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W. W. KANTACK
VENTILATED LUMINAIRE

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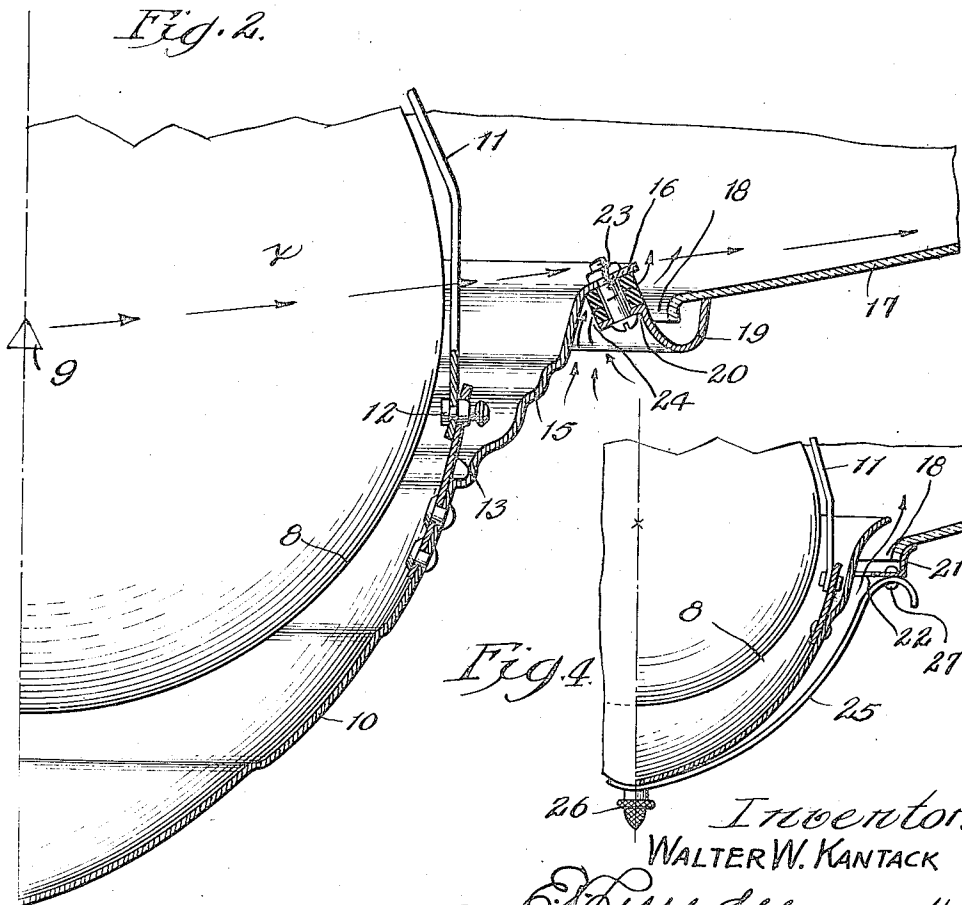
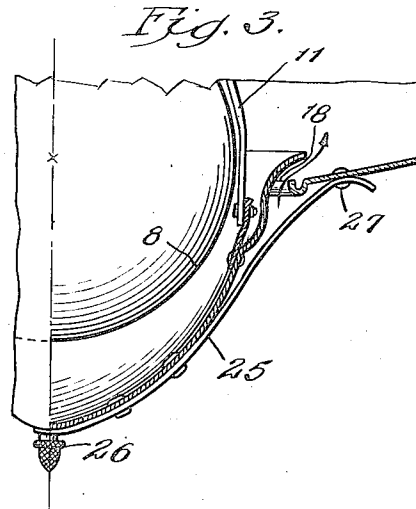
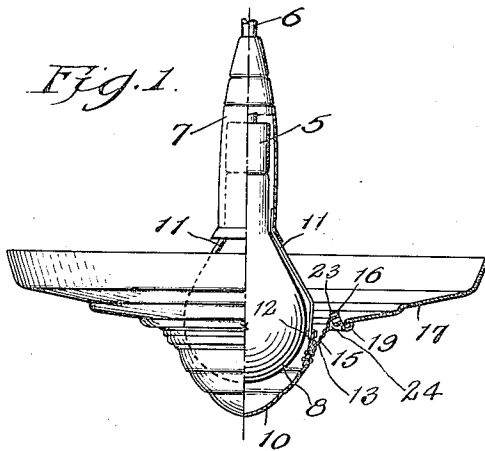


Fig. 4.

