Oct. 22, 1957 E. F. GUTH, JR 2,810,823

FLUORESCENT LIGHTING FIXTURES

Filed June 23, 1954

FIG. 1.

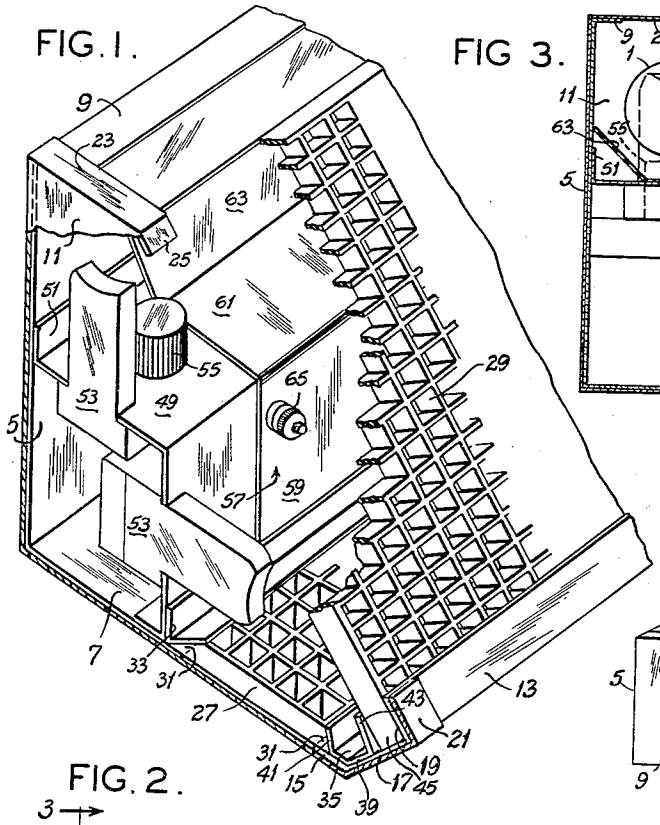


FIG 3.

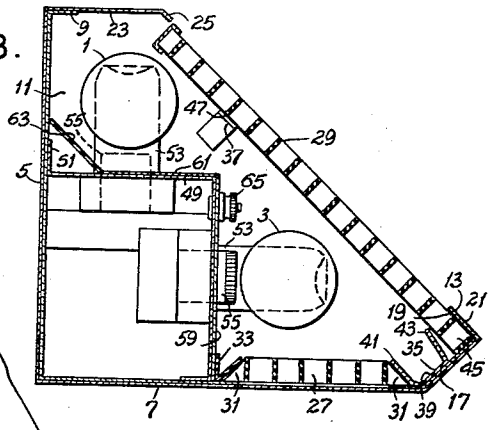


FIG. 4.

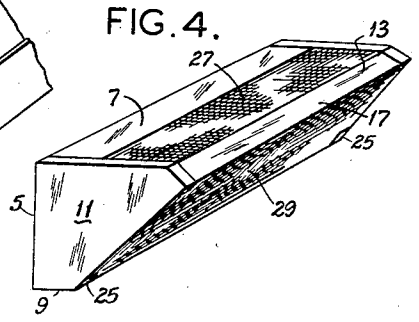


FIG. 2.

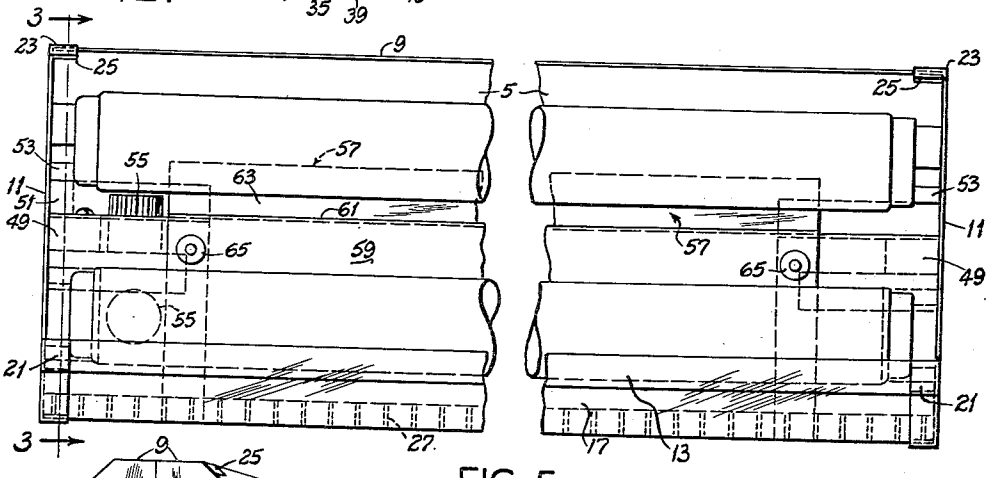
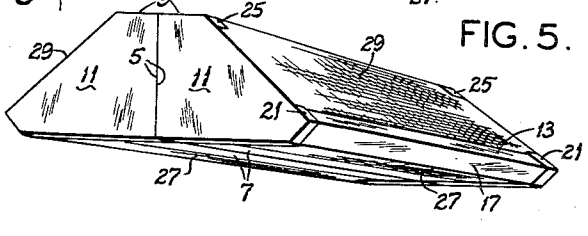


FIG. 5.



