Dec. 18, 1951 L. K. SCHOENBROD 2,579,015

PLASTIC LOUVER FOR FLUORESCENT LIGHTS

Filed Aug. 12, 1949 2 SHEETS—SHEET 1

Fig. 1.

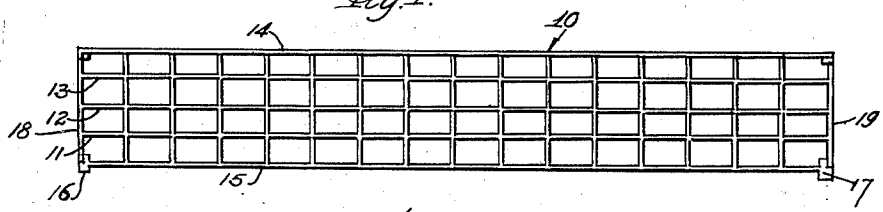


Fig. 2.

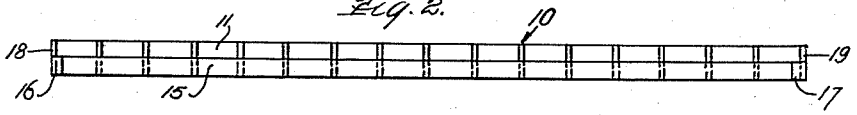


Fig. 3.

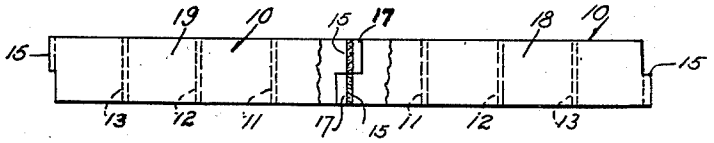


Fig. 4.

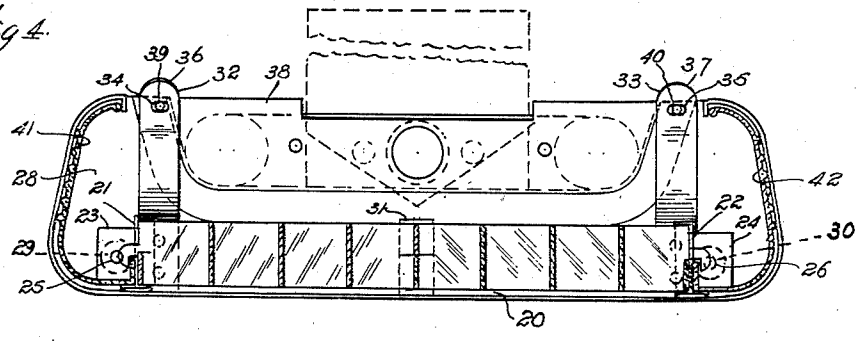
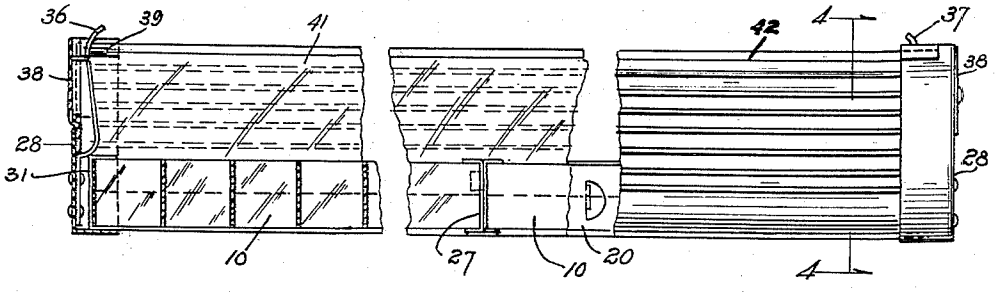


Fig. 5.



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Fig 6.

