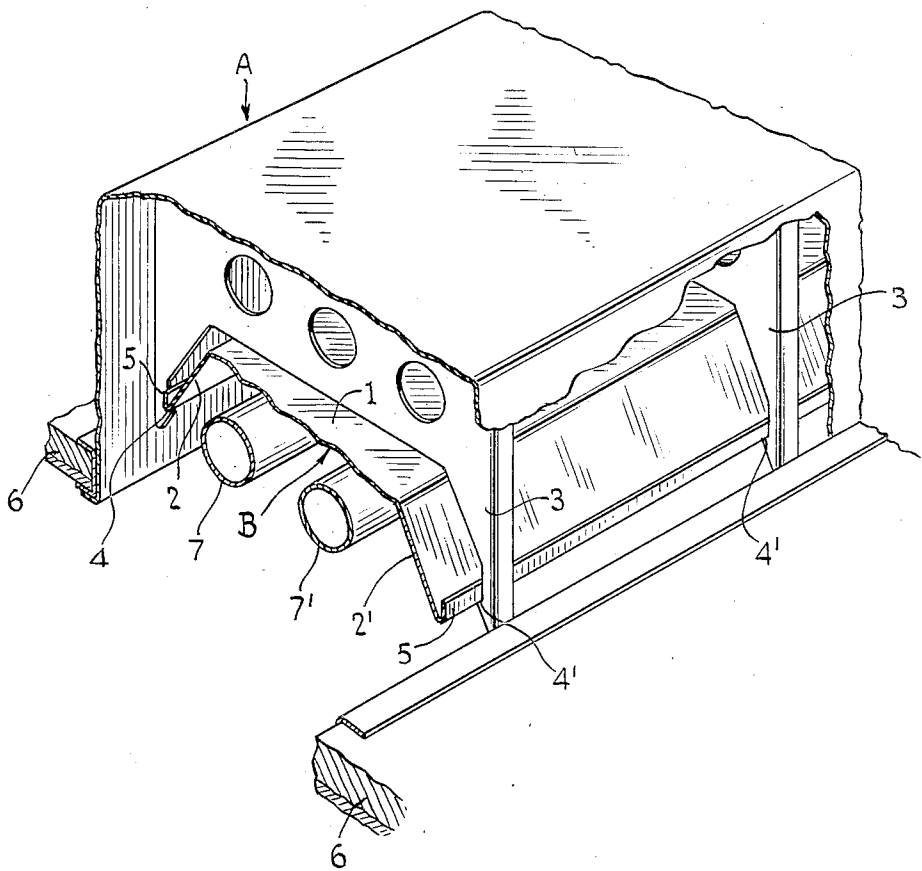


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RECESSED LIGHTING FIXTURE WITH
REMOVABLE REFLECTOR
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RECESSED LIGHTING FIXTURE WITH
REMOVABLE REFLECTOR

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This invention deals with lighting fixtures embodying a reflector and is concerned especially with the installation of a reflector within such lighting fixtures. In particular the invention is directed to the provision of a detachable reflector in lighting fixtures embodying a reflector located behind the light source, especially in ceiling lighting fixtures such as fixtures recessed within and behind overhead ceilings.

Recessed lighting fixtures, whether for incandescent or fluorescent lighting, comprise a fixture housing recessed within the overhead ceiling. The electrical wiring and the auxiliary equipment, if any, for the light source are normally contained, in one way or another, within such fixture housing and the light source itself is likewise provided within such housing. The wiring and the auxiliary electrical equipment are advantageously spaced from the light source by an intermediate cover which may also serve as a reflector. The reflector functions—insofar as light reflection is concerned—to properly distribute the light output of the light source and to increase the effective utilization of such light output.

It is, of course, well known to provide reflectors in lighting fixtures. Such reflectors are customarily secured within the luminaire by suitable locking means such as screws, bolts and so forth. Lighting fixtures embodying such reflectors suffer, however, from a number of shortcomings. Thus, for instance, it is necessary to have access to the wiring and auxiliary equipment for purposes of inspection, cleaning and repair, and such access is interfered with by the fastening means, such as screws, employed for securing the reflector in place. Also, proper effective light distribution depends on a fixed relationship between the light source, reflecting surface and other parts of the lighting fixture, and the utilization of such fastening means as for instance vertically operative screws or bolts makes it impossible to effect in practice a predetermined invariably fixed relationship between the reflector and the other component parts of the lighting fixture.

Attempts have, therefore, been made heretofore to devise means for effecting an easier removability of the reflector. Thus it has been proposed for instance to secure the reflector in place by means of special locking and release clips. All such special devices are, however, complicated and cumbersome in actual practice and are apt, furthermore, to fail in the course of time, especially at a time when failure is particularly undesirable, so that in general practice the art has continued to rely on the customary locking means involving the utilization of screws, bolts and the like.

It is, therefore, one object of my invention to provide a lighting fixture including a reflector

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which shall be capable of being removed easily and quickly, thus affording easy and quick access to the electrical wiring and auxiliary equipment covered by it without the use of auxiliary tools, wrenches, screw-drivers and so forth. It is a further object of my invention to provide such lighting fixture wherein such reflector shall be secured therein without the employment of screw-threaded fastening means and without special auxiliary locking devices. It is another object of my invention to provide such fixture wherein the reflector shall be capable of being secured in a fixed predetermined position within such fixture and in invariable relationship to the light source and other parts of the fixture, thus making impossible any effective interference with the predetermined optical train of the light distribution. Other objects and advantages of the lighting fixture of my invention will appear from the description thereof hereinafter following.

In the lighting fixture of my invention I provide the customary fixture housing, which embodies the usual electrical auxiliary equipment such for example as ballast, transformer, etc., socket and electrical wiring and so forth, reflector, light source and any other required or desired component parts.

