Fig. 2.

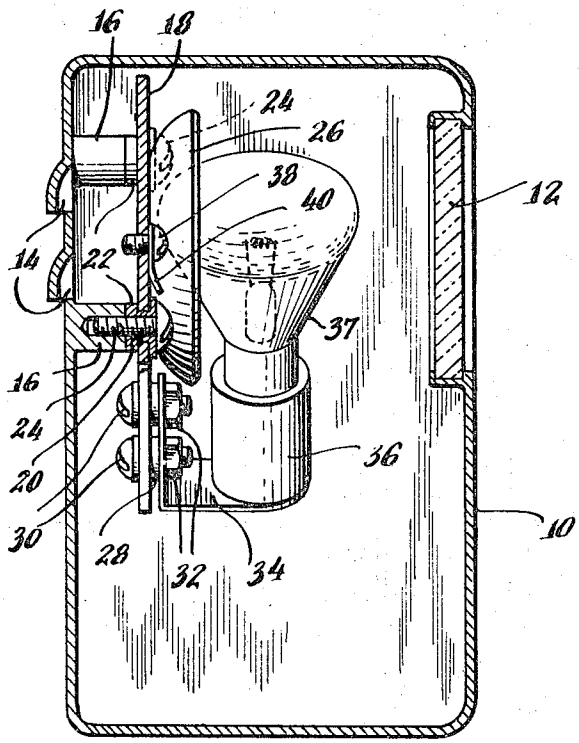


Fig. 1

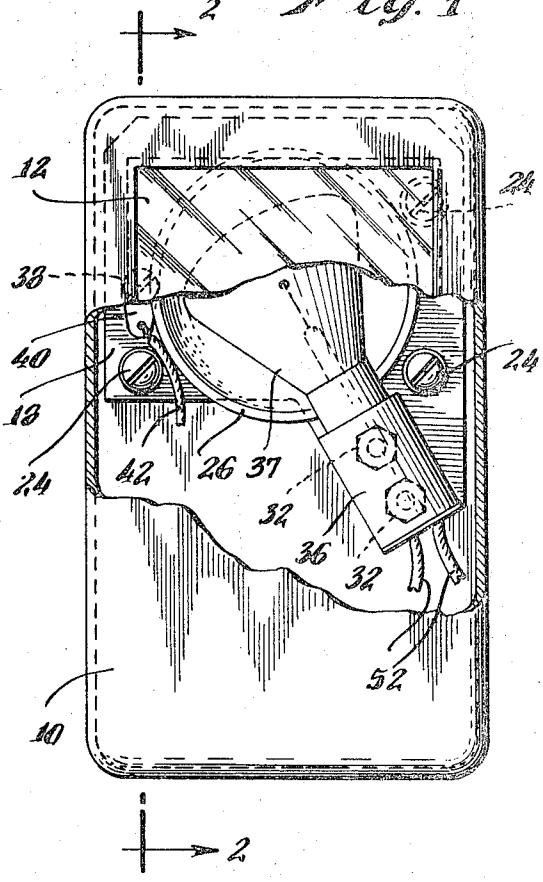
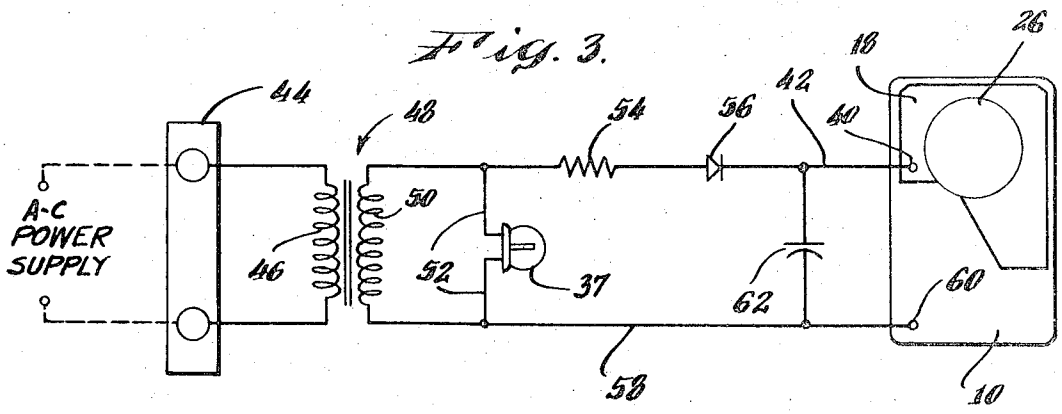


Fig. 3.



INVENTOR.
William A. Kalb, Jr.
BY
Wooster, Davis & Cyrell
ATTORNEYS.

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Fig. 1.

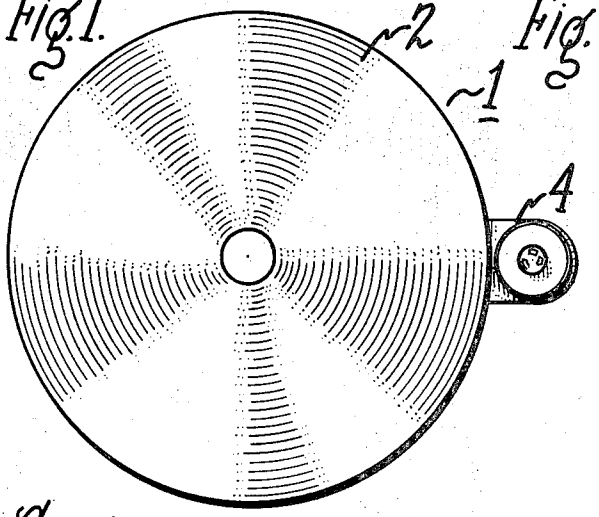


Fig. 4.

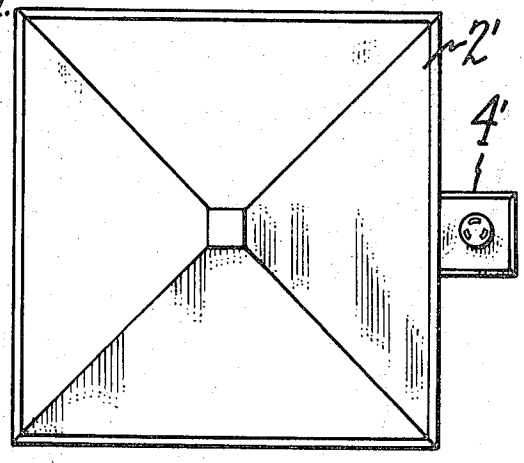


Fig. 2.

