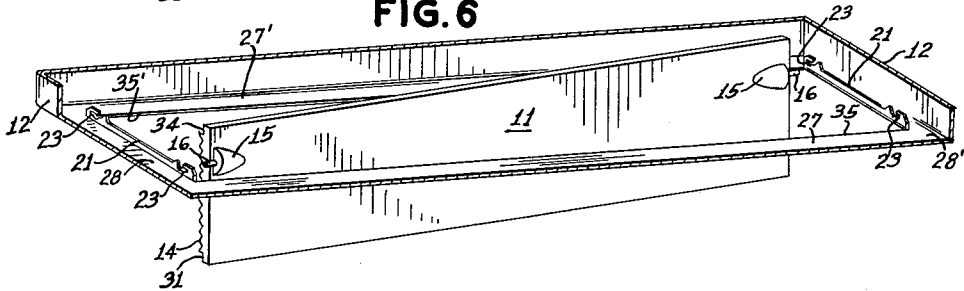


FIG. 7

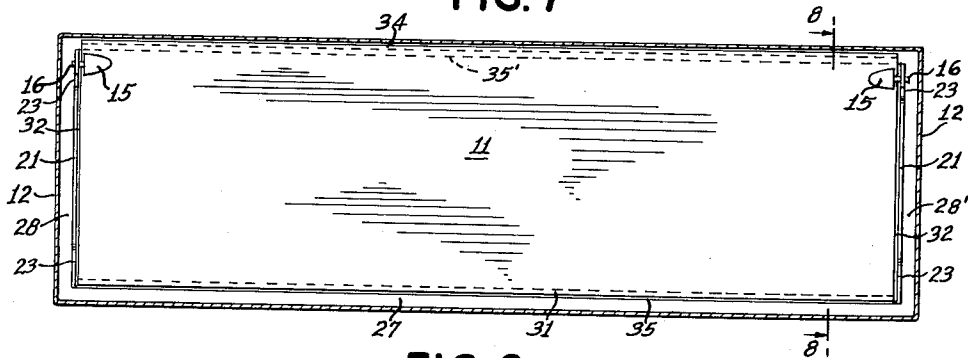
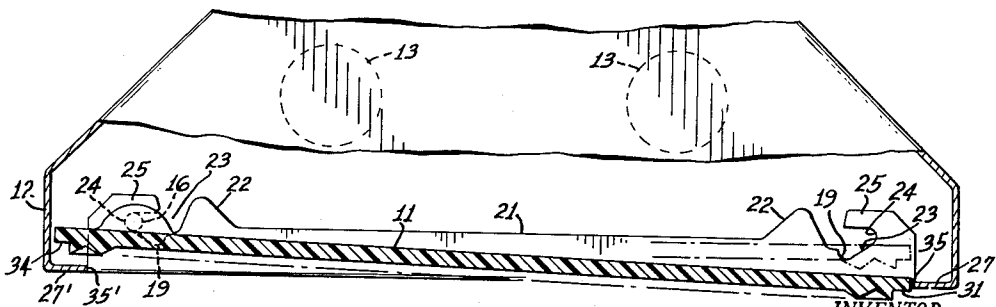


FIG. 8



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2,978,575

LIGHT FIXTURE

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Filed Apr. 9, 1958, Ser. No. 727,391

6 Claims. (Cl. 240—147)

This invention relates to lighting fixtures and to means for supporting a diffuser in a lighting fixture.

It is a primary object of the invention to eliminate the need for a metal frame such as heretofore ordinarily employed for supporting the diffusers in lighting fixtures.

It is another object of the invention to provide means for easily placing a diffuser into supporting position in the housing and easily removing same from the housing of a lighting fixture without the use of tools.

It is another object of the present invention to provide a lighting fixture in which the diffuser can be removably mounted and without the need for hinges.

It is still another object of the invention to provide means for mounting a diffuser into a light fixture housing wherein the operator can easily install and remove the diffuser from the housing merely by "feel" and without the necessity for visually guiding the supporting member of the diffuser into its final resting position.

It is still another object of the present invention to provide a lighting fixture having a removable diffuser capable of being installed from either of two opposing sides of the lighting fixture, to allow for installations where there is insufficient clearance from one side for adequately maneuvering the diffuser into entry position.

Other objects and many of the attendant advantages of this invention will be readily appreciated as the same becomes better understood by reference to the following detailed description when considered in connection with the accompanying drawings, wherein:

Fig. 1 is a perspective view of a light fixture according to the invention;

Fig. 2 is an end view, partly in section, looking in the direction of arrow 2 of Fig. 1;

Fig. 3 is a sectional plan view, taken along line 3—3 of Fig. 2 in the direction of the arrows, and foreshortened in length;

Fig. 4 is a fragmentary section, taken along line 4—4 of Fig. 3;

Fig. 5 is a perspective bottom view of a diffuser according to the invention;

Fig. 6 is a diagrammatic perspective view illustrating the method of installing and removing the diffuser into and out of the housing;

Fig. 7 is a diagrammatic plan view illustrating the diffuser in an intermediate position during installation; and

Fig. 8 is a fragmentary end view, partly in section, taken along line 8—8 of Fig. 7 in the direction of the arrows.

