Dec. 21, 1948. K. VERSEN 2,456,903

LIGHTING FIXTURE

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Fig. 1.

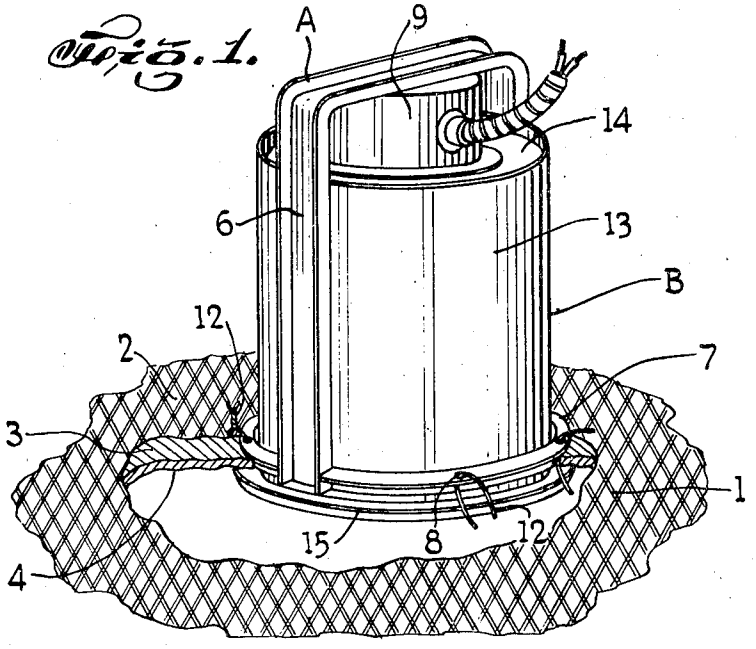
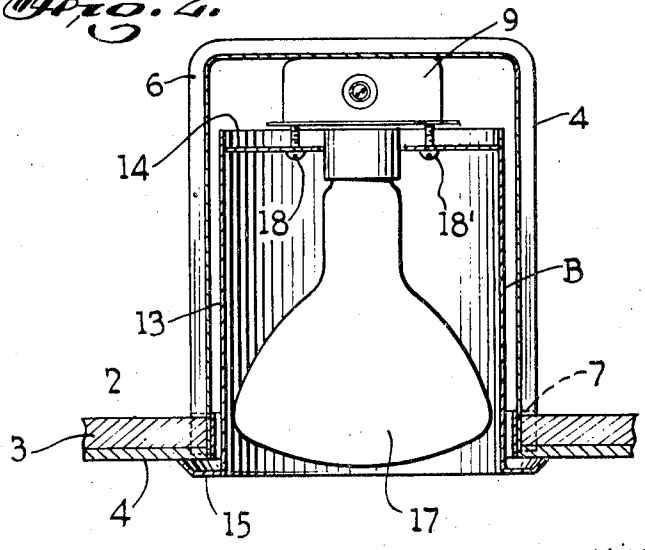


Fig. 2.



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Fig. 3.

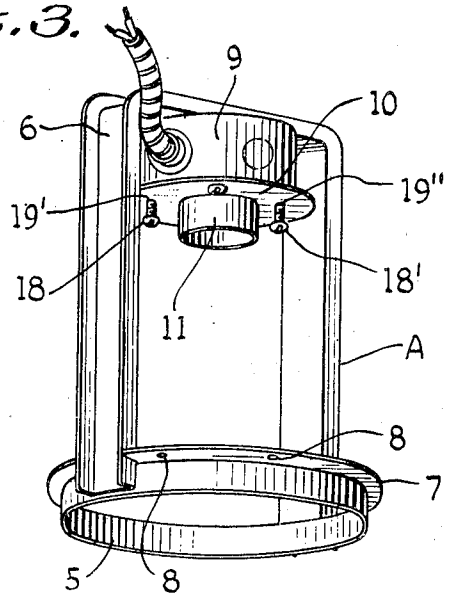
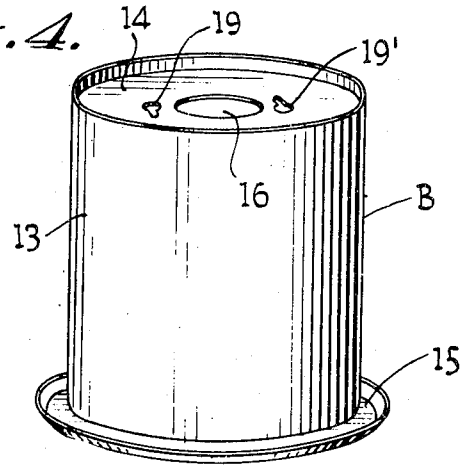


Fig. 4.



