Oct. 12, 1954 O. C. BOWERS 2,691,718

STEP ILLUMINATOR

Filed Sept. 12, 1951

Fig. 1

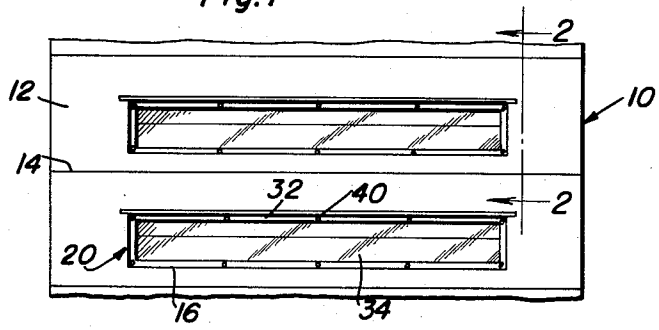


Fig. 2

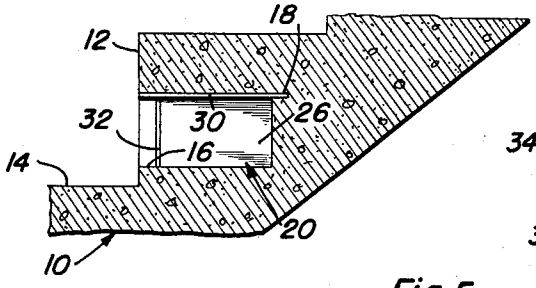


Fig. 4

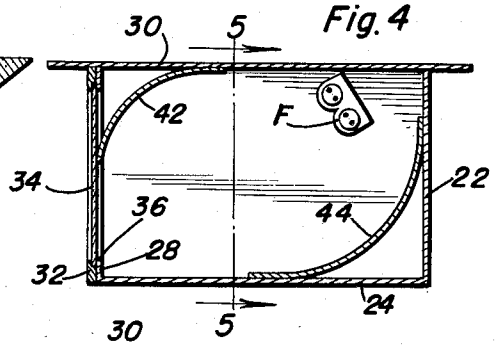


Fig. 5

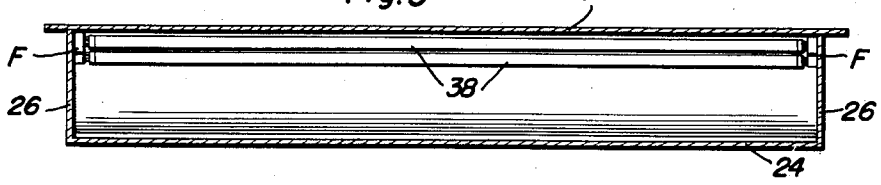


Fig. 3

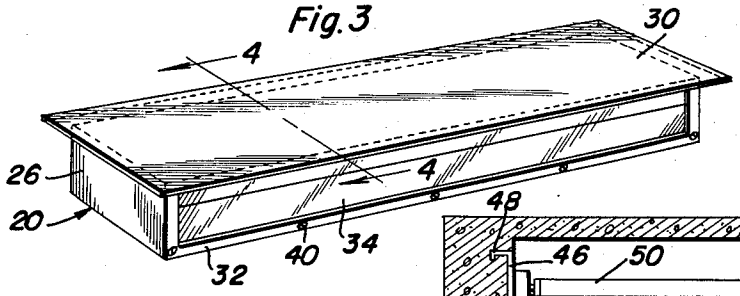


Fig. 7

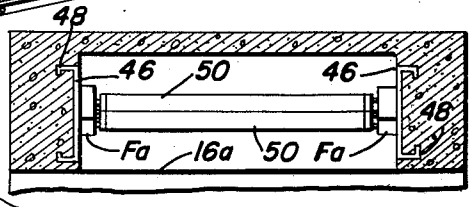
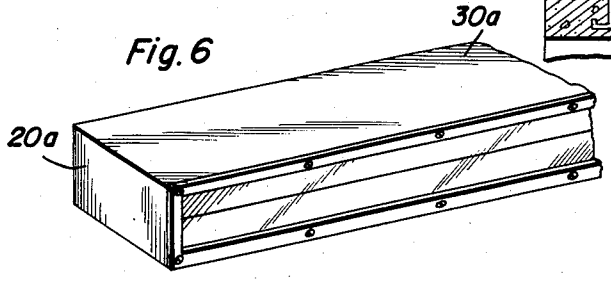


Fig. 6



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Patented Oct. 12, 1954

2,691,718

UNITED STATES PATENT OFFICE

2,691,718

STEP ILLUMINATOR

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Application September 12, 1951, Serial No. 246,218

1 Claim. (Cl. 240—2)

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This invention relates to new and useful improvements in lighting devices and the primary object of the present invention is to provide a device for effectively lighting the treads of steps whereby the steps may be employed in a safe and convenient manner.

