

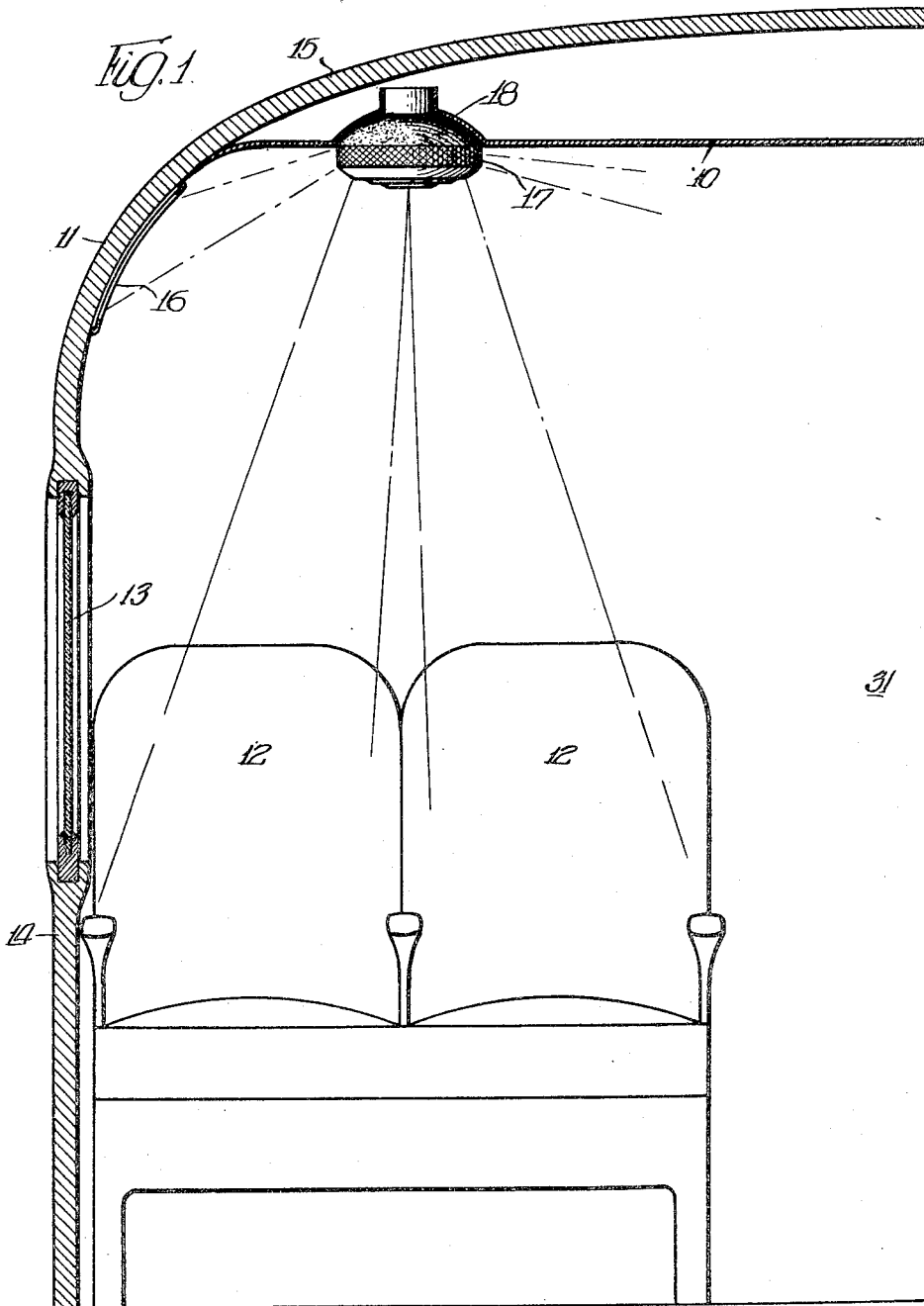
Dec. 14, 1948.

A. L. ARENBERG
ELECTRIC LIGHTING

2,456,166

Filed Nov. 8, 1946

2 Sheets-Sheet 1



INVENTOR.
Albert I. Arenberg,
BY
Cronwell, Greisd & Worden
attys.

Dec. 14, 1948.