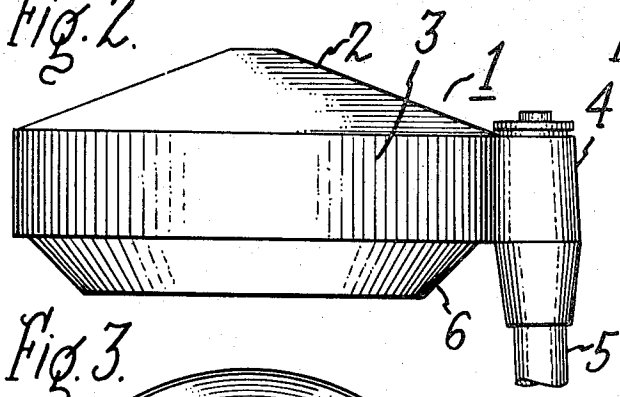


Fig. 5.

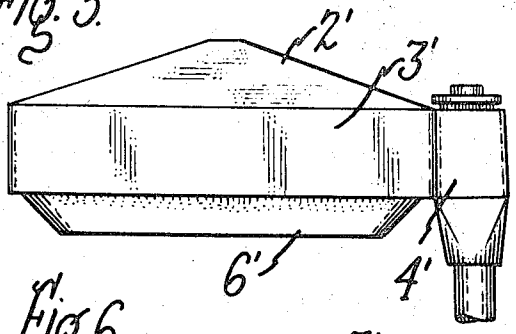


Fig. 3.

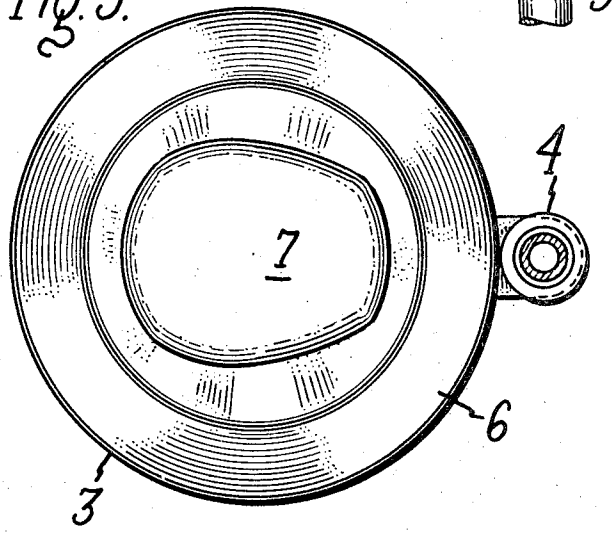
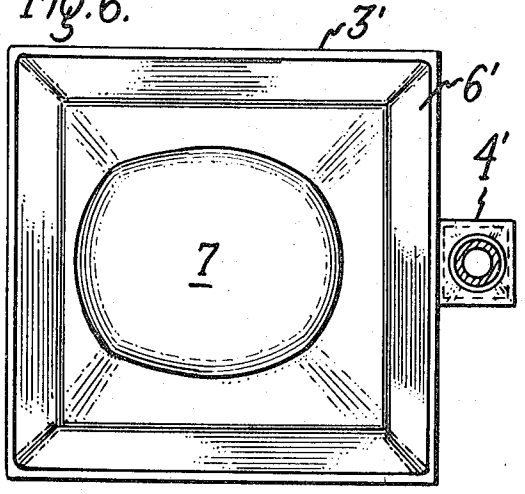


Fig. 6.



Inventor,
Samuel L. Baldwin,
by Sidney Greenberg
His Attorney.

Fig. 7.

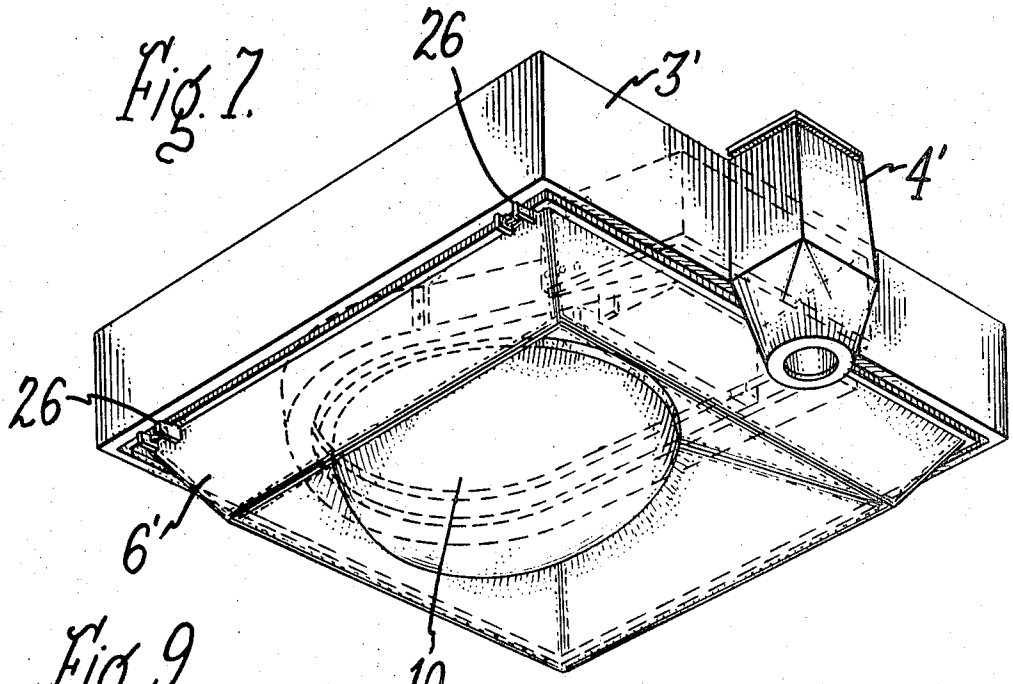


Fig. 9.

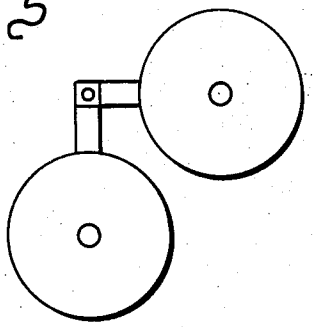


Fig. 8.