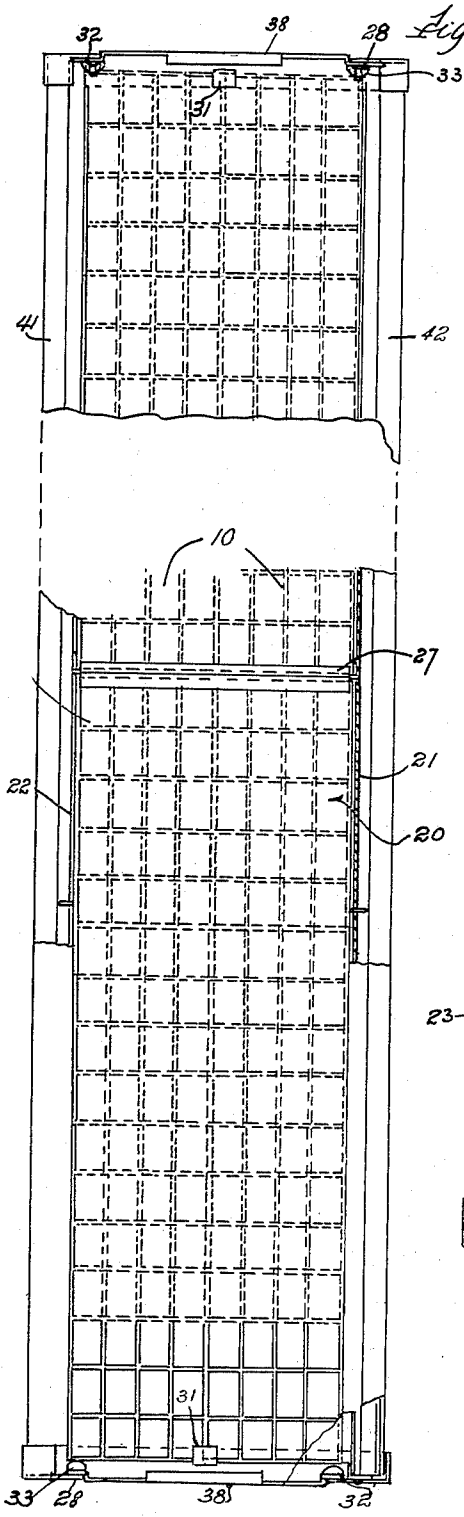


Fig. 7.

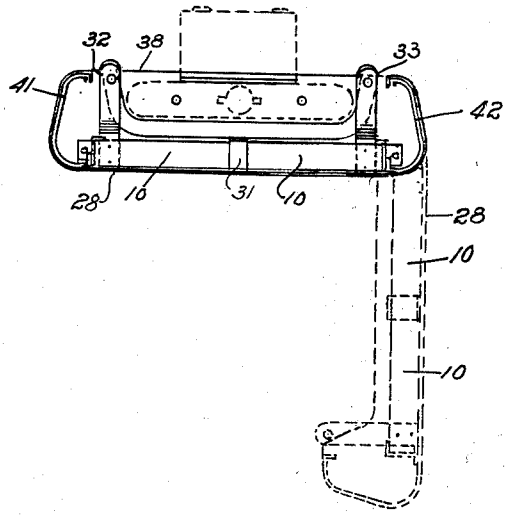
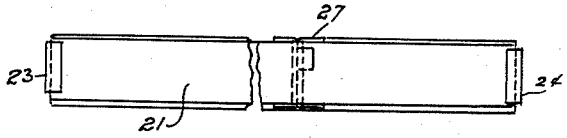


Fig 8



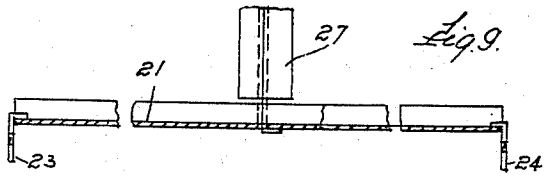


Fig. 9.

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UNITED STATES PATENT OFFICE

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PLASTIC LOUVER FOR FLUORESCENT LIGHTS

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Application August 12, 1949, Serial No. 109,961

4 Claims. (Cl. 240—51.11)

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My invention relates to a louver which is made of molded plastic and which may be used for any size of fluorescent lighting fixture.