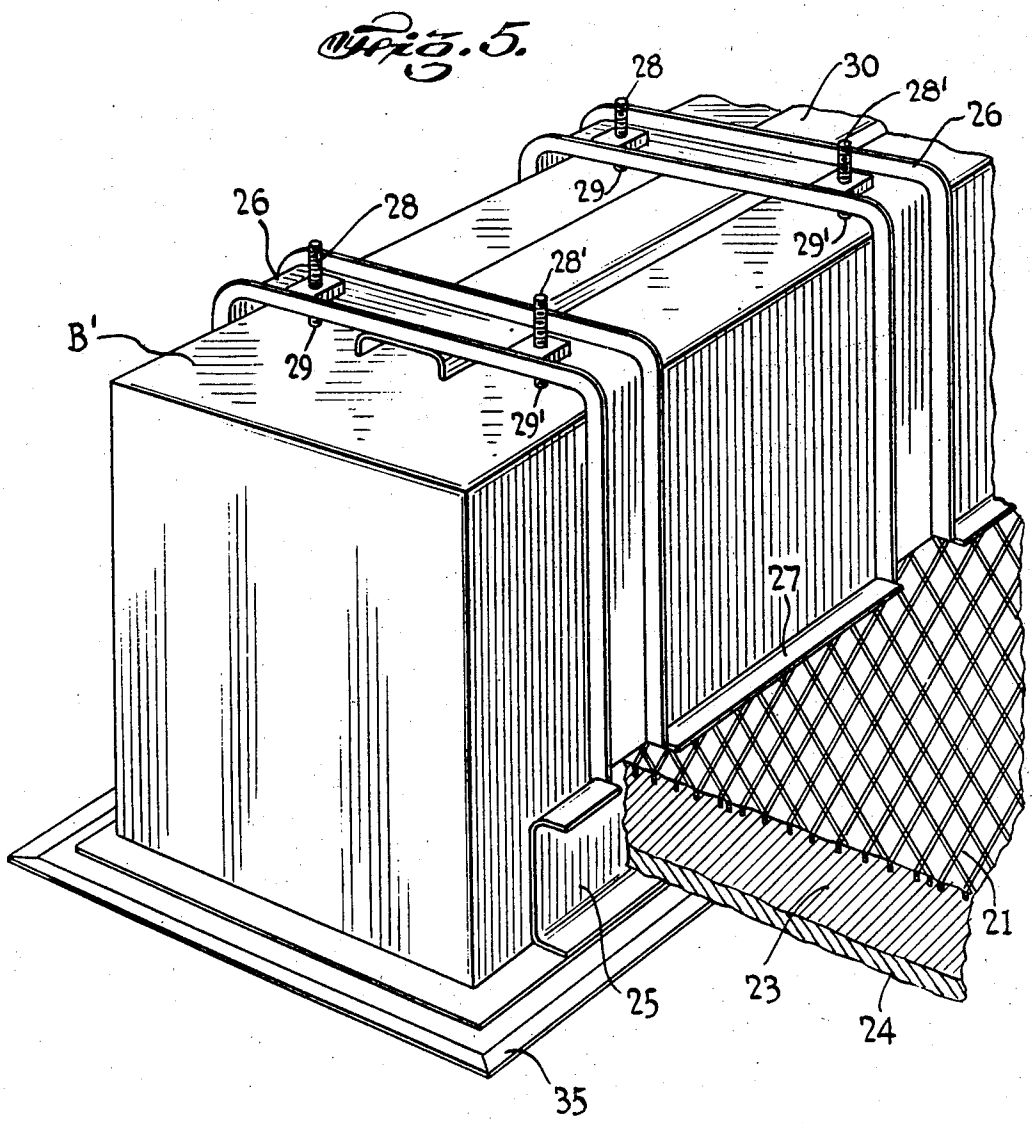
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Fig. 5.