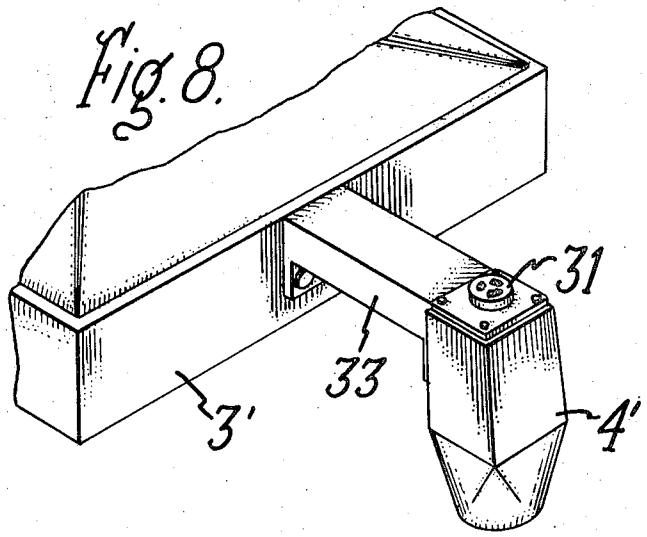
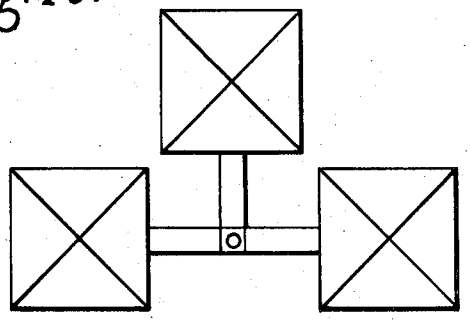


Fig. 10.



Inventor,
Samuel L. Baldwin,
by Sidney Greenberg
His Attorney.

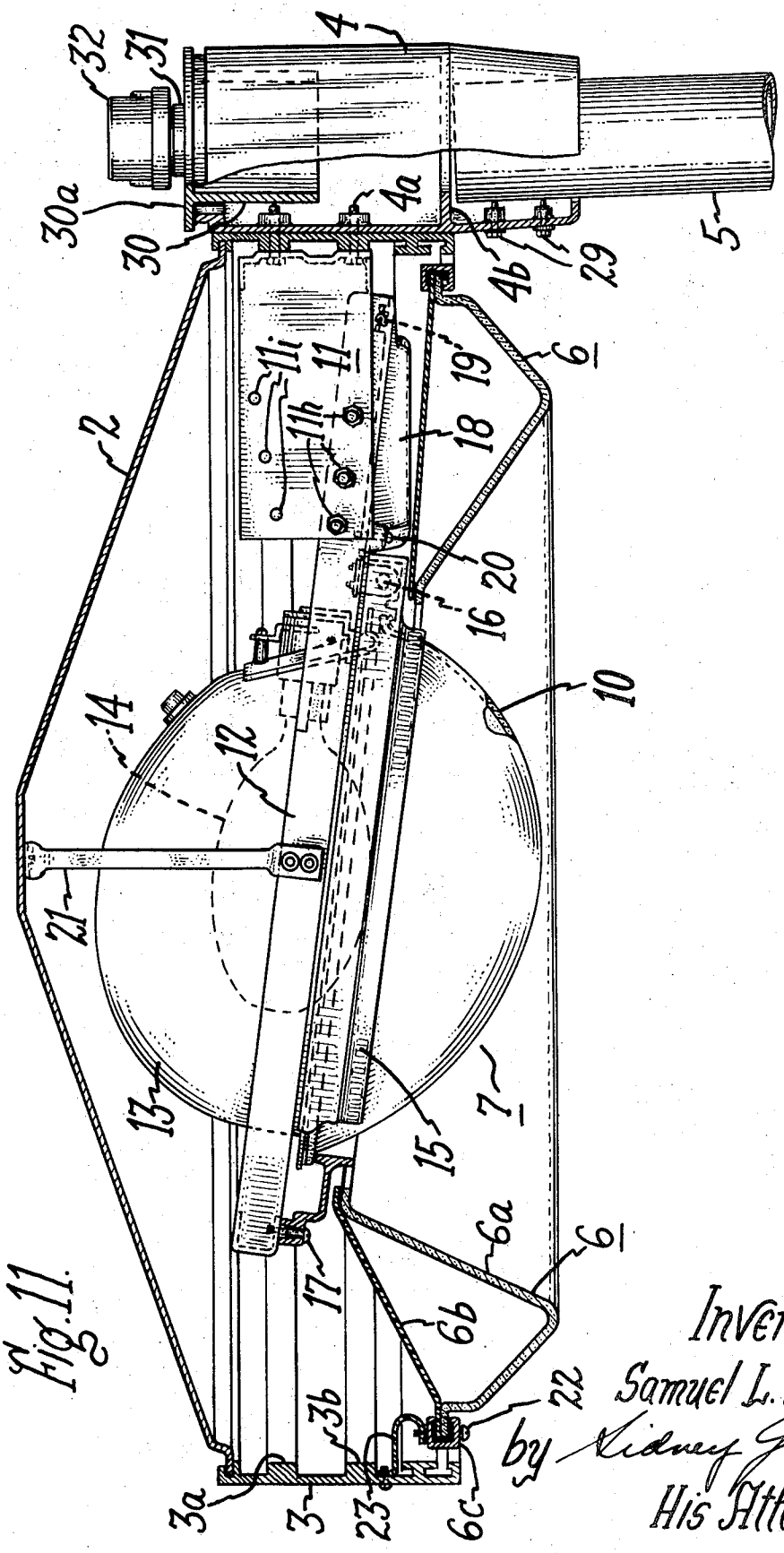
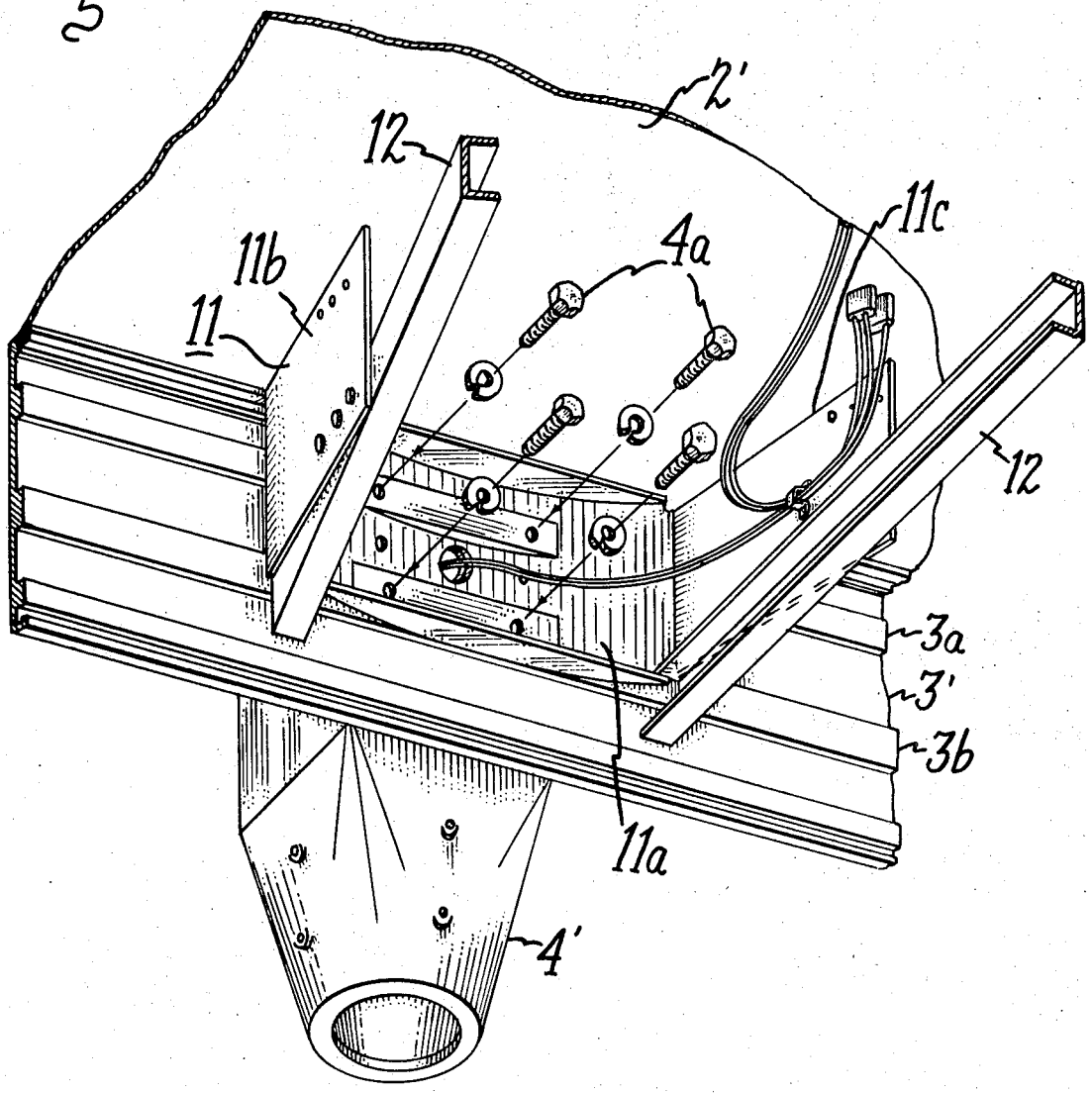