Among the objects of my invention are to provide a louver for fluorescent lights which is constructed of a molded plastic material which will resist heat and will not warp and which provides greater lighting efficiency than a metallic louver; to provide a plastic louver section which may be combined with as many additional sections as desired without the use of screws or similar fastening devices on the louver sections; to provide a simpler, lighter and more economical louver for fluorescent lights and to provide a plastic louver which may be simply and easily installed in a basket-like hinged frame for simplicity and economy in construction and maintenance.

My invention also comprises such other objects, advantages and capabilities as will later more fully appear and which are inherently possessed by my invention.

While I have shown in the accompanying drawings a preferred embodiment of my invention, yet it is to be understood that the same is susceptible of modification and change without departing from the spirit of my invention.

Referring to the drawings, Fig. 1 is a top plan view of one of my louver sections; Fig. 2 is a side elevational view of the same; Fig. 3 is an enlarged sectional view of two of my louver sections joined together; Fig. 4 is a detailed sectional view of my entire assembled device, taken on line 4—4 of Fig. 5; Fig. 5 is a side elevational view of my device partly broken away; Fig. 6 is a top plan view of my device partly broken away; Fig. 7 is a partial end view of my device, showing the louver frame suspended from one pivot in dotted lines; Fig. 8 is a broken detailed view of my frame and Fig. 9 is a broken detailed sectional view of my frame.

A preferred embodiment of my invention comprises a plastic louver section 10, which is preferably formed by molding polystyrene or other suitable material having a thickness of approximately $\frac{1}{16}$'' thick. Louver section 10 comprises 64 openings arranged 4x16, each opening having dimensions of 1''x1½''. The three center longitudinal walls 11, 12 and 13 of louver section 10 are 1'' in height, while the extreme longitudinal side walls 14 and 15 are ½'' in height.

At two corners of louver section 10 on the same side thereof are small bosses 16 and 17, which are preferably formed as integral parts of louver section 10. Bosses 16 and 17 extend inwardly and outwardly from the corners of louver section 10 for approximately ⅛'' for the entire height of side wall 14.

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The upper halves of end walls 18 and 19 of louver section 10 are set back approximately ⅛'' adjacent bosses 16 and 17. All of the horizontal walls of louver section 10 extend between the extreme side walls 14 and 15 and do not overlap or extend beyond them.

In use, two of my louver sections 10 may be combined to form a plastic louver. This is accomplished by inverting one louver section 10 and placing it adjacent another louver section 10 so that the bosses 16 and 17 of each louver section fit on top of each other. The outwardly extending portions of the bosses 16 and 17 fit within the set back portions of the end walls 18 and 19 of the adjoining louver section.

The extreme longitudinal side wall 14 of one louver section fits on top of the extreme longitudinal side wall 15 of the other louver section. The result is that the longitudinal side walls, which are one-half of the height of the center longitudinal walls, combine to form a single longitudinal wall of the same height as the center longitudinal walls.

To hold my plastic louver when assembled, I provide a metallic basket-like frame 20. Frame 20 is composed of two longitudinal U-shaped members 21 and 22. Each end of U-shaped members 21 and 22 is provided with a pair of projections 23 and 24, which extend outwardly at right angles thereto and which are provided with screw threaded openings 25 and 26. The U-shaped members 21 and 22 are slightly over 1'' wide and approximately ¼'' deep.

Connecting U-shaped members 21 and 22 is a cross member 27 which comprises a pair of shorter U-shaped portions of the same dimensions as U-shaped members 21 and 22, said portions being positioned back to back, with their open portions facing the ends of frame 20. Cross member 27 is attached to U-shaped members 21 and 22 by means of small flanges or screws or other suitable fastening means.

Two of my louver sections 10, when combined in the manner described above, may be inserted into frame 20 by sliding them into the U-shaped members 21 and 22 from the open end until their opposite ends are held within one of the shorter U-shaped portions of cross member 27. The louver sections 10 are then firmly held on three sides by frame 20. Another pair of louver sections 10 may be inserted into the opposite end of frame 20 in the same manner.

