March 1, 1949. S. R. NAYSMITH 2,463,046

CEILING LIGHTING EQUIPMENT

Filed Sept. 7, 1945

Fig. 1.

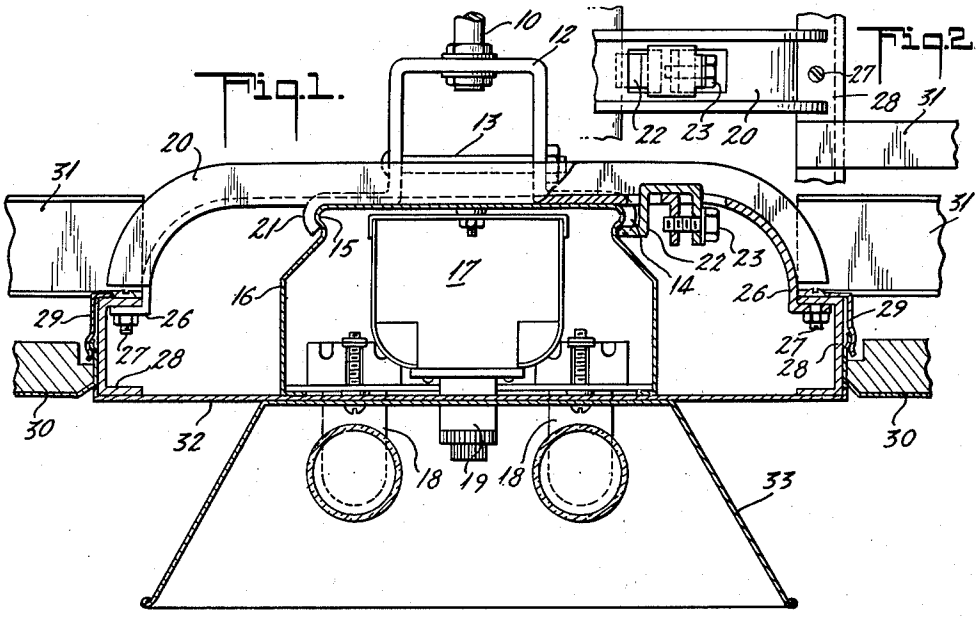



Fig. 2.




Fig. 3.

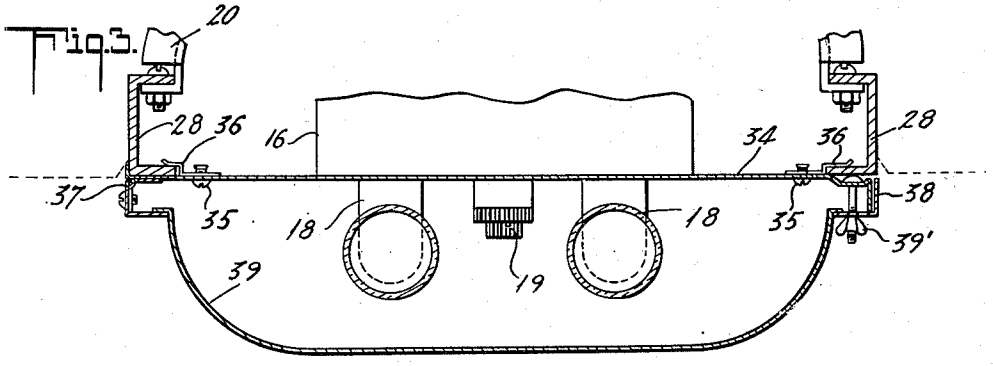



Fig. 4.

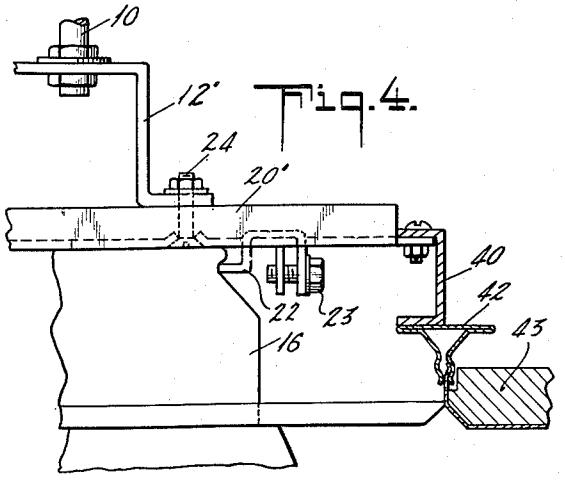
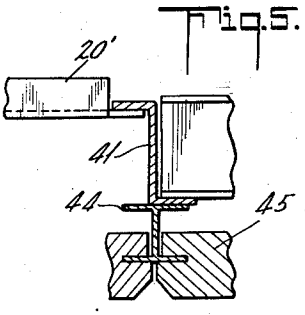



Fig. 5.