Fig. 11.

Inventor,
Samuel L. Baldwin,
by Sidney Greenberg
His Attorney.

Fig. 12.



Inventor,
Samuel L. Baldwin,
by Sidney Greenberg
His Attorney.

Fig. 13.

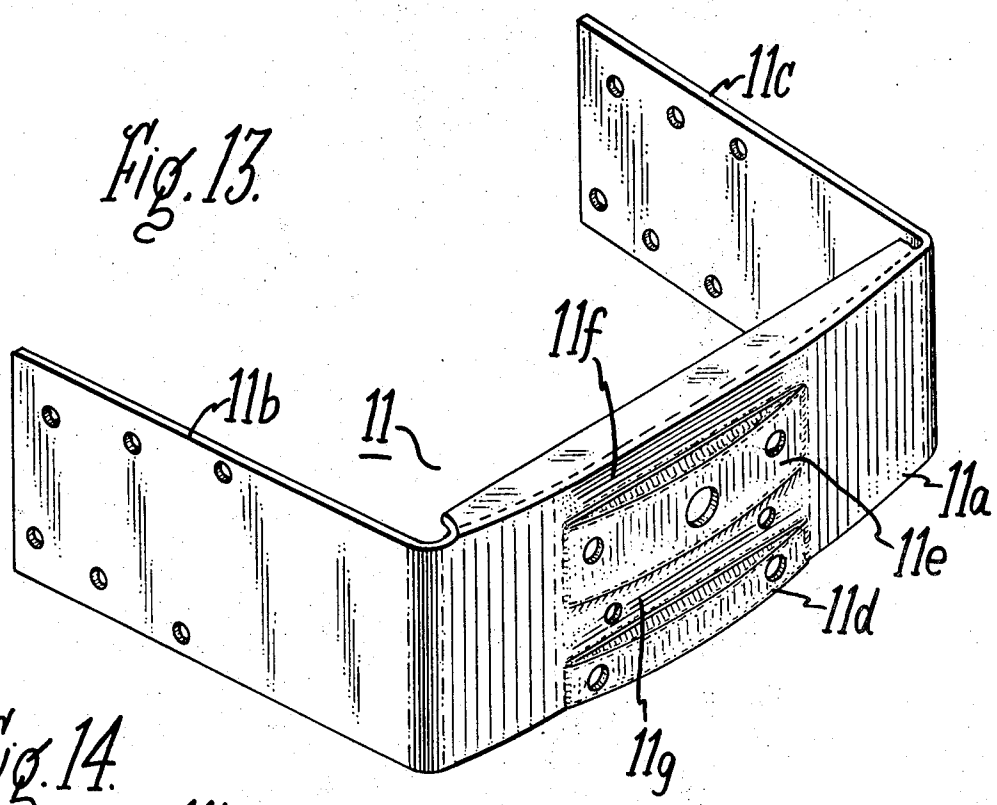
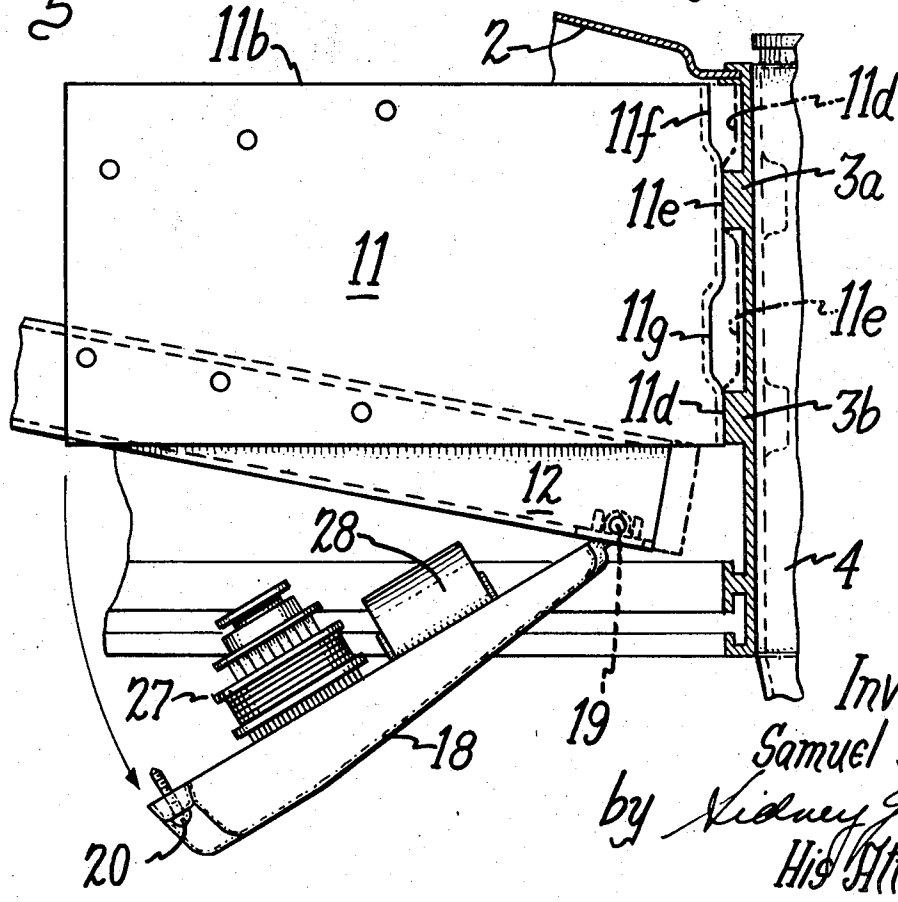