INVENTOR
EDWIN F. GUTH, JR.

BY Bruninga and Sutherland

ATTORNEYS

United States Patent Office 2,810,823 Patented Oct. 22, 1957

2,810,823

FLUORESCENT LIGHTING FIXTURES

Edwin F. Guth, Jr., Ladue, Mo., assignor to The Edwin F. Guth Company, St. Louis, Mo., a corporation of Missouri

Application June 23, 1954, Serial No. 438,672

8 Claims. (Cl. 240—51.11)

This invention relates to lighting fixtures, and more particularly, to light-diffusing fixtures for fluorescent lamps.

In cove-lighting, as heretofore practiced, the lamp bulbs are contained in an upwardly-opening built-in trough, which runs about the wall of the room, the bulbs thereby being hidden from view and the illumination being indirect by reflection from the ceiling. This arrangement has not been entirely satisfactory, however, because of the expense in constructing the coves and the difficulty in supplying adequate ventilation. Also, portions of the wall below the fixture and portions of the ceiling remote from the wall are often poorly illuminated.

Accordingly, it is an object of the invention to provide an improved cove-lighting system, and more specifically, to provide a cove-lighting fixture that is inexpensive to manufacture and install, easily maintained, of low brightness, and of high efficiency from the viewpoints of lamp-operating temperature and light utilization and distribution. Also, the invention includes among its objects the provision of a fixture of the character described whereby different illuminating effects may be achieved by selective operation of the bulbs within the fixture.

Additionally, it is not uncommon to encounter lighting problems that require direct illumination from a fixture mounted on a wall, as at the head of a bed, in a fitting room or in a barber shop. Therefore, the invention includes among its objects the provision of a fixture having the advantages above mentioned, but which may also be utilized where a shielded direct type of illumination is desired.

Finally, it may be noted that there are instances where conventional ceiling fixtures are not entirely satisfactory. An indirect or semi-indirect fixture of the type having a reflector (opaque or translucent) presents maintenance and cooling problems, and frequently the distribution of light is not as wide or as uniform as might be desired. On the other hand, the direct type of fixture provides an even more concentrated source of illumination, although the brightness may be somewhat reduced by equipping the fixture with a diffusor. Accordingly, it is also an object of this invention to provide an indirect or semi-indirect ceiling fixture, which may be made from units having the advantages previously set forth.

Briefly, these objectives are achieved in a single, multi-purpose fixture. When used for cove lighting, the fixture comprises an elongate housing having a generally vertical back and a bottom which is in part formed by a diffusing louver, preferably of the open egg-crate type. The top of the fixture is formed by a second relatively larger or primary louver (preferably of the open egg-crate type), which is inclined to extend adjacent and over the bottom louver. Sockets for a pair of fluorescent tubes are mounted in the housing at the ends thereof, the arrangement being such that a first tube is supported within the upper portion of the housing and a second tube is supported in the forward lower portion of the housing over

the bottom louver and beneath the inclined louver. The sockets may be supported on angle brackets, and a reflector of angle section extends therebetween, so that one wall of the reflector lies beneath the first tube and another wall thereof lies behind the second lamp.

A direct shielded type of illumination is achieved by inverting the fixture so that the inclined primary louver faces downwardly and outwardly, whereas the secondary louver faces upwardly. A ceiling fixture is readily made by assembling two such units in back-to-back relationship, thereby to provide a pair of inclined louvers facing upwardly and outwardly toward the ceiling.

Other features of the invention will be in part apparent from and in part pointed out in the following detail description taken in connection with the accompanying drawings, in which:

Fig. 1 is an oblique detail view of a fluorescent cove lighting fixture embodying the invention, parts being broken away;

Fig. 2 is a front view of the fixture with the primary louver in part broken away;

Fig. 3 is a cross section taken on the line 3—3 of Fig. 2;

Fig. 4 is an oblique view of the fixture illustrating how it is used to provide shielded direct illumination; and

Fig. 5 is an oblique view showing how two units may be arranged in back-to-back relationship as a ceiling fixture.