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LIGHTING FIXTURE

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Application May 18, 1946, Serial No. 670,680

5 Claims. (Cl. 240—78)

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This invention deals with lighting fixtures and is concerned more particularly with recessed lighting fixtures and the installation thereof.

Recessed lighting fixtures, whether for incandescent or fluorescent lighting, are recessed within and behind the overhead ceiling and substantially all parts thereof are hidden from view by concealment thereof behind such ceiling.

The conventional way of providing a recessed fixture, and the installation thereof, involves the utilization of a metal ring and fixture housing, wherein the metal ring is set within the ceiling structure, usually by plastering and securing the ring to the wire lath or furring strips of the ceiling, and the fixture housing is attached to the metal ring by means of horizontal threaded openings within the metal ring engaging bolts passed through slip holes of the fixture housing. Such conventional method, however, suffers from a number of shortcomings, such, for example, as the clogging or corroding of the threaded openings of the ring during or as the result of the plastering operation.

Many attempts have, therefore, been made to improve upon such conventional way and it has been proposed, for instance, to provide special ceiling structures for such recessed lighting fixtures, wherein such specially designed ceiling structures have special supporting means for the recessed fixture housing. The methods of the prior art are not, however, satisfactory in providing a perfect recessed lighting fixture. Thus, for instance, recessed lighting fixtures, as heretofore known, do not easily conform with the configuration, often uneven, of the hung ceiling and are not in perfect alignment therewith to provide a smooth fit of fixture and ceiling surface. Furthermore, recessed lighting fixtures, as heretofore known, are usually not easily accessible either during the installation thereof or for repair work after installation. Other recessed fixtures of the prior art are adapted only for installation prior to the hanging of the ceiling and are thus not available for use with already installed hung ceilings.

It is, therefore, one object of this invention to provide a recessed lighting fixture which shall be capable of being installed easily and simply and which shall be adapted for installation prior to as well as subsequent to the formation of a hung ceiling.

It is another object of the invention to provide a recessed lighting fixture which shall be easily accessible at all times. It is a further object of the invention to provide such recessed fixture

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which shall be substantially flush with the ceiling surface and which shall conform with and be part of the ceiling surface to provide substantially uninterrupted continuity of the ceiling surface. Other objects and advantages of my invention will appear from the description thereof hereinafter following.

The recessed lighting fixture, according to the invention, is illustrated in the accompanying drawings forming part hereof and in which:

Fig. 1 represents a perspective elevational view of the recessed lighting fixture structure as installed within the open space behind a hung overhead ceiling, with part of the ceiling broken away and part of the ceiling in section,

Fig. 2 represents a cross sectional elevational view in schematic fashion of an installed recessed lighting fixture in accordance with the invention,

Figs. 3 and 4 represent perspective elevational views of the component parts, in unassembled form, of the structure of the recessed lighting fixture shown in Figs. 1 and 2, and

Fig. 5 represents a perspective elevational view of another embodiment of a recessed lighting fixture according to the invention.

Figs. 1 and 2 represent, therefore, an assembly of the separate parts, shown in Figs. 3 and 4, to form the unitary recessed lighting fixture as installed in a hung ceiling. Referring more particularly to Figs. 1 and 2, the hung plaster ceiling 1 is shown as comprising the conventional threefold composition of wire lath 2, intermediate brown plaster 3 and plaster facing or finish 4. The recessed lighting fixture shown in elevation in Fig. 1 and in cross section in Fig. 2 comprises a carriage or cage A, shown more particularly in Fig. 3, and a fixture housing B, more particularly shown in Fig. 4.

The cage A—see Fig. 3—comprises a base 5 supporting a bridge 6. In the case of the circular fixture illustrated in Figs. 1–4 such base 5 will normally consist of an annular ring. The bridge 6 spanning the ring from side to side may be in the form of an inverted square bottomed U, as shown, of light weight and great strength, as, for instance, metal sheet with reentrant reinforcing flanges to form a channel-shaped strip, as shown. The base 5 is provided along its upper periphery with an outwardly projecting flange 7, base and flange forming between them a right angle. The flange 7 is advantageously provided with a number of openings or holes 8. Both the base 5 and the flange 7 are customarily constructed of metal. A junction box 9 with cover plate 10 and socket 11 may be provided either