Fig. 14.



Inventor,
Samuel L. Baldwin.
by Sidney Greenberg
His Attorney.

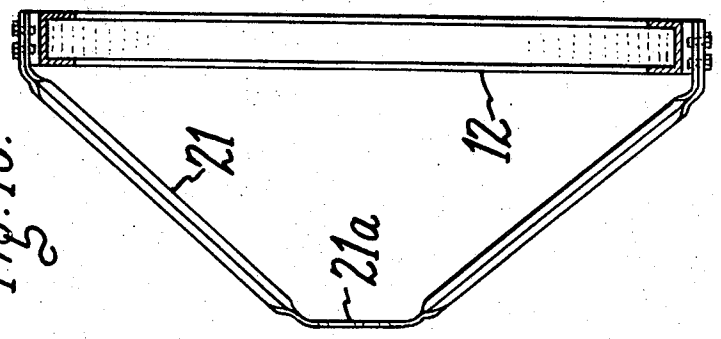


Fig. 16.

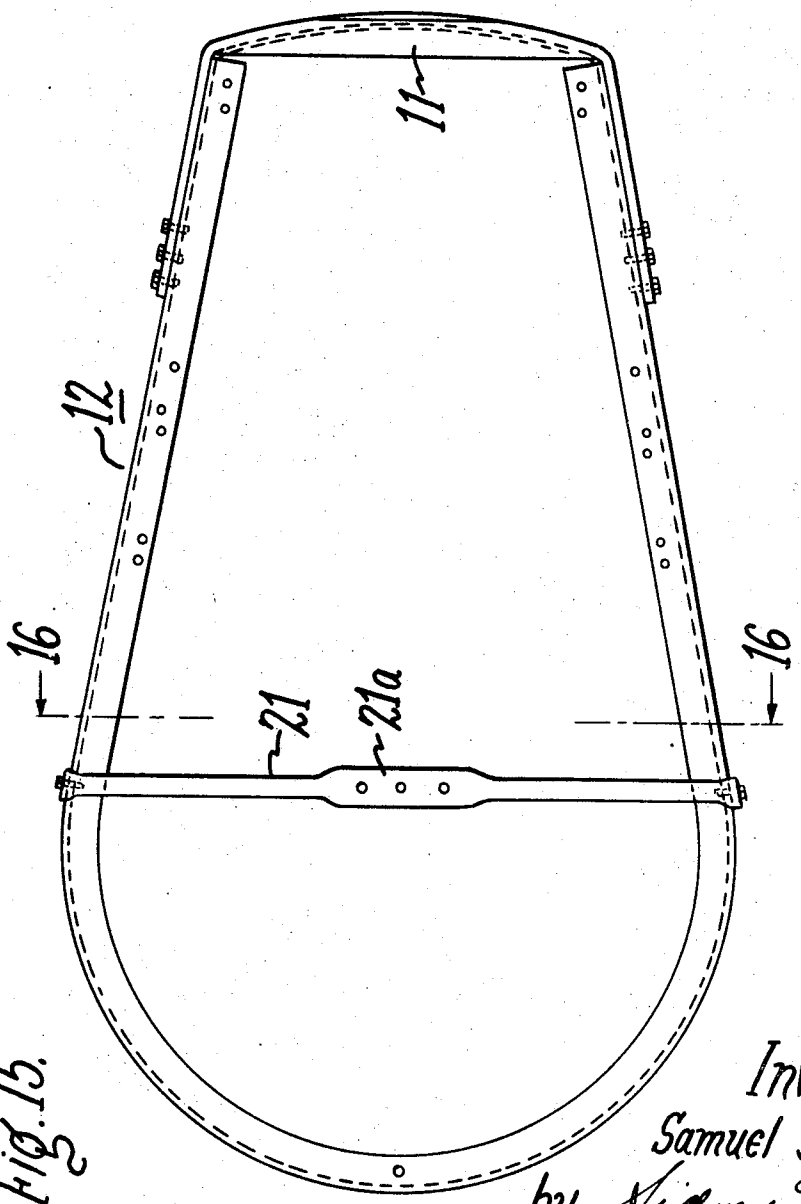


Fig. 15.

Inventor,
Samuel L. Baldwin,
by Sidney Greenberg
His Attorney.

Fig. 17.