According to the present invention, interfitting parts are provided on the diffuser and on the housing whereby bearing members integral with the diffuser are supported and removably retained by a member formed integral with the lamp housing.

Referring now to the drawings, wherein like reference characters designate like or corresponding parts throughout the several views, there is shown in Fig. 1 a lighting

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fixture designated generally as 10, having a housing 12 provided with a light opening defined by the bottom peripheral edge of the housing. Located within housing 12 are suitable sources of light 13, for example, fluorescent tubes.

The peripheral portion of light housing 12 which defines the light opening therein comprises longitudinal flanges 27 and 27', and transverse flanges 28, 28'. The diffuser 11 is formed from a suitable material, such as translucent plastic or glass and serves to diffuse the light transmitted therethrough from the lamps or sources of light 13. A diffusing pattern such as of prisms 14 may be formed in the bottom surface of diffuser 11 to create or enhance the diffusion of light therethrough. Spacedly adjacent one longitudinal edge 34 of diffuser 11 are located two bosses 15, longitudinally aligned and integrally formed with the upper surface of diffuser 11. Two bearing pins 16 are imbedded in the bosses 15, preferably by being integrally cast in position during formation of the diffuser. Bearing pins 16 have a round end portion 17 and flattened imbedded portion 18, the latter being provided to prevent rotation of bearing pins 16 within bosses 15. Bearing pins 16 may be of any suitable hard wearing material, preferably of metal such as steel, or any other material capable of carrying the load, shearing stresses and wear involved in inserting and supporting diffuser 11 on the supporting rails 21. In the installed position of the diffuser 11, bearing pins 16 rest within respective notches 19 formed in bearing portions 23 of rails 21. Two supporting rails 21 are provided as integral parts of housing 12 and are formed as return bends of the end flanges 28 of the walls of housing 12.

Bearing portion 23 of rail 21 comprises a horizontally elongated C-shaped slot 24 whose upper limit is defined by a projecting nose 25. On the opposite side of notch 19 from that of slot 24 is a guide hump 22 having a sharply vertical inclined rise 26 spacedly adjacent notch 19. Four notched bearing portions 23 are provided within the lamp housing, one pair of such bearing portions 23 being formed on each of the two supporting rails 21. The bearing portions 23 at the ends of each rail 21 are symmetrically opposed to each other. Although four bearing portions 23 are provided, only two longitudinally aligned slotted bearing portions 23 are utilized at any one time, the other two being provided as auxiliary bearing portions for the same two bearing pins 16, to permit optional installation of the diffuser from the opposite side of the housing into a 180° rotated position.

As may be best seen in Fig. 2, in final installed position diffuser 11 is supported on one side by the longitudinal lip 31 resting on flange 27 of housing 12, on the opposite side by longitudinal lip 34 resting on flange 27' of housing 12 and by bearing pin 16 nesting within the notch 19 of the bearing portion 23 of rail 21, these supporting means thus preventing side-play in a direction longitudinal to rail 21. Excessive end-play is prevented by the close fit of the diffuser between the rails 21, the edge 32 of the diffuser lying close to said rails, respectively, with a slight clearance distance 29, for example, 1/32", between each edge 32 and the adjacent rail 21 of housing 12. Thus, there can be relatively little light leakage between the edges of diffuser 11 and the housing 12.

Fig. 6 illustrates a first intermediate step in installing the diffuser into the housing. Because of the fact that the longitudinal distance between the ends 17 of opposed bearings 16 is greater than the longitudinal distance between the supporting rails 21, advantage must be taken of the longer diagonal dimension of the light opening defined by flanges 27, 27', 28, 28'. The diffuser 11 is first longitudinally positioned in a vertical plane so that the two aligned bearing pins 16 are in the upper half of

the diffuser, as illustrated in Fig. 6. The diffuser 11 is then inserted along a diagonal of the light opening and raised until bearing pins 16 each clear their corresponding rails 21. The diffuser 11 is then rotated about a vertical axis until it is parallel to the longitudinal center line of the light housing and lowered until bearing pins 16 rest upon rails 21. Diffuser 11 is then moved rearwardly toward flange 27 until the operator feels the two pins 16 encountering the two respective humps 22 on the rails 21. The diffuser is then lifted slightly to permit the pins 16 to clear the humps 22 and then lowered so as to guide pins 16 down the inclined portions 26 until they drop into respective notches 19 of bearing portions 23. The pins 16 are not permitted to remain in notches 19 at this time but are moved an additional amount rearwardly until they come to rest against the rear of C-shaped slots 24 under projecting noses 25. In this position of bearing pins 16, sufficient clearance will be provided between the longitudinal lip 31 of the diffuser and edge 35 of flange 27 of the housing 12, so that the diffuser 11 may be longitudinally swung on bearing pins 16, into the position indicated in dash-dot lines in Fig. 8. From this latter position the diffuser is then moved to the right until bearing pins 16 become aligned with and drop into their respective notches 19, lip 31 rests on flange 27 and lip 34 rests on flange 27'.