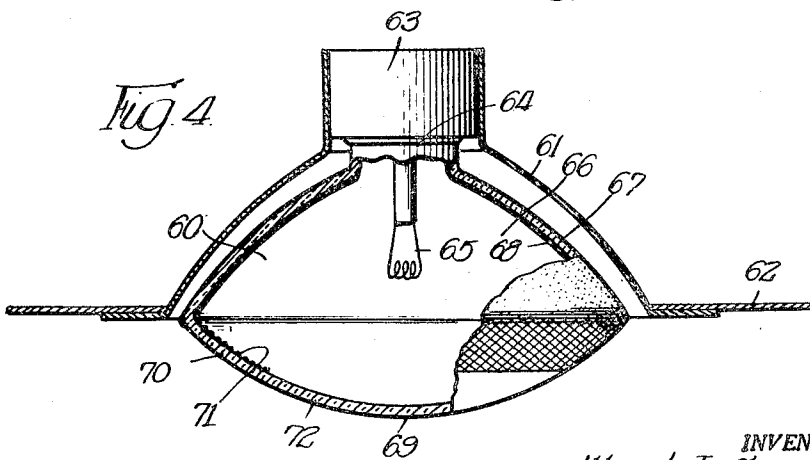
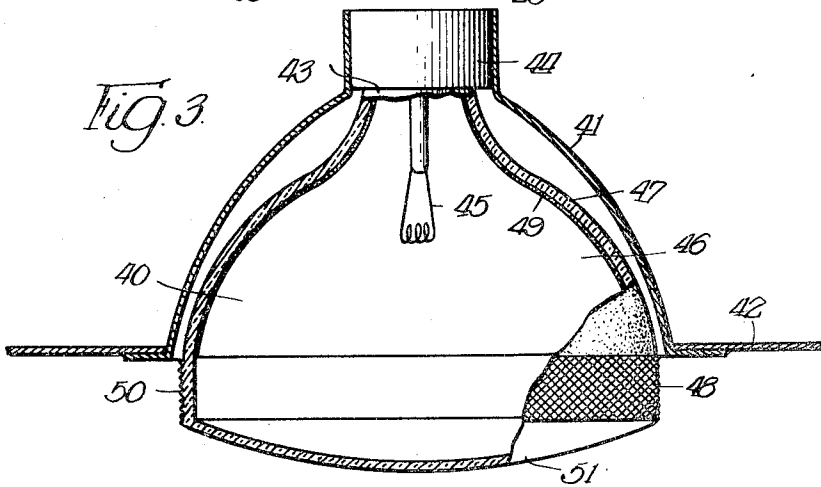
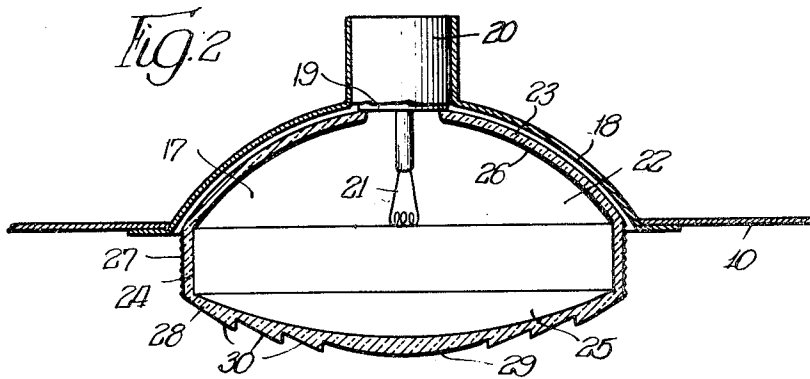
A. L. ARENBERG

2,456,166

ELECTRIC LIGHTING

Filed Nov. 8, 1946

2 Sheets-Sheet 2



INVENTOR.
Albert L. Arenberg.
BY
Cronwell, Grant & Worden
attys

UNITED STATES PATENT OFFICE

2,456,166

ELECTRIC LIGHTING

Albert L. Arenberg, Highland Park, Ill., assignor
to Patent License Corporation, Chicago, Ill., a
corporation of Illinois

Application November 8, 1946, Serial No. 708,557

7 Claims. (Cl. 176-34)

1

My invention relates to electric lighting and is more particularly concerned with electric light bulbs intended to be mounted in or on the ceiling for producing controlled lighting in predetermined restricted areas below the ceiling.

It is an object of my invention to provide a light bulb comprising a base, a light producing filament and an evacuated housing which is so constructed, that, when the bulb is secured in a socket in the ceiling and lighted, it will produce a light, on a predetermined plane and within a predetermined area beneath the ceiling, which is of sufficient intensity for reading, and also, a band of diffused light directed radially of the bulb along the ceiling.