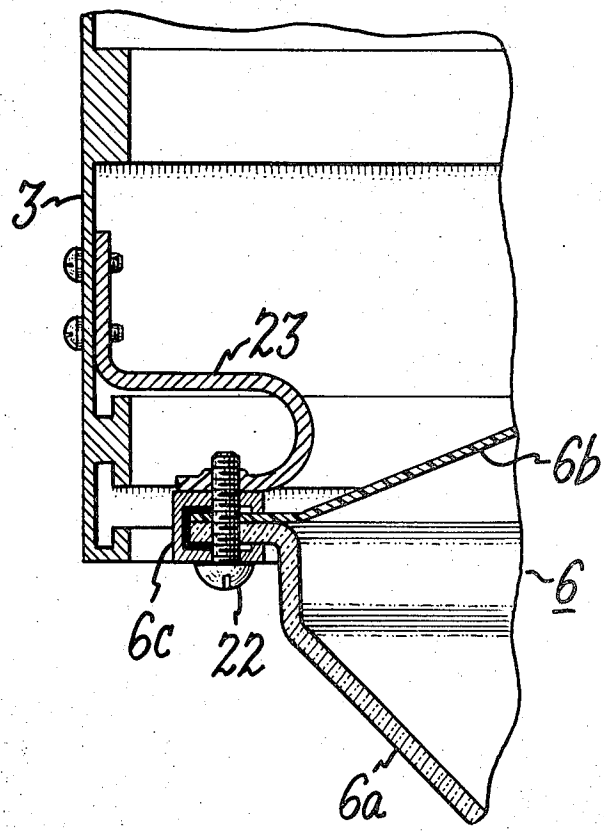
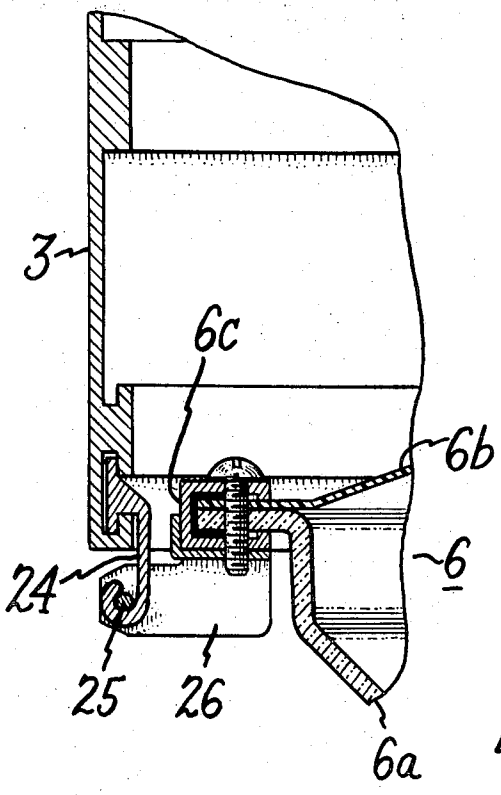


Fig. 18.



Inventor,
Samuel L. Baldwin,
by Sidney Greenberg
His Attorney.

LUMINAIRE

The present invention relates to luminaires, and more particularly to a lighting fixture suitable for street and area lighting purposes and adapted to have different appearance styles and mounting arrangements.

It is an object of the invention to provide a luminaire of the above type which is comprised of a common functional unit and having means for assembling therewith housing enclosures of selected configuration for imparting a desired appearance style thereto.

It is another object of the invention to provide a luminaire of the above type which may be installed singly or in groups of similar luminaires on a common main support.

A further object of the invention is to provide a common mounting device for mounting a plurality of the described luminaires, and a common control means for operating the thus mounted luminaires.

A particular object of the invention is to provide the above mentioned functional lighting unit with a novel mounting device adapted to selectively attach a housing of curved or polygonal configuration to the functional lighting unit and to the main support.

The invention will be better understood and other objects and advantages will become apparent from the following description taken in conjunction with the accompanying drawings, in which:

FIGS. **1**, **2** and **3** are respectively top, side and bottom views of a circular form of a luminaire embodying the present invention;

FIGS. **4**, **5** and **6** are respectively top, side and bottom views of a square form of the luminaire of the invention;

FIG. **7** is a perspective view of the FIG. **4**—**6** luminaire as seen from below;

FIG, **8** is a view of a modified mounting arrangement for the FIG. **7** luminaire;

FIGS. **9** and **10** are schematic views of various arrangements in which a plurality of circular and square luminaire units may be installed on a common support;

FIG. **11** is an enlarged elevational view, partly broken away, of the round luminaire unit shown in FIG. **2**;

FIG. **12** is a fragmentary view of the interior structure of the FIG. **11** luminaire adjacent the hub-mounting device;

FIG. **13** is a perspective rear view of the gusset member shown in FIG. **12**;

FIG. **14** is an enlarged detailed view of the joint between the gusset and associated structural parts of the luminaire housing and mounting means;

FIG. **15** is a top view of the luminaire yoke member with associated gusset and yoke support;

FIG. **16** is a cross-sectional view of the FIG. **15** structure taken along the line **16**–**16**;

FIG. **17** is a detailed view in cross section showing latching means for the light-transmitting shield surrounding the luminaire refractor; and

FIG. **18** is a detailed view in cross section showing hinge means for the light-transmitting shield.

Referring now to the drawings, and particularly to FIGS. **1**—**3**, there is shown an embodiment of the luminaire of the invention comprising a housing **1** constituted by a conical canopy or cover **2**, a circular side panel **3**, both of which re are typically formed of metal (e.g. aluminum) and are separably attached to each other as disclosed hereinafter, and an annular light-transmitting shield **6** depending from side panel **3**, the light-transmitting shield being typically made of a plastic material such as an acrylic resin and serving to reduce glare and control light emanating from the luminaire light source. Side panel **3** is connected at one side to a hollow slipfitter mounting hub **4** which slips over the top of a vertical pole **5** for supporting the luminaire unit in operative position over the area to be illuminated. The luminaire optical system **7** is arranged within housing **1** so as to be exposed at the bottom opening thereof, and annular diffusing shield **6**, which is tubular and generally triangular in cross section, is dimensioned to substantially cover the space between the exposed optical system and the housing sides, as more fully disclosed below.

The luminaire embodiment illustrated in FIGS. **4**—**6** is constituted of similar components similarly arranged except that cover **2'**, side panel **3'**, hub **4'** and diffusing shield **6'** are square in form rather than circular. In FIG. **7**, which is a perspective view from below of a square unit, there is shown the exposed transparent globe or refractor **10** of the basic luminaire unit, of which the remaining enclosed parts including mounting structures are indicated in interrupted lines and are shown more clearly in FIG. **11**.

In accordance with the invention, the luminaire functional lighting unit, that is, the unit comprising the optical system, lamp, and electrical operating components associated therewith, is the same for both round and square housing styles shown in FIGS. **1** and **2**, and the mounting means provided for attaching the housing components to the luminaire functional lighting unit is of such structure that either type of housing style may be interchangeably mounted on the basic luminaire unit without the need for additional parts or disassembly of the functional unit. By virtue of this construction and the pole mounting arrangements described in detail hereinafter, the invention enables the user of the luminaire to readily install luminaires of different appearance styles, and also to install such luminaires in different arrangements of single or multiple units on a common support, as desired.