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2,463,046

## CEILING LIGHTING EQUIPMENT

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Application September 7, 1945, Serial No. 614,931

4 Claims. (Cl. 189—85)

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The present invention relates to ceiling lighting equipment and is more particularly directed toward the provision of ceilings having semi-recessed lighting equipment.

Heretofore it has been common in the construction of combined ceilings and recessed fluorescent lighting equipment to have the entire lighting equipment recessed above the ceiling line so that the reflector mouth, or the screens used below the light sources, are at or close to the ceiling line. Such structures require sufficient room, at least seven inches between the superstructure or structural ceiling and the ceiling line of the finished ceiling to accommodate the wiring channel and reflector for the lighting equipment and the supports for the suspended ceiling and for the lighting equipment. Where the hung ceiling could not be sufficiently lowered to accommodate the lighting equipment, it has heretofore been necessary to resort to exposed lighting equipment.

The present invention contemplates improved constructions whereby it is possible to have hung or suspended ceilings with inbuilt lighting equipment which is partially exposed and partially recessed. According to the present invention the supporting means for the ceiling and lighting equipment are so arranged that the wiring channel and all supporting elements for it, as well as the ceiling, are above the ceiling line and hidden, and the fluorescent lamps together with such reflectors, light diffusing covers or screens as may be desired, are below the ceiling line. The present invention makes it possible to utilize the ceiling systems such as described in my Patent 2,376,715, May 22, 1945, in locations where insufficient space is available for completely recessing the lighting equipment.

The accompanying drawings show, for purposes of illustrating the present invention, four embodiments in which the invention may take form, it being understood that the drawings are illustrative of the invention rather than limiting the same.

In these drawings:

Figure 1 is a transverse sectional view illustrating one form of construction;

Figure 2 is a fragmentary top plan view of the same;

Figure 3 is a fragmentary sectional view illustrating a modified form of construction; and

Figures 4 and 5 are fragmentary transverse sectional views illustrating further modified forms of construction.

The suspended ceiling and lighting equipment

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are supported from rods 10 which may be spaced and supported as described in the patent above referred to. Each hanger rod is connected to a strap such as indicated at 12, Figure 1, or 13, Figure 4. The strap 12 may be the same as that illustrated in my Patent No. 2,291,492, July 28, 1942, while the strap 13 may be the same as illustrated in Patent No. 2,376,715 referred to above. Where straps such as 12 are used they are provided with clamping bolts 13 and hooked lower ends 14 (one of which appears at the right in Figure 1) adapted to fit about the beads 15 of wiring channels 16. Such wiring channels are adapted to carry the usual ballast 17, lamp sockets 18, 18, starters 19 and wiring (not shown). The wiring channel 16 supports cross-bars or yokes 20 provided with suitable means for clamping them to the wiring channel. The means here shown include hooked shaped members 21 bent inwardly from the bottom of the channel and adjustable straps 22 with hooked shaped ends and adapted to be clamped in place by bolts 23. Alternate forms of construction are shown in application Serial No. 614,932 filed concurrently herewith.

Where straps such as 12 in Figure 4 are employed, the cross-bars 20' are secured to the straps by bolts 24, and suitable means provided for securing the wiring channel in place. It will be understood that in any installation the support for the various wiring channels may include construction such as illustrated in either Figure 1 or Figure 4 and one construction may be used at one place of the installation and the other construction at another place depending upon conditions.