within or without the cage structure A, for instance as shown attached to and depending from the overhead part of the bridge or yoke 6. The height of the base or ring 5, below the angular and laterally projecting flange 7, is so designed and dimensioned that it corresponds to, and at least does not exceed, the thickness of the hung ceiling, for instance, in the case of a composition plaster ceiling the thickness of wire lath and the customary two coats of plaster, so that the lower edge of the base 5 will be flush with the ceiling facing and the lateral flange 7 will overlap and rest on the upper surface of the hung ceiling. After the cage is seated on the hung ceiling the lateral flange 7 is advantageously and firmly secured to the wire laths or furring strips of the ceiling, for instance, by means of wires 12 tied through the openings 8 of the flange 7 to the wire lath, respectively furring strips, as illustrated for instance in Fig. 1. If the hung ceiling should not be sufficiently strong to carry the fixture, or a plurality of fixtures, as may be desired, the firm attachment and location of the cage may be supplemented by additional supporting means, e. g., suspension straps anchored to and depending from the main ceiling, which suspension straps may be secured to the overhead part of the bridge or yoke 6 of the cage. The cage or frame A is adapted to be installed either simultaneously with the formation of a hung ceiling or in already existing ceilings. After positioning of the cage in location the ceiling facing is finished, e. g., by plastering and all electrical work, such as installation of current connections and electrical accessories is attended to, and it will be noted in this connection that easy access is afforded to attend to such electrical work.

The fixture shell or housing B comprises a sustaining wall 13, a top plate 14 and an outwardly extending bottom flange 15, to assume in the case of the circular fixture illustrated in Figs. 1–4 an inverted-cup shape. The top plate 14 is provided with an aperture 16 to accommodate the electrical connection for the lamp itself, such as lamp 17, as shown in Fig. 2. Where a junction box and socket are provided as part of the overhead bridge, as illustrated in Figs. 1–3, such aperture 16 advantageously engages and encompasses such socket 11.

After installation of the cage A in the hung ceiling and after the completion of all electrical connections, the fixture housing or shell B is slipped through the cage A and firmly interlocked therewith to form the recessed fixture of Figs. 1 and 2. In the fixture according to the invention this interlocking and formation of the assembled complete fixture is effected by vertically operative means, i. e., means operative in a direction perpendicular to the plane of the parallelly disposed flange 7 of the base 5 of the cage and the bottom flange 15 of the fixture housing, whereby the fixture housing may be secured to the overhead part of the bridge or yoke of the cage, either directly or indirectly. In the drawings of Figs. 1 to 4 I have illustrated one particularly advantageous and effective way of accomplishing such vertically directed interlocking, namely, through screws or bolts 18 and 18' depending from the centrally located junction box 9 and adapted to slip through the key slots 19' and 13', respectively, of the fixture housing, the housing being thereupon twisted concentrically to engage the screw heads. Subsequent tightening of the screws or bolts 18 and 18' will

provide a firm interlocking of cage and housing. It should be noted that whether or not a junction box, e. g., junction box 9, is provided within the cage, as illustrated in the drawings of Figs. 1–4, the housing and cage may be interlocked in any other suitable manner, e. g. directly, so long as such interlocking occurs by way of means operative in a substantially vertical direction, so that the fixture housing is pulled up against the hung ceiling and the flange 15 of the housing will close tightly against the ceiling surface, as the result of the vertical movement thereof impressed upon it by the vertically operative interlocking means, thus conforming the fixture flange 15 and the configuration of the ceiling surface without any gaps or cracks which might otherwise show, the lower edge of the assembled fixture thus being flush with the surface of the hung ceiling whereby only the ceiling flange 15 of the fixture housing and the light-diffusing glass or the like, if any, of the recessed fixture will be visible.

The recessed lighting fixture of the invention is adapted to be installed in new as well as preexisting ceilings alike. It is characterized by extremely easy accessibility during installation as well as thereafter, and by a perfect smooth fit of fixture and ceiling facing, thus avoiding any undesirable undue contrast between the fixture and the surface of the ceiling and avoiding any interference with accoustical ceilings. The vise-like grip exerted on the hung ceiling by the parallelly arranged laterally extending flanges of the fixture cage and fixture housing and the vertical suspension of the fixture housing from the overhead bridge of the fixture cage make it possible to support the recessed lighting fixture primarily on the ceiling itself and normally without the use of supplemental supporting means. The vertical joinder of the housing and cage by way of screw threaded means vertically operative also make it possible to control or adjust the positioning of the lighting source relative to the light diffusing means, such as glass panel, with resultant optical benefits.