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VENTILATED LUMINAIRE

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4 Claims. (Cl. 240—78)

My invention relates primarily to luminaires of the indirect or reflector type, but it will be obvious the principles of my improved structure may be readily embodied in lighting fixtures of the direct, semi-direct, as well as other types.

Certain types of luminaires which are used in offices, stores and dwellings are provided with large bowl-shaped bodies of metal, glass and other materials such as molded plastic compositions, which bodies provide a portion of an ornamental fixture. The inner surfaces of these bodies are frequently utilized to provide indirect illumination by reflecting light rays from the concealed lamp or bulb in an upward direction out of the fixture to a horizontal surface (usually the ceiling) from which such light rays are reflected in a downward direction. The light bulbs are usually of high wattage and the heat given off by such bulbs is so intense that the bowl-shaped body is frequently damaged or marred. When glass bodies are employed the generated heat from the bulbs will crack these bodies especially the portions thereof that are contiguous the bulb where they are under the influence of and in the zone of highest temperature. Metal bodies usually withstand the heat of the bulbs. However, these metal bowls or bodies are sometimes coated upon their lower exterior surfaces with paint or other material in order to harmonize the luminaire with the decorative treatment of the walls and ceiling of the room, and sometimes a light tone coating is applied to the inner surface to improve the reflective properties of the bowl or body. I have found that the heating of the metal causes deterioration and scaling of the coating and sometimes alters the tone of the color pigments thereof. Plastic bodies are usually molded or shaped from a suitable composition and the walls are relatively thin as compared with glass and they are considerably lighter in weight than either the glass or the metal bowl. I have also found that these plastic bodies crack, and discolor and become distorted by the heat given off by the bulbs especially where the inner edges of the bodies are in close relation to the bulbs.

In my invention the central portion of a bowl-shaped body is provided with an opening the edge of which is disposed adjacent the outer margin of a cup-shaped member in a position close to the bulb and said bowl may be supported in such position in any suitable manner. The cup preferably is below and closely surrounds a portion of the light bulb to act as an indirect reflector and it may be suspended or hung by straps or brackets depending from the hanger or other means that

supports the lighting fixture from the ceiling. When the cup-shaped member is positioned close to the bulb it rapidly becomes heated to a high temperature and such heat is readily transmitted to the bowl if the latter is permitted to rest directly upon the rim of the cup. Furthermore, the inner marginal portion of the bowl in such a position would be exposed to and under the direct influence of radiant heat rays from the bulb which would further increase the temperature absorbed by the bowl from the cup.

As a result of my experimentation I have ascertained that, by providing an air-passageway between the cup, (which is close to and around the bulb), and the bowl (which may be supported by the cup) such passageway very definitely effects a reduction of the temperature of the bowl to a marked extent so that the liability of damaging said bowl is practically eliminated. In addition to this air passageway, which I prefer to form of an annular shape, I have also provided an efficient shield or guard to prevent the radiating heat rays from the bulb reaching the contiguous portion or inner margin of the bowl. This air-passageway provides definite ventilation and cooling of adjacent parts in that an upwardly flowing current of cool air passes through the luminaire in a zone around the bulb. The air-passageway thus performs the functions of an insulating air space between adjacent edges of the bowl-shaped body and cup-shaped member and it prevents, to a large extent, the conductive transmission of heat from the cup to the margin of the bowl. The reductions in temperature which I have thus provided permits the use of small cup-shaped member around and close to the bulb so that the proximate edge of the bowl-shaped body member may therefore be brought into close proximity to the bulb without risk of damage to the bowl.

I have numerous objects in mind in designing my improved luminaire, one of which objects is to provide a structure of the character disclosed that is effective and dependable in operation. Other objects are to provide a luminaire that is novel in construction; is made of sturdy parts to withstand severe usage; is simple to operate; and which is economical to manufacture so that it may be sold for a reasonable retail price. The above as well as other objects and advantages will be apparent to persons skilled in the art after the construction and operation of my invention is understood from the within disclosure. I prefer to practice my said invention and accomplish the objects and advantages thereof in substantially the manner hereinafter fully explained and as

more particularly pointed out in the claims. Reference is made to the the accompanying drawing that forms a part of this specification.