As shown in FIG. **11**, which depicts the luminaire attached to a round housing as will become apparent hereinafter, slipfitter hub **4** fitting over the top of supporting pole **5** has secured thereto, by bolts or the like, a U-shaped bracket or gusset **11** (see FIG. **13**) arranged with its web portion against the inner side of side panel **3** so that in the assembly, panel **3** is between the web of gusset **11** and the adjacent wall of hub **4**. Side panel **3**, whether of straight or curved type, is formed with circumferentially extending spaced ribs **3***a*, **3***b* intermediate its top and bottom edges (see FIG. **12**) and at its top edge is formed with a channel **3***c* for receiving the peripheral edge of canopy **2** so as to hold the latter in assembled position. Attached to the spaced arms of gusset **11** at its open end and extending forwardly therefrom is yoke **12** (see FIG. **15**) which in turn serves to support the basic luminaire lighting unit. The latter unit comprises reflector **13** in which is disposed lamp **14**, such as a mercury vapor or other gaseous discharge lamp, and having an open mouth closed by refractor **10**, so that the rim of refractor **10** mates with the rim of reflector **13** to form a closed optical system. Refractor **10** is mounted at its rim in a retaining frame or globe ring **15** which is pivotally attached at its rear portion by hinges **16** to opposite arms of yoke **12** and detachably secured at its front end to yoke **12** by latch **17** of suitable type, whereby globe ring **15** with refractor **10** mounted therein may be swung open downwardly to provide access to the interior of the optical system for relamping or other servicing operations.

Mounted on yoke **12** rearwardly of the described optical system is panel member **18**, which is secured at its rear end to yoke **12** by hinges **19** on opposite arms of the yoke and at its front end to the yoke by suitable latches **20**, also on opposite arms of the yoke. As seen best in FIG. **14**, on the upper surface of panel member **18** are mounted electrical components for operating lamp **14**, such as a ballast transformer **27** and capacitor **28**, and the described hinged connection of panel member **18** enables the latter, after being unlatched at its front end, to be swung downwardly so as to make electrically operating components **27** and **28** readily accessible for servicing.

An inverted generally V-shaped support frame **21** having a flat apex portion **21***a* is secured at its opposite free ends to yoke **12** and at its apex **21***a* to cover **2** for holding these parts in proper spatial relation (see FIGS. **11**, **15** and **16**).

The structure and arrangement of gusset **11** constitute a significant feature of the invention As shown in FIG. **13**, this U-shaped bracket member is formed of a web portion **11***a* having spaced forwardly projecting arm portions **11***b*, **11***c*, each pro-

vided with upper and lower rows of apertures **11***i*, **11***h* by means of which gusset **11** is selectively attached in either of two inverted positions on yoke **12**, as shown in FIG. **14** and explained hereinafter. Web portion **11***a* is formed in its central region with a pair of spaced outwardly curved surfaces **11***d*, **11***e* adjacent to spaced flat surfaces **11***f*, **11***g*. When used in conjunction with a curved housing such as that of FIG. **1**, gusset **11** is placed in such position (see FIG. **14**) that its projecting curved surfaces **11***d*, **11***e* abut the surfaces of spaced ribs **3***a*, **3***b* of side panel **3** which are, of course, of complementary curvature so as to contact surfaces **11***d*, **11***e* over substantially their entire lengths. As indicated previously, gusset **11** is secured in assembly wit side panel **3** and hub **4** by bolts **4***a* passing through suitably placed, registering apertures in gusset **11**, panel **3** and hub **4**.

When used in conjunction with a straight sided housing such as shown in FIG. **4**, gusset **11** is inverted from the position shown in solid lines in FIG. **14** so that projecting curved surfaces **11***d*, **11***e* now lie in the recessed portions of side panel **3'** adjacent to spaced ribs **3***a*, **3***b* as indicated in dotted lines, and the recessed flat surfaces **11***f*, **11***g* now abut the straight ribs of the square housing side panel, and gusset **11** is firmly secured in this position to hub **4'** by bolts **4***a*.

Preferably the row of bolt-receiving apertures **11***h*, which are at the bottom when gusset **11** is positioned for use with a round unit as shown in FIG. **11**, are forwardly offset relative to the upper row of apertures **11***i* as seen in FIGS. **11** and **14**. The purpose of this is to position yoke **12** farther away from curves side panel **3** to ensure adequate clearance between the side panel and hinged support panel **18** when the latter is swung down into open position. As will be seen, some forward displacement of yoke **12** in this arrangement already occurs by the abutment of gusset **11** on the ribs of side panel **3**, as compared to the yoke position in the square housing unit wherein gusset **11** interfits between the ribs.

Accordingly, in order to adapt the basic luminaire lighting unit mounted in yoke **12** for attachment to a different style of housing it is necessary only to invert the position of gusset **11** on yoke **12** and secure it to the side panel of the housing used and the appropriate hub **4** as above described. The appropriate canopy **2** is also attached to support frame **21** and the upper channel of side panel **3**, while the corresponding diffusing shield **6** is hingedly attached to the lower portion of side panel **3**.

As shown in FIG. **11**, light-transmitting shield **6** comprises a lower portion **6***a* of triangular cross section closed by a cover **6***b* of similar (but not necessarily light-transmitting) material and secured together by suitable means such as adhesive tapes along their inner and outer mating edges. At their outer edges, lower portion **6***a* and cover **6***b* are held in assembly by annular tubular member **6***c* embracing their peripheral edges.

As seen in FIG. **17**, shield **6** may be detachably secured to side panel **3** by a latch comprising, in the illustrated embodiment, a screw **22** passing through the rim of shield **6** and retaining ring **6***c* thereof and threadably engaging lug **23** or the like fixed to side panel **3**. As seen in FIG. **18**, on a side opposite the latch, shield **6** is pivotally attached to side panel **3** by means of a hinge comprising, in the illustrated embodiment, hook member **24** held at its upper end in channel **3***d* formed in the lower portion of side panel **3** and engaging with its lower hook portion a pin **25** mounted horizontally in spaced hinge plates **26** (only one shown) fixed to the rim of shield **6** and its retaining ring **6***c* by screw or other suitable means as shown. Typically, in the case of square housing unit, two such hinges are provided spaced along one side of the housing (as indicated in FIG. **7**) with one or more latches spaced along the opposite side. In a round housing unit, one hinge **26** is typically located on one side of the housing and three latches **23** are placed at intervals around the housing circumference. It will be understood, of course, that types of hinges and latching means and arrangements thereof other than those shown and described could be employed as desired and appropriate.