Referring to the drawings, there is shown a fixture having a pair of fluorescent lighting tubes **1** and **3**. The tubes are contained in an elongate housing having a back **5**, a bottom **7** and a relatively narrower top **9**. The top and bottom are in part formed from a sheet metal member the parts **7** and **9** projecting from the back **5** at right angles in the manner of a channel section. Panels **11** are secured in telescoping relationship over the ends of this channel section, and the end panels **11** support an elongate hollow member **13** in outwardly spaced relationship from the bottom element **7**. This member **13** is shaped as a pocket with a bottom wall **15** which is in coplanar relationship with the bottom **7**. A front wall **17** extends upwardly at a forty-five degree angle and a top-forming wall **19** is bent back at right angles to the front **17** to lie at a forty-five degree angle with respect to the bottom of the housing. The elongate member **13** is received within inturned flanges **21** at the front of the end panels. Similar flanges **23** are inturned at the top rear portion of the end panels, and these flanges **23** project forwardly beyond the top part **9** and have lips **25**, which are turned down into coplanar relationship with the top-forming wall **19** at the front of the fixture.

A lower opening is thereby defined between the members **7** and **15**, and an upper opening is defined between the elements **9** and **19**. These openings extend the length of the fixture, and are adapted to receive louvers **27** and **29**, respectively.

The louvers are of the open egg-crate type, preferably being formed of translucent plastic material to have small open interstices. This type of louver is described in the copending application Serial No. 261,780, filed December 15, 1951, by Edwin F. Guth, now Patent No. 2,745,001 granted May 8, 1956. More particularly, the louvers have a thickness of about three-eighths inch, the interstices measuring three-eighths inch to the side, and the wall thickness being approximately one-sixteenth inch. The fixture may measure approximately six inches in height and width, its length being determined by the size of fluorescent tube to be utilized.

The lower louver **27** has tapering side portions **31**, which seat over the members **7** and **15**. Resilient clips **33** and **35** secure the lower louver against displacement

in an inward direction, while permitting the louver to be withdrawn for cleaning or other maintenance operations. The upper louver **29** is secured against inward displacement at its lower edge by the clip **35** and also by tabs **37** affixed to the end walls of the housing. The resilient clip **35** is in the form of a channel section, the base portion being secured at **39** to the front wall **17** of the housing, and the leg portions **41** and **43**, respectively, overlying the respective margins **31** and **45** of the louvers **27** and **29**. The tabs **37** are located near the top of the fixture and have legs **47**, which extend inwardly as supports for the upper portion of the louver **29**.

It will be observed that the louver **29** does not extend entirely to the top **9** of the housing, but it does serve to shield the fluorescent lamp **1**, which is mounted in the upper portion of the housing. The other lamp **3** is mounted in the lower portion of the housing, generally over the lower secondary louver **27** and behind the lower portion of the larger primary louver **29**. Bridging brackets **49** are secured at the ends of the housing by flanges **51**, the brackets **49** forming a chamber of rectangular cross section, which may contain the lamp ballast (not shown). The lamp sockets **53** and starter devices **55** are secured to the brackets, and a reflector **57** extends between the brackets. The reflector is in the form of a right angular section, with a lower wall **59** extending behind the lower lamp **3** and an upper wall **61** extending beneath the upper lamp **1**. Also, a flange **63** may be turned up at the back behind the upper lamp, as illustrated in Fig. 3. The reflector is releasably secured at its ends to the brackets **49** by means of thumb nuts **65**, so that it can readily be taken off through the top opening left when the louver **29** is removed.

In cove lighting, several fixtures of the type described are secured in end-to-end relationship against the wall near the ceiling of a room. Illumination is of the semi-indirect type in that a portion (say, twenty percent) of the light is downward through the secondary louver **27**, whereas a larger portion (eighty percent) is directed upwardly and outwardly to the ceiling of the room. This construction offers an additional advantage when the lamps **1** and **3** are connected in independent circuits so that they can be operated separately. Such operation is particularly useful in auditoriums and the like. When the upper lamp **1** is disconnected, the level or intensity of the illumination is reduced, and when only the upper lamp **1** is operated, the level and the character of illumination are changed substantially.

The fixture may also be employed as a shielded direct wall-mounted light, as in a fitting room, barber shop, or over a hospital bed. In that event, it is secured at its back **5** against a wall, but in inverted relationship, as indicated in Fig. 4, so that most of the illumination is directed downwardly for high-intensity use, although some portion is directed upwardly for general lighting purposes. It has been found that with the louver described, approximately eighty percent of the light passes through the primary louver, whereas twenty percent passes through the secondary louver **27**.