In the drawing:

5 Figure 1 is a view half in elevation and half vertical section, and showing a preferred form in which my invention may be made.

10 Figure 2 is a view in vertical section, substantially full-size, showing details of construction and assembly.

Figure 3 and 4 are views, similar to Figure 1, showing modified forms in which my ventilated luminaire may be made.

15 It will be understood the drawing is more or less schematic, and is for the purpose of disclosing typical or preferred forms of my invention, and in the drawing like reference characters are used to identify the same parts wherever these parts appear in the different views.

20 The structure which is shown in miniature in Figure 1 and full-size in Figure 2, embodies an electric socket 5 supported at the lower end of a hanger 6 suspended preferably from the ceiling, and a suitable ornamental sheath or husk 7 en-
25 velops the socket and extends to a horizontal plane below the socket so that the lower portion of said sheath surrounds the neck of the electric light lamp 8 carried by said socket. The lamp or bulb 8, if of conventional type, has a substan-
30 tially centrally disposed filament, schematically shown at 9, that is rendered incandescent when electrically charged, and provides the source of illumination of the fixture. The lamp may how-
35 ever be of other types such as the neon, the sodium vapor and the like which are utilized for the purposes of illumination.

A suitably shaped cup or cap 10 is suspended in any suitable manner in order that it surrounds and is in close proximity to the lamp or bulb.
40 The interior surface of this cup preferably has reflective properties and the light rays will be reflected from said surface in an outward direction. As typical of a means for supporting the cup 10 I have shown a plurality of metal hangers
45 or straps 11 that are bent to an irregular shape and have their upper ends suitably connected to the lower margin of the sheath while at their lower ends they are preferably detachably en-
50 gaged with headed studs 12 that are carried upon lugs or tongues 13 secured to the inner face of the cup. This permits ready assembly or disas-
55 sembly of the parts whenever desired. The cup 10 is preferably made of a metal sheet that is spun or pressed into the desired shape and its upper portion above the location of the lugs or tongues 13 may diverge from the lamp or bulb to provide
an outwardly extended margin 15 that terminates at its top edge in flared lip 16.

60 The top edge of the cup, which is the rim of the lip 16, is in a horizontal plane above the horizontal plane of the filament 9 or other source of illumination so that the only direct light rays which leave the cup are those above a true hori-
65 zontal plane striking through the light source and they pass out of the cup in an outward direction. The cup is quite close to the bulb and therefore becomes heated to a high temperature due to absorption of the intense heat rays that
70 are radiated by lamps of high wattage such as are commonly used for modern illuminating pur-
poses.

The bowl-shaped body 17 which approximates a continuation of the cup 10, may be of any suitable material that is adapted for the purpose.
75 In this connection I may use sheet-metal, glass

or plastic composition and shape the bowl prefer-
ably in a shallow dish-like form, although it will be understood I do not limit myself to such shape. The inner surface of the bowl is capable
5 of reflecting, in an upward and outward direc-
tion, such light rays as may impinge upon it, and when the bowl is formed from glass or certain
plastic compositions it is more or less translucent
so that light rays may be transmitted through
10 its wall. This bowl has a central opening 18 of
such dimensions that the bowl may be mounted
upon supporting devices that maintain the edge
of the opening in spaced relation to and prefer-
ably below the top edge of the cup. Thus an
15 annular opening or air-passage is provided be-
tween the adjacent edges of the cup and bowl.

In Figure 2 I have shown bowl supporting
means in the form of an annulus or ring that
has an outer portion 19 of U-shape cross-section
and an inner flat portion or flange 20. In Figure
20 4 the annulus or ring is of L-shape cross-section,
the upright flange 21 of which engages the bowl
adjacent the central opening 18 and the lateral
flange 22 extends inward towards the cup but
is spaced from it. In Figure 2 the ring is con-
25 nected direct to the lip or upper margin of the
cup by means of bolts 23 that are surrounded by
suitable tubular spacers 24 of heat insulating ma-
terial to avoid conductive transmission of heat to
the ring and inner margin of the bowl. The
30 means for supporting the annulus or ring shown
in Figure 4 as in the form of a plurality of orna-
mental curved arms 25 that have their upper
ends secured to the horizontal flange 22 of the
ring and have their lower ends secured by an
35 ornamental bolt 26 to the lower apex of the cup.