The described arrangement of shield **6** on the housing is such, as shown in FIG. **11**, that openings are provided between shield **6** and the outer housing wall **3** and refractor ring **15**, so that air may flow by convection between ring **15** and shield **6**, along the upper housing portions and downward out of the housing between shield **6** and sidewalls **3**. In this way, a cooling effect is provided for reducing the ambient temperature in the vicinity of the operating components and thereby extending their service life.

As will be evident, in order to obtain access to the optical system for relamping or to the electrical operating components on panel **18**, shield **6** is first unlatched and swung downwardly, so as to permit the downward opening of globe ring **15** or panel **18** for the necessary servicing operations.

As shown in FIG. **11**, slipfitter hub **4** has a hollow interior open at top and bottom and has an intermediate annular ledge or stop **4***b* so as to form a socket for slipping over and resting on the top of pole **5**. Setscrews **29** passing through the wall of the slipfitter portion and engaging pole **5** firmly hold hub **4** thereon. Inserted into the upper hub compartment is a cylindrical housing **30** having an upper flange **30***a* surmounted by electrical receptacle **31**, flange **30***a* serving to cover the open top of hub **4** and being secured to the latter for holding housing **30** in position. Electrical receptacle or socket **31** is adapted to receive a photoelectric control unit **32** of conventional type which is connected via receptacle **31** and suitable conductors (not shown) passing through the wall of hub **4** into the interior of the luminaire housing to the electrical operating components therein for controlling the operation of lamp **14**, as well understood in the art. In an alternative arrangement, the photoelectric control unit may be placed within the upper compartment of hub **4** with its photosensitive element facing upwardly, and the open top of hub **4** is in such case closed by a transparent window to permit passage of exterior light for incidence on the photocell element.

Hub **4** may also have secured thereto another luminaire unit such as that shown in FIG. **11** on the opposite side of the hub, and the same photoelectric control unit mounted on the hub may serve to control both luminaires. A single hub **4** may, in fact, be employed for mounting two, three or four luminaires of the described type, either of square or circular housing style, or both, in various desired arrangements on the same supporting pole. For the purpose of spacing the luminaire units a greater distance from the hub in order to accommodate more than two units, or for any other reason, an extension arm **33** (see FIG. **8**) may be secured between the side panel **3** of each luminaire and the mounting hub **4**. In this way, various arrangements of luminaires such as schematically shown in FIGS. **9** and **10** may be provided.

While the present invention has been described with reference to particular embodiments thereof, it will be understood that numerous modifications may be made by those skilled in the art without actually departing from the scope of the invention. Therefore, the appended claims are intended to cover all such equivalent variations as come within the true spirit and scope of the invention.

I claim:

1. A luminaire comprising, in combination, a functional lighting unit comprising an optical system including illuminating means, electrical means for operating said illuminating means, and support means holding said optical system and said electrical operating means in unitary assembly, said support means having a first mounting portion, housing means of preselected shape substantially enclosing said functional lighting unit and having a second mounting portion arranged adjacent said first mounting portion, slipfitter means arranged adjacent said mounting portion of said housing means, and bracket means secured to said support means and said housing means at said mounting portions thereof and to said slipfitter means for holding said functional lighting unit and said housing means in assembly with said slipfitter means, said bracket means being selectively positionable relative to said support means for accommodating housing means of different

preselected shape, whereby said first-mentioned housing means is interchangeable with different housing means on said functional lighting unit.

2. A luminaire as defined in claim 1, said bracket means being arranged within said housing means and said second mounting portion of said housing means interposed in the assembly between said bracket means and said slipfitter means.

3. A luminaire as defined in claim 2, said functional lighting unit extending outwardly from said slipfitter means along a first axis, said slipfitter means being generally tubular and extending along a second axis transverse said first axis, whereby said slipfitter means may be mounted on a vertical pole and is adapted to have a plurality of functional lighting units and associated housing means extending outwardly therefrom.

4. A luminaire as defined in claim 3, said support mean comprising a yoke member arranged about and secured to said optical system, and having spaced arms projecting rearwardly toward said slipfitter means, said bracket mean comprising a U-shaped member having spaced arms detachably secured in overlapping relation to the corresponding arms of said yoke member.

5. A luminaire as defined in claim 4, said U-shaped bracket member having a web portion in engagement with said mounting portion of said housing means, said latter mounting portion having a shape corresponding to said preselected housing shape, said web portion having a first surface portion engaging said housing mounting portion and having a shape complementary thereto, said web portion having a second surface portion having a different shape complementary to the mounting portion of housing means of different preselected shape.

6. A luminaire as defined in claim 4, said housing mean comprising a canopy covering said functional lighting unit and a sidewall surrounding said unit, and spacer means connected to and arranged between said canopy and said yoke member for holding the same in spaced relation.

7. A luminaire as defined in claim 4, said housing mean comprising a canopy covering said functional lighting unit and a sidewall surrounding said unit, said sidewall having upper and lower portions extending therearound, said upper portion embracing the periphery of said canopy, said housing means further comprising a light-transmitting annular member surrounding said optical system and occupying the space between the same and said sidewall, said annular member being detachably secured to the lower portion of said sidewall.

8. A luminaire as defined in claim 7, said light-transmitting annular member being hingedly secured to said sidewall for movement between a closed and an open position.

9. A luminaire as defined in claim 8, said electrical operating means being mounted on a panel member hingedly secured to said yoke member rearwardly adjacent said optical system, said panel member being downwardly swingable to open position providing access to said electrical operating means when said light-transmitting annular member is in open position.

10. A luminaire as defined in claim 5, wherein said housing means comprises a sidewall surrounding said functional lighting unit, said mounting portion of said housing means comprising spaced rib means adapted to be engaged by one of said first and second surface portions of said bracket web portion in accordance with the preselected shape of said sidewall, said U-shaped bracket member being positionable in inverted position on said yoke member for placing in engagement with said rib means said surface portion which conforms in shape thereto.

11. A luminaire as defined in claim 3, said slipfitter means having a socket portion on its lower end for fitting over a pole top and having an upper compartment, and control means in said upper compartment for controlling the operation of said functional lighting unit.

12. A luminaire as defined in claim 11, said control means comprising means for mounting and electrically connecting to said functional lighting unit photosensitive means responsive to variations in ambient light level.

13. A luminaire as defined in claim 12, said slipfitter means having a plurality of similar functional lighting units and associated housing means attached thereto, and controlled in operation by said control means.