Removal of the diffuser for cleaning or replacement of lamps or of the diffuser itself is performed by reversing the above-described steps of installation. That is, the diffuser 11 is lifted, pushed toward the left to the position of Fig. 8 until the edge of lip 31 can clear the edge 35 of flange 27 and drop below the housing. The diffuser is then raised until bearing pins 16 are clear of nose 25 and hump 22. It is then rotated about a vertical axis into a diagonal position across the light opening in order to clear rails 21, after which the diffuser may be freely lowered vertically and removed.

It should be understood, of course, that the foregoing disclosure relates to only a preferred embodiment of the invention, and that it is intended to cover all changes and modifications of the example of the invention herein described for the purposes of the disclosure, which do not constitute departures from the spirit and scope of the invention as set forth in the appended claims.

Having thus described the invention, what is claimed is:

1. A lighting fixture comprising a housing having side walls and inwardly projecting peripheral lateral and end flanges in the lower portion thereof fixedly attached to said side walls, said flanges defining a rectangular light opening in said housing, a rectangular light diffuser for diffusing light through said opening, the transverse dimension of said diffuser being greater than the transverse dimension of said rectangular light opening whereby the lateral surfaces of said diffuser can be supported by the lateral peripheral flanges, the longitudinal dimension of said rectangular diffuser being slightly less than the longitudinal dimension of said light opening, said rectangular diffuser being provided with a pair of longitudinally aligned pivot pins integral therewith and projecting beyond the terminal edges thereof and extending in a longitudinal direction a length greater than the longitudinal dimension of said light opening, and a supporting rail fixedly attached to each of the end ones of said peripheral flanges of said housing for supporting one of said pivot pins, the upper edges of said rails providing support means for said pivot pins during the mounting of said diffuser to said housing.

2. A lighting fixture according to claim 1, each of said supporting rails being provided with at least one bearing

portion, said bearing portions each defining an upwardly open substantially C-shaped recess at one end of said bearing portion and a hump formation at the other end thereof for guiding one of said pivot pins into position within the bearing portion.

3. A lighting fixture according to claim 1, each of said supporting rails being provided with at least one bearing portion, said bearing portions each defining an upwardly open substantially C-shaped recess at one end of the bearing portion and a hump formation at the other end thereof for guiding one of said pivot pins into position within the bearing portion, said bearing portions each further defining an upwardly open notch located between said recess and said hump formation and adapted to receive one of said pins.

4. A lighting fixture according to claim 1, each of said supporting rails being provided with a bearing portion near each end thereof, said bearing portions each defining an upwardly open substantially C-shaped recess at one end of the bearing portion and a hump formation at the other end thereof for guiding one of said pivot pins into position within the bearing portion, said bearing portions each further defining an upwardly open notch located between said recess and said hump formation and adapted to receive one of said pins.

5. A lighting fixture, comprising a housing having sides and ends defining a rectangular light opening for receiving a diffuser, said housing having inwardly extending flanges on the sides thereof for supporting said diffuser along the side edges thereof, the distance between the flanges on the sides of said housing being less than the distance between the side edges of said diffuser, the ends of said housing being provided with rail members having C-shaped slots open at their upper ends for receiving support pins projecting from the ends of said diffuser, the distance between said pins being greater than the distance between said rail members, each of said rail members including an edge portion on which said support pins are supported during the movement of said pins toward said C-shaped slots during the mounting of said diffuser to said housing.

6. A lighting fixture, comprising a housing having sides and ends defining a rectangular light opening for receiving a diffuser, said housing having inwardly extending flanges on the sides thereof for supporting said diffuser along the side edges thereof, the distance between the flanges on the sides of said housing being less than the distance between the side edges of said diffuser, the ends of said housing being provided with rail members having C-shaped slots open at their upper ends for receiving support pins projecting from the ends of said diffuser, the distance between said pins being greater than the distance between said rail members, each of said rail members including an edge portion on which said support pins are supported during the movement of said pins toward said C-shaped slots during the mounting of said diffuser to said housing, said rail members including a hump portion in the path of movement of said support pins for indicating the position of said slots on said housing.

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