Another important object of the present invention is to provide a step light that may be employed in conjunction with wooden, concrete or metallic steps and which includes a translucent panel of methyl methacrylate that may be accidentally engaged by a person ascending the steps without effecting a breakage of the panel.

A further object of the present invention is to provide a light unit adapted to be recessed in the risers of steps and which embodies a novel reflector arrangement whereby light rays will be reflected and directed toward the treads of the steps without being directed toward the face of a person using the steps.

A still further aim of the present invention is to provide a step light of the aforementioned character that is simple and practical in construction, strong and reliable in use, small and compact in structure, neat and attractive in appearance, inexpensive to manufacture, install and service, and otherwise well adapted for the purposes for which the same is intended.

Other objects and advantages reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a fragmentary front elevational view of a step structure having the present invention embodied therein;

Figure 2 is a vertical sectional view taken substantially on the plane of section line 2—2 of Figure 1 and showing the casing in end view;

Figure 3 is a perspective view of the present invention removed from a step structure;

Figure 4 is a vertical sectional view taken substantially on the plane of section line 4—4 of Figure 3;

Figure 5 is a reduced longitudinal vertical sectional view taken substantially on the plane of section line 5—5 of Figure 4;

Figure 6 is a fragmentary perspective view of the invention in modified form for use with wooden steps; and,

Figure 7 is a vertical sectional view of a step structure and showing the invention in modified form mounted in a recess in one riser of the step structure.

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Referring now to the drawings in detail, wherein for the purpose of illustration, there is disclosed a preferred embodiment of the present invention, the numeral 10 represents a concrete step structure including risers 12 and treads 14. The risers 12 are formed with recesses 16 that are open at their front sides and the rear walls of the recess 16 are provided with grooves 18.

A substantially rectangular casing 20 is positioned in each recess 16. Each casing 20 includes a flat rear wall 22, bottom wall 24, end walls 26, front wall 28 and upper wall 30. The forward and rear edges of the upper walls 30 overhang the forward and rear walls 28 and 22, respectively, with the rear edges of the upper walls 30 extending into the grooves 18, as shown in Figure 2.

The forward walls 28 support the reinforcing frames 32 of translucent panels 34, the panels preferably being of methyl methacrylate or a material that may be accidentally kicked without breaking. The panels 34 oppose substantially rectangular openings 36 in the forward walls 28.

Illuminating members 38 are supported in conventional fixtures F' in the upper rear corners of the casings 20. These illuminating members may be of any suitable type that are electrically connected together and to house current, such as fluorescent, incandescent or neon. Temperature conditions to which the steps are exposed may also determine the best type of illuminating members that are to be used. The frames 32 and panels 34 are obviously removable in order that the burned out illuminating members may be replaced in a convenient manner. As shown in Figures 1 and 3, the frames 32 are secured to the front walls 28 by fasteners 40 that are readily removed by a screw driver or similar tool.

Forward and rear concavo-convex reflectors 42 and 44 are suitably secured in each casing 20. The concave surfaces of the reflectors 42 and 44 face each other and also face the illuminating members 38. The reflectors 44 are located at the lower rear corners of the casings whereas the reflectors 42 are located at the upper forward corners of the casings to block the upper portions of panels 34 from the illuminating members and thereby shield the eyes of a person using the steps from the illuminating members.

Figure 6 shows the invention in slightly modified form for use with wooden steps. In this form of the invention the riser of the step is formed with an opening that will accommodate the light casing 20*a*. The casing 20*a* is similar to casing 20 with the exception of upper wall 30*a*

that does not overhang the forward and rear walls of the casing.

The form of the invention illustrated in Figure 7 shows the riser of a concrete step formed with an elongated recess 16*a* whose end walls support brackets or plates 46 including tongues 48 that are embedded in the end walls of the recess. Fixtures F*a* carried by the plates 46 receive the ends of light members 50 similar to members 38.

A suitable translucent panel (not shown) similar to panel 34 is provided with a frame that is removably secured to the riser to oppose the forward open side of recess 16*a*. If desired reflectors may be supported in the recess 16*a* relative to the illuminating members 50 in a manner similar to that previously described.

The light members of each riser or light casing are electrically connected to a source of current in such a manner that a burnt out illuminating member will not effect a deenergization of the other illuminating members. A suitable switch may be embodied in the circuits whereby the circuits to the illuminating members may be selectively opened or closed.

Having described the invention, what is claimed as new is:

In a step structure including a riser having an opening, a casing mounted in a recess in the riser and having a translucent outer wall in registry

with the opening, said casing having upper and lower forward and rear corners and an upper wall, illuminating means supported within the upper rear corner of said casing, and forward and rear concavo-convex reflectors in the casing at the upper forward and lower rear corners and having their concave surfaces facing the illuminating means, said forward reflector engaging and covering the upper portion of said outer wall to confine light rays directed from the illuminating means in said casing, said reflectors being generally elongated and having side edges in spaced parallel relation, said reflectors being positioned in diagonal opposition to confine light rays directed from the lower rear reflector towards the upper portion of the outer wall.

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