It is a more specific object of my invention to provide a light bulb which has incorporated therein a reflector for directing the light rays in a predetermined direction, a lens for controlling certain of the rays to produce a light of reading intensity, on a plane and within a predetermined area beneath the bulb, and an annular ring portion between the periphery of the reflector and the lens for directing a band of diffused light radially of the bulb.

These and other objects will be apparent from a description of the preferred embodiment and the modifications of my invention which are shown, by way of illustration, in the accompanying drawings, wherein:

Fig. 1 is a view illustrating a cross section of a railway car having mounted in the ceiling thereof a light bulb embodying the principles of my invention;

Fig. 2 is a cross-sectional view of the light bulb shown in Fig. 1;

Fig. 3 is a cross-sectional view similar to Fig. 2 showing a modified form of light bulb; and

Fig. 4 is a cross-sectional view similar to Fig. 2 showing a further modified form of light bulb.

The preferred form of my light bulb, as illustrated in Fig. 1, may be installed in the ceiling 10 of a railway car 11, directly above a pair of seats 12 which are adjacent a window 13 in the side wall 14 of the car 11. The particular type of railway car illustrated has a rounded top 15 above the ceiling 10 and is provided with advertising card space 16 in the curved section between the ceiling 10 and side wall 14. The light bulb 17 is constructed and arranged so that passengers sitting in the seats 12 are supplied with light of sufficient intensity for comfortable reading and the advertising cards in the space 16 are supplied with a diffused light of less intensity but

2

which is sufficient for the passengers to read the same.

As shown in Fig. 2 the bulb 17 is supported in a recess which is formed by the member 18 in the ceiling 10, the bulb 17 being provided with a conventional base 19 which is detachably secured in a cooperating socket 20 supported by the recess forming member 18. The member 18 is secured in the ceiling 10 in any conventional manner or formed integrally therewith. The base 19 supports a light producing filament 21 of conventional design. Attached to the base 19 and enclosing filament 21 is an evacuated housing 22 which consists of three parts or sections—a reflector section 23, an annular ring or band section 24 and a lens section 25. The reflector 22, the band 24 and the lens 25 are preferably formed integral. The reflector 22, which is connected to the base 19, is a generally concave convex member and is provided with a reflecting medium, such as silvering, on the interior concave surface 26 which functions as a reflecting surface for directing the rays of light emanating from the filament 21 away from the base 19 in a generally downward direction relative to the ceiling 10, as illustrated in Fig. 2.

The reflector section 22 terminates in the tubular or annular ring section 24 which is of sufficient depth to provide a band of laterally directed light generally transverse to the longitudinal or vertical axis (as shown in Fig. 2) of the bulb 17. The ring 24 is preferably provided with a surface or coating 27 which will result in the passage of diffused light. This surface 27 may be etched, corrugated, or coated with a diffusing enamel, of the desired density. The light transmitted by the ring 24 is directed along the ceiling 10 around the bulb 17 and the advertising space 16 on the side 14 of the car 11. The intensity of this band of light is predetermined by the particular surface or coating provided on the surface 27 of the ring 24.

The lens 25 which is joined at its periphery to the ring 24 has a generally convex outer surface 28 provided with a central clear section 29 and prism formations 30 for controlling or concentrating both the direct and reflected rays of the bulb within a predetermined area directly beneath the lens 25 so as to provide light of adequate intensity for comfortable reading by both passengers sitting in the seats 12.

As illustrated in Fig. 1, the bulb 17 provides proper reading light for the passengers sitting in the seats 12 and sufficient light for the ceiling 10 and the advertising card area 16. At the same

time it prevents glaring light from falling in the aisle area 31 between the seats.

A modified form of my invention is illustrated in Fig. 3. The bulb 40 is supported in a recess which is formed by a member 41 in the ceiling 42, the bulb 40 being provided with a conventional base 43 which is detachably secured in a cooperating socket 44 supported by the recess forming member 41. The base 43 supports a filament 45 which is enclosed in an evacuated housing 46. The housing 46 includes a dome-like reflector section 47 which is connected at its top edge to the base 43 and terminates at its lower edge in a tubular section or ring 48. The reflector section 47 is reversely curved, as illustrated, and is provided with a silver coating, or the like, to produce an inside surface 49 which functions as a reflector for the light rays emanating from the filament 45 and directs the same in a generally downward direction relative to the ceiling 42. The ring 48 is provided with a surface 50 which is etched, enameled or corrugated to transmit a band of diffused light in a direction transversely of the longitudinal or vertical axis of the bulb. The lower edge of the ring 48 is joined to the periphery of a lens 51. The lens 51 is concave-convex in section and may be lightly hazed, if desired.