The ends of frame 20 are covered by a pair

of end plates 28. End plate 28 is provided at two corners with a pair of openings 29 and 30, which are so positioned as to match the screw threaded openings 25 and 26 of frame 20. A pair of screws may be inserted through openings 29 and 30 and screwed into openings 25 and 26 to hold end plate 28 to frame 20.

At the center of end plate 28 is mounted a U-shaped bracket 31, which faces toward the louver sections 10 which are positioned within frame 20. When end plate 28 is attached to frame 20 in the manner set forth above, bracket 31 fits over the bosses of the two louver sections 10 and holds them firmly together. This provides a fourth edge grip on the two louver sections, thus holding them firmly in place without the use of screws or other similar fastening means.

Mounted within end plate 28 adjacent openings 29 and 30 are two spring members 32 and 33. Spring members 32 and 33 are firmly mounted at one end to end plate 28 by means of rivets or other rigid fastening means. They are curved to provide a resilient action. At their ends, spring members 32 and 33 have round openings 34 and 35, beyond which they are curved in the opposite direction to provide finger portions 36 and 37. Openings 34 and 35 are positioned adjacent the edge of end plate 28 and finger portions 36 and 37 extend beyond the edge of end plate 28.

My plastic louver and frame are attached to a fluorescent light through the use of a special light bracket 38, which is attached to a conventional fluorescent light fixture. Light bracket 38 is designed to fit within an opening in end plate 28 in such a manner that its edges slip beneath the edges of the opening in end plate 28.

Light bracket 38 is provided at two corners with a pair of pivots 39 and 40, which are round and which project inwardly for slightly over ¼".

In order to attach my frame 20 to the fluorescent light, end plate 28 must be attached to light bracket 38. This is accomplished by depressing each of the finger portions 36 and 37 of spring members 32 and 33 to permit light bracket 38 to fit into the opening in end plate 28. Spring members 32 and 33 are pulled away from end plate 28 far enough to permit the pivots 39 and 40 to be passed over finger portions 36 and 37 and to then extend into openings 34 and 35 when finger portions 36 and 37 are released. End plate 28 is then suspended from light bracket 38 by pivots 39 and 40. Pivots 39 and 40 cannot slip out of openings 34 and 45 accidently, since finger portions 36 and 37 must be depressed in order to release them.

In order to clean my plastic louver, the user need only depress one of finger portions 36 and 37 on each of the two end plates 28. This will permit one of the pivots 39 or 40 to be released from its opening and pass over the depressed finger portion. When this has been done, my frame 20 and plastic louver will swing downwardly and be suspended at a right angle, held by only the remaining two pivots. This permits the louver to be cleaned from both sides. It may then be re-attached by reversing the above procedure.

In order to improve the appearance of my plastic louver, I provide a pair of side plates 41 and 42 for my frame 20, which are held in place by the edges of end plates 28 and by means of hooks which are punched out of U-shaped members 21 and 22 and which grip an inturned edge of side plates 41 and 42 to hold them more firmly in place.

For the purpose of illustration herein, I have shown how two of my louver sections 10 may be combined. It should be understood that one louver section alone may be used or that any number of these sections may be combined by providing bosses 16 and 17 on each side of louver section 10. Customarily, louver sections 10 are made with bosses 16 and 17 on each side and the bosses are milled off if they are not used.

In use, any number of my louver sections 10 may be combined horizontally in this manner and any number may be combined longitudinally through the use of additional cross brackets 31.

My plastic louver provides a cut-off of 45° horizontally and 30° longitudinally, thus eliminating glare from the fluorescent bulb. Because it is composed of polystyrene or similar molded plastic material of 1/16" thickness, it has translucent qualities and is almost transparent. For this reason, a certain amount of light is diffused and transmitted through the louver instead of being completely cut off.

If a metallic louver were used, the squares of the louver would completely block the light which struck the louver except for reflection. Through the use of my plastic louver, a portion of this light is saved by transmission through the plastic material. It has been found that my plastic louver may increase the efficiency of the fluorescent lighting fixture on which it is used by as much as 30 to 40 percent.