In Figs. 1–4 I have illustrated a circular fixture embodying the features of the invention. The drawing of Fig. 5 illustrates another embodiment of the invention in the form of an elongated fixture useful in particular with elongated fluorescent or the like lamps. In this case I provide a cage comprising a plurality of spaced bridges or yokes 26 supported upon a base 25 which may consist of a ring of rectangular shape with flange 27. The bridges 26 are preferably interconnected for purposes of greater rigidity by brace 30. The fixture housing B is, of course, of elongated rectangular shape to form an inverted trough-like structure and has an outwardly extending flange 35. The fixture housing B is held within the cage comprising the bridges 26 by means of the bolts 28 and 28', at each bridge 26, passing through the holes 29 and 29' of the housing itself. The ceiling 1, which may consist of the customary metal lath 22, brown plaster 23 and finish plaster 24 is then held between the flanges 27 and 35.

It will be understood that the bridge 6 or 26, respectively of the cage of the invention may have any suitable shape and take any suitable form, having the effect of forming an overhead bridge or yoke between opposite parts of the base 5 or 25, respectively, although I prefer for evident reasons of strength and rigidity the inverted U-shaped described.

In all cases, therefore, the interlocking means

are operative in a direction perpendicular to the planes of the flanges of the housing and the cage, with an intervening space between the housing and the cage to allow for compensation of variations in thickness and surface of the mounting surface, such as the ceiling, which is engaged by the flanges in a vise-like grip.

What I claim is:

1. A recessed lighting fixture comprising a fixture housing provided with a bottom flange extending outwardly therefrom, a supporting cage surrounding said housing and comprising a base frame, provided with a top flange extending outwardly therefrom and having secured thereto at least one overhead bridge, and a junction box including lamp socket, said housing and said cage being connected by interlocking means operative in a direction perpendicular to the lanes of said flanges, with an intervening space between said housing and said cage to allow for compensation of variations in thickness and surface of the mounting surface, said flanges being adapted to engage therebetween the mounting surface in a vise-like grip.

2. A recessed lighting fixture according to claim 1, wherein said overhead bridge has the shape of an inverted U.

3. A recessed ceiling lighting fixture comprising a fixture housing with a bottom flange extending outwardly therefrom, a supporting cage surrounding said housing and comprising a base frame provided with a top flange extending outwardly therefrom and having secured thereto at least one overhead bridge, and a junction box affixed to said bridge, said housing and said cage being connected by interlocking means operative between said housing and said junction box in a direction perpendicular to the planes of said flanges, with an intervening space between said housing and said junction box to allow for compensation of variations in ceiling thickness and surface, said flanges being adapted to engage therebetween the ceiling in a vise-like grip.

4. A recessed ceiling lighting fixture comprising a cylindrical fixture housing with a substantially right-angle bottom flange extending outwardly therefrom, a supporting cage surrounding said housing and comprising an annular base frame provided with a substantially right-angle top flange, extending outwardly therefrom and having secured thereto at least one overhead bridge, and a junction box affixed to said bridge, said housing and said cage being connected by interlocking means operative between said housing and said junction box in a direction perpendicular to the planes of said flanges, with an intervening space between said housing and said junction box to allow for compensation of variations in ceiling thickness and surface, said flanges being adapted to engage therebetween the ceiling in a vise-like grip.

5. A recessed ceiling lighting fixture comprising a fixture housing provided with a substantially right-angle bottom flange extending outwardly therefrom, a supporting cage surrounding said housing comprising a base frame provided with a substantially right-angle top flange extending outwardly therefrom and having secured thereto at least one overhead bridge, and a junction box including lamp socket, said housing and said cage being connected by interlocking means operative in a direction perpendicular to the planes of said flanges, with an intervening space between said housing and said cage to allow for compensation of variations in ceiling thickness and surface, said flanges being adapted to engage therebetween the ceiling in a vise-like grip

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,461,487	Laibach	July 10, 1923
1,869,823	Reader	Aug. 2, 1932
1,901,235	Glowacki	Mar. 14, 1933
2,305,015	Langer	Dec. 15, 1942
2,321,099	Naysmith	June 8, 1943
2,346,315	Levy	Apr. 11, 1944
2,376,715	Naysmith	May 22, 1945