In this form of my invention the bulb 40 is positioned in the recess as illustrated, and light of sufficient intensity for reading is directed downwardly by the lens 51 while a band of diffused light is directed along the ceiling 42 by the annular ring 48.

In Fig. 4 a further modified form of my invention is illustrated. In this form the bulb 60 is mounted in a recess provided by the recess forming member 61 in the ceiling 62, a socket 63 being supported in the recess for receiving the base 64 of the bulb 60. The base 64 supports a filament 65 and an evacuated housing 66 which encloses the filament 65. The housing 66 consists of a dome-shaped reflector portion 67 which is provided with silvering, or the like, on a generally concave inside surface 68 which functions as a reflector for light rays emanating from the filament 65. The reflector portion 67 is joined at its lower edge with the periphery of a lens portion 69 which is concave convex in section. The lens portion 69 includes a peripheral ring or band section 70 at its outer edge. The ring section 70 is provided with diffusing enamel, etching or corrugations on the surface 71 to permit the passage of a diffused band of light in a generally horizontal direction radially of the bulb. The central section 72 of the lens portion 69 is clear to permit passage of the light rays in a downward direction beneath the bulb 60.

In this form of my invention the bulb 60 is positioned, as illustrated, with the ring section 70 immediately below the ceiling 62 and light for reading is directed downwardly by the lens section 72 while the annular ring 70 directs a band of diffused light on the ceiling 62.

I have illustrated and described my light bulb as installed in the ceiling of a railway car, but it may be used in any other desired place, such as over car steps, on car platforms, in passageways, in washrooms, in baggage racks, for bus lighting, in airplanes, or in any other place desired.

I have referred to specific materials and details of construction for the purpose of illustration only and it will be understood that other materials and other details may be resorted to within the scope of my invention.

I claim:

1. An electric light bulb having a base and a housing extending from said base comprising a dome-shaped reflector portion, a lens portion, and an annular diffusing band portion spacing said lens portion from said reflector portion.

2. An electric light bulb comprising a housing having a conically shaped upper portion, an intermediate band portion, and a concave-convex shaped lower portion, said upper portion being provided with a light reflecting medium and said intermediate band portion being provided with a light diffusing medium.

3. An electric light bulb comprising a housing having opposed generally concave portions, and an intermediate annular band portion, one of said concave portions being provided with a reflecting medium and the other of said conical portions being provided with a means to control the transmission of the light rays within a predetermined area upon a predetermined reading plane beneath the bulb.

4. An electric light bulb comprising a housing having a dome-shaped reflecting portion, an opposed light transmitting lens portion, and an intermediate annular ring portion connecting said reflector portion and said lens portion, said intermediate ring portion being provided with diffusing enamel of predetermined thickness.

5. An electric bulb comprising a base, a light producing filament supported in said base, a dome-shaped bulb section secured to said base around said filament and providing therefor a generally concave reflecting surface for directing the rays produced by said filament away from said base, and bulb sections for controlling said rays to provide a predetermined area with high intensity light in a direction away from said base and to provide a band of diffused light laterally of said base.

6. An electric bulb comprising a base, a light producing filament, and two generally concave bulb sections in opposed relation enclosing said filament, one of said concave sections being attached to said base and providing a reflecting surface for directing rays of light produced by said filament toward said other bulb section and said other bulb section having a circumferential portion adjacent the connecting edges of said sections for providing a laterally directed band of diffused light.

7. An electric bulb comprising a base, a dome-shaped generally concave reflector member secured to said base, a filament supported by said base and extending into said reflector member whereby light rays produced by said filament will be directed away from said base, a light transmitting lens opposite said reflector for concentrating said light rays on a predetermined restricted area, and a peripheral diffusing band connecting said reflector and said lens for providing a band of laterally directed diffused light.

ALBERT L. ARENBERG.

REFERENCES CITED

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

UNITED STATES PATENTS

Number	Name	Date
1,594,635	Skogland	Aug. 3, 1926
2,020,273	Arenberg	Nov. 5, 1935
2,148,314	Wright	Feb. 21, 1939
2,204,327	Stewart	June 11, 1940
2,293,326	Arenberg	Aug. 18, 1942
2,398,968	Singer	Apr. 23, 1946