Figure 3 discloses a method of mounting the
bowl in spaced relation to the rim of the cup
which dispenses with the use of the ring. In this
type of structure the arms 25, similar to those in
40 Figure 4, extend up into contact with the bowl
17 and are connected to the inner margin of the
bowl by rivets 27 or bolts, or other convenient
means.

In all of the types shown the cup element is
45 close to and surrounds the lamp or bulb element
and the rim of the cup is in a horizontal plane
above the light source. The bowl element is dis-
posed with the edge of its central opening ad-
50 jacent but spaced from the lip of the cup and
preferably in a horizontal plane below the lip so
that an annular air-passageway is provided be-
tween the cup and bowl to prevent heating of the
bowl element. Heat rays from the light source
55 as well as the light rays therefrom radiate in an
upward direction out of the cup, the lower-most
rays being those traversing the path shown by
the long arrows x in Figure 2. Due to the up-
ward movement of the current of air through
60 the air-passageway there is a cooling effect upon
the adjacent structure. The bowl element near
its inner margin is also prevented from heating
because the lip or margin of the cup acts as a
shield or guard so that the rays do not reach the
65 bowl until quite remote to the inner margin of
the latter. The arrangement I have disclosed
permits the bowl to be disposed with its inner
edge close to the bulb without risk of damage.

What I claim is:

1. A ventilated luminaire embodying a bulb; a
70 heat generating light source therein; a cup sur-
rounding a portion of said bulb, said cup pro-
vided with an upper rim portion disposed with
its margin above the horizontal plane of said
light source; a translucent bowl encircling said
75

rim, said bowl having a central opening the margin of which opening is in a plane below the top of said rim; and a ring separate from said cup and suspended therefrom in spaced relation below the horizontal plane of said rim, said ring supporting said translucent bowl in spaced relation and at a substantial distance from said rim, the margin of said rim shielding the marginal portion of said bowl around said central opening from direct light rays and radiant heat rays emanating from said light source and bulb, the space between said rim and said bowl constituting heat-insulating means maintaining the proximate portion of said bowl at a substantially lower temperature than said rim during illumination of said bulb.

2. A ventilated luminaire embodying a bulb; a heat generating light source therein; a cup surrounding a portion of said bulb, said cup provided with an outwardly flared rim disposed with its margin above the horizontal plane of said light source; a translucent bowl encircling said flared rim, said bowl having a central opening the margin of which opening is in a plane below the horizontal plane of said flared rim; and a ring suspended from said cup and suspended therefrom in a spaced position a substantial distance below said flared rim, said ring supporting said translucent bowl with the margin of the central opening in the bowl in spaced relation to said flared rim and providing a clearly defined insulating air-space there-between, the margin of said flared rim shielding the marginal portion of said bowl around said central opening from direct light rays and radiant heat rays emanating from said light source and bulb.

3. A ventilated luminaire embodying a bulb; a heat generating light source therein; a cup surrounding a portion of said bulb, said cup provided with an outwardly flared rim disposed with its margin above the horizontal plane of said light

source; a translucent bowl encircling said flared rim, said bowl having a central opening the margin of which opening is in a plane below the horizontal plane of said flared rim; and annular means separate from said cup and suspended therefrom in spaced relation below said rim, said means adapted for supporting said bowl pendent from the outer portion of said flared rim whereby the inner margin of said bowl is disposed in a position a substantial distance below said flared rim, said means supporting said translucent bowl with the margin of the central opening in the bowl in spaced relation to said flared rim and providing a clearly defined insulating air-space there-between, the margin of said flared rim shielding the marginal portion of said bowl around said central opening from direct light rays and radiant heat rays emanating from said light source and bulb.

4. A ventilated luminaire embodying a bulb; a heat-generating light source therein; a cup surrounding a portion of said bulb, said cup provided with an upper rim portion disposed with its margin above the horizontal plane of said light source; a bowl encircling said rim, said bowl having a central opening the margin of which opening is in a plane below the top of said rim; a ring; means on said ring supporting said bowl with the inner margin of said bowl below the rim of said cup, said rim shielding the inner margin of said bowl from direct light-rays and radiant heat-rays from said light source and bulb; and heat-insulating means supporting said ring in spaced relation below the rim of said cup, the space between said cup and ring constituting heat-insulating means maintaining the proximate portion of said bowl at a substantially lower temperature than said rim during illumination of said bulb.

WALTER W. KANTACK.