With the use of my plastic louver, a considerable transmission factor exists, which results in a better even surface brightness. With a metallic louver, the louver itself is dead in appearance when the light is glowing, while my plastic louver appears to glow with a luminescent effect.

Another advantage of my plastic louver is that it need not be coated with paint or other surface coating material. It is a pure white in color when made and needs no coating whatsoever.

Having thus described my invention, I claim:

1. A louver for fluorescent lighting fixtures comprising a plurality of louver sections composed of translucent plastic material, each of said louver sections having a plurality of box-like openings, each of said louver sections having a shortened side wall of a height equal to one-half that of the louver section, each of said louver sections having a pair of bosses at the opposite ends of said shortened side wall, said shortened side walls and bosses fitting on top of each other to form a louver, a basket-like frame holding said louver, said frame comprising a pair of parallel longitudinal members U-shaped in cross section and a transverse cross member having a pair of shorter portions U-shaped in cross section facing the ends of said frame, a pair of end plates removably attached to said frame, each of said end plates having mounted therein a bracket, said bracket fitting over and holding the bosses of said louver sections together, each of said end plates having a pair of spring members mounted therein, each of said spring members having an opening adjacent its end, and means comprising a pair of end brackets adjacent said end plates for removably attaching said louver to a fluorescent lighting fixture, each of said end brackets having a pair of inwardly projecting pivots, said spring members depressible by manual pressure to provide room for said pivots to pass and enter the openings in said spring members, said spring members when released holding said pivots securely within said openings against accidental displacement.

2. A louver for fluorescent lighting fixtures comprising a plurality of louver sections composed of translucent plastic material, each of said louver sections having a plurality of box-like openings, each of said louver sections having a shortened side wall of a height equal to one-half that of the louver section, each of said louver sections having a pair of bosses at the opposite ends of said shortened side wall, said shortened side walls having bosses fitting on top of each other to form a louver, a basket-like frame to hold said louver, said frame comprising a pair of parallel longitudinal members U-shaped in cross section and a transverse cross member having a pair of shorter portions U-shaped in cross section facing the ends of said frame, a pair of end plates removably attached to said frame, each of said end plates having mounted therein a bracket, said bracket fitting over and holding the bosses of said louver section together, each of said end plates having a pair of openings, and means comprising a pair of end brackets adjacent said end plates for removably attaching said louver to a fluorescent lighting fixture, each of said end brackets having a pair of pivots extending therefrom, said pivots insertible within said openings to suspend said frame from said end brackets.

3. A louver for fluorescent lighting fixtures comprising a plurality of louver sections composed of translucent plastic material, each of said louver sections having a plurality of box-like openings, each of said louver sections having a shortened side wall of a height equal to one-half that of the louver section, each of said louver sections having a pair of bosses at the opposite ends of said shortened side wall, said shortened side walls having bosses fitting on top of each other to form a louver, a basket-like frame to hold said louver, said frame comprising a pair of parallel longitudinal members U-shaped in cross section and a transverse cross member having a pair of shorter portions U-shaped in cross section facing the ends of said frame, and a pair of end plates removably attached to said frame, each of said end plates having mounted therein

a bracket, said bracket fitting over and holding the bosses of said louver sections together and means for removably attaching said louver to a fluorescent lighting fixture.

4. A louver for fluorescent lighting fixtures comprising a plurality of louver sections composed of translucent plastic material, each of said louver sections having a plurality of box-like openings, each of said louver sections having a shortened side wall of a height equal to one-half that of the louver section, each of said louver sections having a pair of bosses at the opposite ends of said shortened side wall, said shortened side walls having bosses fitting on top of each other to form a louver, a basket-like frame to hold said louver, said frame comprising a pair of parallel longitudinal members and a transverse cross member having a pair of shorter portions facing the ends of said frame, a pair of end plates removably attached to said frame, each of said end plates having mounted therein a bracket, said bracket fitting over and holding the bosses of said louver sections together, and means comprising a pair of end brackets adjacent said end plates and removably attached to said end plates by a pair of pivots for removably attaching said louver to a fluorescent lighting fixture.

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