Referring again to Figure 1, it will be seen that the cross-bar 20 is in the form of an inverted U-shaped yoke having ends 26 which are some distance above the mouth of the wiring channel 16. These ends are flanged outwardly and drilled to receive bolts 27. These flanges support structural channel members 28, 28 which form the framework for an opening in the ceiling of suitable width, usually the width of a standard tile. The longitudinally extending members 28, 28 are of a length corresponding with the length of the lighting fixture installation desired, and support clips 29, 29 of usual form adapted to receive acoustical tile 30. The members 28 also support transversely extending bars 31, 31 of conventional type used in the support of acoustic ceilings. The depths of the parts are so selected that the ceiling line established by the lower face of the ceiling tile 30, is substantially even with

the opening in the bottom of the wiring channel 16.

The space between the channel members 28 is closed off by a plate 32 which may be riveted, welded or otherwise secured to a porcelain, enamel or other reflector 33. The reflector and closure plate 22 may be held up against the wiring channel by the devices commonly employed to support reflectors from such wiring channels. This places the lamps just below the ceiling line and plate 32 hides the wiring channel and the structural elements which would otherwise be exposed to view. The reflector 33 can, of course, be omitted and a flat plate 32 employed instead.

In Figure 3 the cross-bars or yokes 20, channels 28 and wiring channels 16 are the same as before. The plate 34 which fits the lower flanges of the channels 28 and closes off the bottom of the wiring channel is here shown as being supported by screw 35 and clips 36. The plate 34 carries a hinge 37 along the left edge and along the right edge its flange is indicated at 38. The hinge 37 supports a closure or screen 39 adapted to enclose the lamps and this closure is held up in place by any suitable clamping device such as the wing nut and bolt arrangement indicated at 39'.

In the forms illustrated in Figures 4 and 5, the bars 20' are straight and support at their ends longitudinally extending members such as channels 40 or Z bars 41. The channel 40 supports a T bar 42 of usual construction for snap-in tile such as illustrated at 43, while the Z bar 41 supports an H bar 44 such as used in sound absorbing units 45.

In the constructions illustrated in Figures 1, 2 and 3, the framework carried by the cross-bars 20 is installed complete and the ceiling material is always outside this framework and space is provided to receive the lighting fixture. Should spaces, however, be provided for fixtures which are not installed the space can, of course, be closed off by a suitable plate similar to the one shown and supported by the lower flanges of the channel members 28, 28. In the construction such as illustrated in Figures 4 and 5, however, the T bar 42 or H-shaped runner 44, are spaced so as to receive a ceiling tile which can be used to close off the opening so that the fixture may or may not be used.

Since it is obvious that the invention may be embodied in other forms and constructions within the scope of the claims, I wish it to be understood that the particular forms shown are but a few of these forms, and various modifications and changes being possible, I do not otherwise limit myself in any way with respect thereto.

What is claimed is:

1. The combination with a downwardly opening fluorescent lighting fixture having a ballast carrying wiring channel which supports fluorescent lamp sockets extending below the mouth of the channel, and means for supporting the channel from above, of ceiling supporting bars spanning the wiring channel, secured to it and having downwardly bent ends, longitudinally extending members secured to the ends of the bars, said longitudinally extending members having vertical walls and inwardly facing flanges at the level of the mouth of the wiring channel, clips adjacent the vertical walls of the members, and ceiling surfacing material supported from the clips at the same level as the mouth of wiring channel, laterally spaced from the wiring channel and extending away from the channel whereby the lamps are supported immediately below the ceiling line.

2. The combination of claim 1, having closure devices between the sides of the wiring channel and the longitudinally extending members to hide the bars and sides of the wiring channel.

3. The combination of claim 1, having closure devices between the sides of the wiring channel and the longitudinally extending members to hide the bars and sides of the wiring channel, and an inverted reflecting trough carried below the closure devices and about the lamp.

4. In combination, a downwardly opening, fluorescent lighting fixture wiring channel carrying downwardly extending lamp sockets, channel hangers, extending upwardly from the channel, transversely extending bars secured to the top of the wiring channel, inwardly facing framework channels secured to the ends of the bars to form an elongated opening, the mouth of the wiring channel and the lower faces of the framework channels being at a common level, ceiling surfacing material supported from the outer sides of the framework channels at such common level, means for closing the space between the framework channels and the wiring channel and also the bottom of the wiring channel, and lamps carried by the sockets immediately below the ceiling line.

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| 2,376,715 | Naysmith | May 22, 1945 |