In accordance with the invention the reflector is secured, firmly but detachably, within the fixture in laterally operative manner involving the utilization of the inherent flexibility and springiness of the curved or bent reflector in cooperation with a plurality of supports adapted to limit and set the outwardly directed spring action of the reflector and to reinforce the reflector to avoid distortion of the housing, and without special locking devices, and thereupon locking the reflector in position by lateral compression and subsequent release of such compression and consequent positioning within a specially provided recess.

The lighting fixture according to the invention is illustrated in the accompanying drawing, forming part hereof, which represents a perspective elevational view, partly broken away, of the essential structural parts of the lighting fixture of the invention, in the form of a recessed ceiling luminaire.

In the drawing I have shown a fixture housing A and a reflector B. The reflector B, in the illustration, is of the elongated type, customarily used in connection with straight elongated tubular lamps, e. g. fluorescent lamps, of substantially inverted trough-like shape with an inwardly curved reflecting surface which may comprise a single concave surface or, as shown, a substantially flat main top wall 1 and side walls 2 and 2' which, preferably, extend outwardly at an obtuse angle.

The reflector extends longitudinally of and be-

hind the light source disposed beneath it and is designed to reflect downwardly the light intercepted by it. It will be understood, of course, that in the case of circular type luminaires the reflector will have the customary inverted cup or dish-like shape. All wiring and auxiliary electrical equipment is disposed behind the reflector B and, normally, between such reflector B and the housing A.

Within the housing A I provide a special support for the reflector. In the case of the elongated fixture illustrated in the drawing this support is in the form of at least two gusset plates 3, transverse to the reflector, provided with recesses 4 and 4'. The plurality of recesses serve as a support for the lateral ends of the reflector B which are preferably formed with a turned-over edge or flange 5, as shown. The gusset plates 3 may serve additionally as a strengthening support for the housing A, in which case, as shown, they follow the contours of such housing A. The recessed supports 4 and 4'—whether part of a special plate or integral with the housing itself or otherwise—receive and seat the outer edge or edges of the reflector limiting the lateral outwardly directed spring action of the reflector and control the movement and position of the reflector. The light source is shown in the form of two tubular bulbs 7 and 7'.

The entire lighting fixture may be secured in any suitable manner, for instance, as shown in the drawing, by being clamped to the ceiling 6 and recessed therewithin.

The reflector B is secured within the fixture merely by being seated on and supported by the recesses 4 and 4'. In thus securing the reflector—and in removing the reflector—I rely on the inherent flexibility and springiness of the reflector, which flexibility and springiness are particularly great in the case of an inverted trough-like reflector shaped as more specifically illustrated in the drawing. In practice the reflector is inserted by lateral compression and subsequent positioning over the recesses of the lateral brace or gusset plates 3, whereupon on release of the compressive force the reflector snaps into place, resting on the recesses, to be firmly secured within the fixture housing. Removal of the reflector is effected by similar lateral compression and consequent passage of the reflector downwardly between the hooks of the recesses. While the gusset plates 3 serve as transverse peripheral frames for the reflector there is sufficient space between such frame and the reflector to permit the necessary movement of the reflector on compression thereof during the insertion or detachment of the reflector. The snap-action accompanying release of the lateral compressive force guarantees firm positioning of the reflector, without any possibility of accidental disengagement from the fixture. Furthermore, installation and removal can be effected easily and quickly and without interference by any fastening means or catches.

Apart from easy installation and removal, the reflector will of necessity be located at a specific level within the fixture housing, thus making possible the design of a fixture with a predetermined fixed relationship between the reflector and the light source and other parts of the fixture, a relationship which is thus invariable and independent of manual operation, as distinguished from fixtures wherein the particular location of the reflector within the fixture is de-

termined primarily by the uncontrolled and uncontrollable manual operation of such fastening means as vertically operative screws, bolts and the like. In the case of the fixture of the invention it is thus possible to provide a luminaire with a definite controlled optical train.

It will be observed that I have thus provided a simple and rugged lighting fixture with ready access to all parts thereof and possessing controlled optical features, wherein the reflector is held in position by its own spring action, independent of any fastening means, with the edge or edges of the reflector being seated within a plurality of lateral recesses adapted to limit lateral snap-action movement of the reflector at a predetermined point. The reflector may be of concave shape as more specifically described in connection with the illustrative drawings or it may be, as will be understood, of convex shape, as may be desired, in which case the lateral recesses will be adjusted in suitable manner to such reverse installation of such reflector.

The invention while designed especially for recessed ceiling or wall lighting fixtures is likewise applicable to other luminaires involving the positioning of a curved reflector behind the light source and held in position by a plurality of recessed supports receiving and seating the peripheral edge or edges of the reflector at a corresponding plurality of places, so arranged as to permit passage of the reflector therebetween on compression thereof and holding such reflector in firm engagement on release of the compressive force.

What I claim is:

1. A lighting fixture, comprising a fixture housing, a springy reflector within said housing, the top of said reflector being spaced from said housing to provide space for electrical wiring, a plurality of fixed supports within said housing and encompassing said reflector to support said housing and to lock said reflector in position, said supports being provided with recesses to receive and seat the outer edge of said reflector and to serve as fixed abutments against the outwardly directed spring-action of the reflector, the outer edge of said reflector being spaced from the said housing to provide access thereto for removal of said reflector.

2. A lighting fixture, comprising a fixture housing; a springy reflector within said housing, the top of said reflector being spaced from said housing to provide space for electrical wiring, a plurality of fixed transverse frames supporting said housing and provided with recesses to receive and seat the outer edge of said reflector and limit the outwardly directed spring action of the reflector, the outer edge of said reflector being spaced from the said housing to provide access thereto for removal of said reflector.

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