Referring now to Fig. 5, it will be apparent that a pair of units may be mounted back-to-back to provide an improved ceiling fixture of the semi-indirect type. As such, the fixture offers certain advantages over existing systems where problems are presented in achieving wide distribution of the light, adequate ventilation of the lamps, low brightness and varied lighting effects. As indicated previously, operation of lamp **1** results in indirect lighting, whereas operation of lamp **3** provides semi-indirect lighting of reduced intensity, and operation of both lamps provides semi-indirect lighting of increased intensity.

The open egg-crate louvers not only afford low brightness, but also insure adequate ventilation of the lamps and provide for a cleaner operation. It will be understood that efficient operation of fluorescent lamps is a critical function of their temperature, hence the necessity for proper ventilation. The accumulation of dust is always a problem with fixtures, and this is particularly so with indirect fixtures of the type using solid dust-collecting reflectors or diffusors.

From the foregoing description, it is apparent that those skilled in the art will understand the structure, function and mode of operation of the invention herein disclosed, and appreciate the advantages thereof. Although several embodiments have been disclosed in detail, it is to be understood that the invention is not limited thereto, but the drawings and description thereof are to be understood as being merely illustrative. For example, the relative areas of the primary and secondary fixtures may be changed, and the louver may be entirely closed at its top by extension of the top wall 9 or the louver 29. It is realized that many modifications and variations will present themselves to those skilled in the art without departing from the spirit of this invention or the scope thereof as set forth in the appended claims.

Having thus described the invention, what is claimed and desired to be secured by Letters Patent is:

1. A lighting fixture comprising an elongate housing, said housing having a generally vertical closed back, a generally horizontal bottom formed at least in part by an open egg-crate louver, a sloping top portion formed at least in part by an open egg-crate louver and inclined from the front of the fixture toward said back wall, and means for mounting an elongate fluorescent bulb in the space between the two louvers, said space otherwise being unobstructed.

2. A lighting fixture as set forth in claim 1, including means for supporting a pair of elongate fluorescent bulbs, one of said bulbs being disposed in the upper back portion of the housing and the other bulb being disposed in the lower front portion of the housing, said bottom egg-crate louver being disposed beneath said second bulb, and said upper egg-crate louver extending over both of the bulbs.

3. A lighting fixture as set forth in claim 2, further including reflector means extending beneath said first bulb and in back of said second bulb.

4. A cove lighting luminaire for the wall of a room, comprising an elongate housing having a closed back lying against the wall, a generally horizontal bottom which is closed in the region adjacent the back and otherwise constituted by an open egg-crate louver disposed outwardly from the wall, a second relatively larger egg-crate louver inclined toward the back from adjacent the outer front margin of said first louver, and an elongate fluorescent bulb mounted within the space between said louvers, said space otherwise being unobstructed.

5. A lighting installation as set forth in claim 4, wherein the fixture has two bulbs, one being disposed above the bottom louver in the lower portion of the housing and the other bulb being disposed in the upper back portion of the housing, and reflector means extending in back of said first bulb and beneath said second bulb.

6. A shielded direct luminaire for the wall of a room, said luminaire comprising an elongate housing having a generally vertical closed back lying against the wall, a generally horizontal top closed in the region adjacent said back and otherwise constituted by an open egg-crate louver disposed outwardly from the back, a second relatively larger egg-crate louver sloping downwardly toward the back from adjacent the outer front margin of said first louver, and a fluorescent bulb mounted in the space between said louvers, said space otherwise being relatively unobstructed.

7. A shielded direct luminaire as set forth in claim 6, wherein said housing encloses two bulbs, one of which is mounted beneath the upper louver in the front upper portion of the housing and the other of which is mounted

above said second louver in the lower back portion of the housing.

8. A ceiling luminaire comprising an elongate housing, said housing having a bottom formed by a pair of egg-crate louvers, said bottom louvers being spaced from one another and the space therebetween being closed and opaque, a second pair of relatively larger egg-crate louvers overlying said first pair of louvers, each of said second louvers being inclined upwardly toward the center of the fixture from adjacent the outer margins of the respective lower louvers, and at least two fluorescent bulbs mounted in the outer portions of the fixture to extend longitudinally over the lower louvers and beneath the upper louvers.

References Cited in the file of this patent

UNITED STATES PATENTS

2,105,447	Arenberg	Jan. 11, 1938
2,274,612	Johnston	Feb. 24, 1942
2,337,685	Schepmoes	Dec. 28, 1943
2,514,049	Graham	July 4, 1950
2,523,581	Margolis	Sept. 26, 1950
2,544,708	Margolis	Mar. 13, 1951

OTHER REFERENCES

Hospital Lighting Data Book, Catalog No. 41, of The Edwin F. Guth Co., St. Louis 3, Mo. (1943) (page 17).