May 1, 1945. D. D. CARRUTH 2,375,075

RUNNING LIGHT FOR AIRPLANES

Filed May 29, 1941 2 Sheets-Sheet 1

Fig. 1.

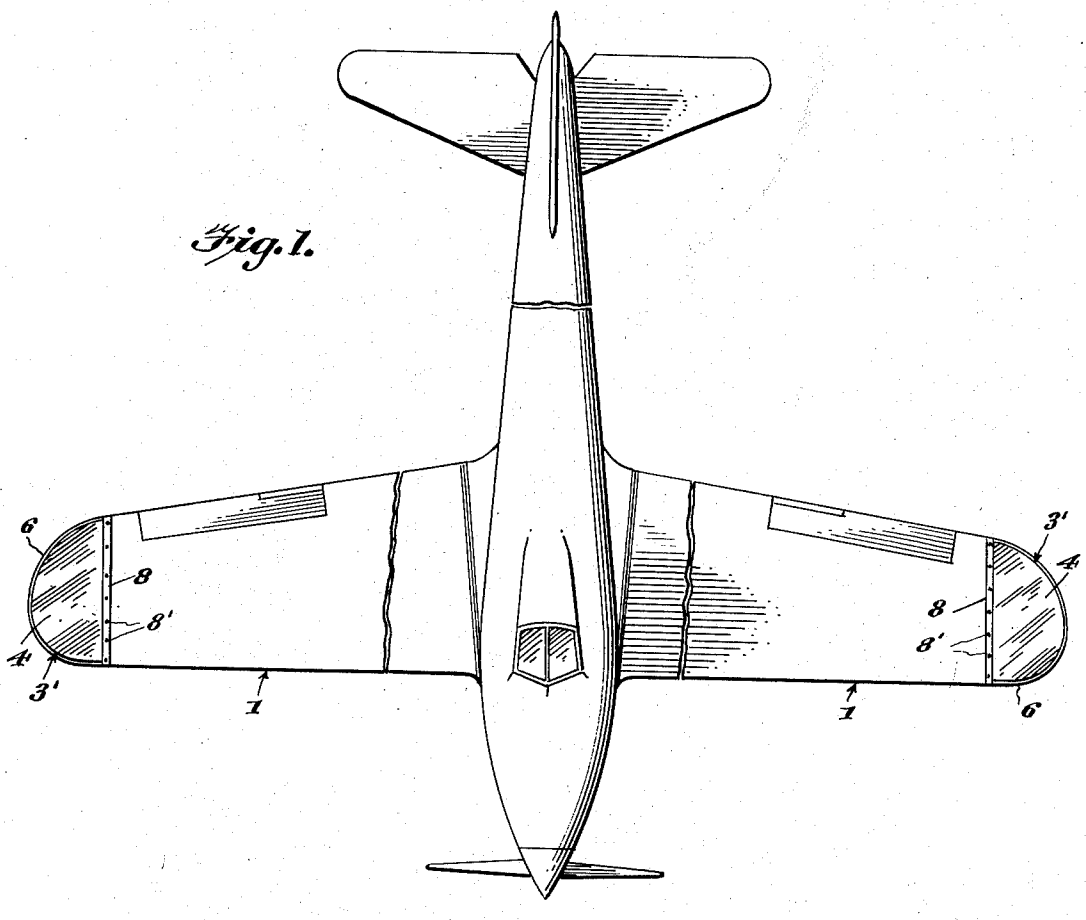


Fig. 2.

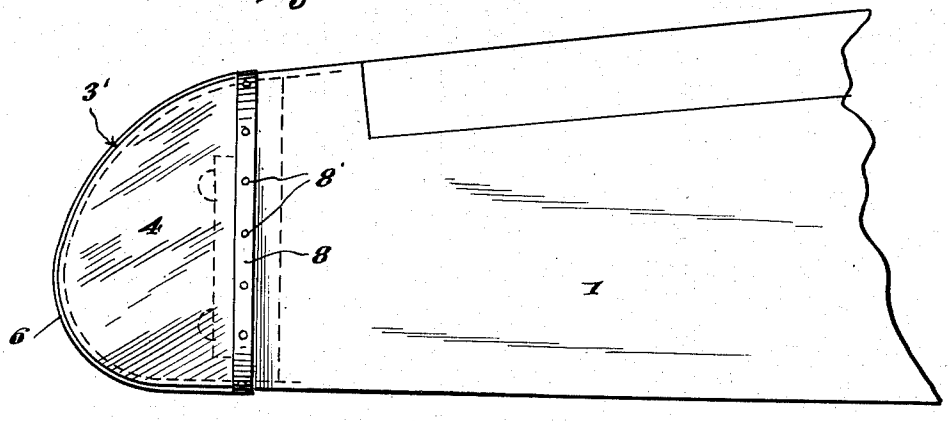
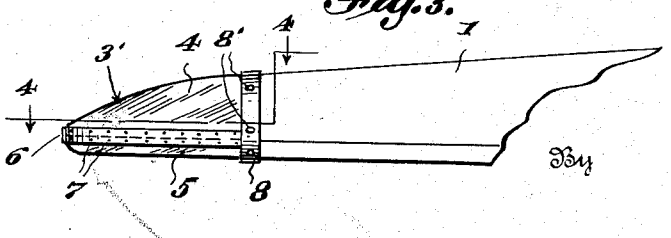


Fig. 3.



Inventor
DONALD D. CARRUTH

By

Attorney

May 1, 1945. D. D. CARRUTH 2,375,075

RUNNING LIGHT FOR AIRPLANES

Filed May 29, 1941 2 Sheets-Sheet 2

Fig. 4.

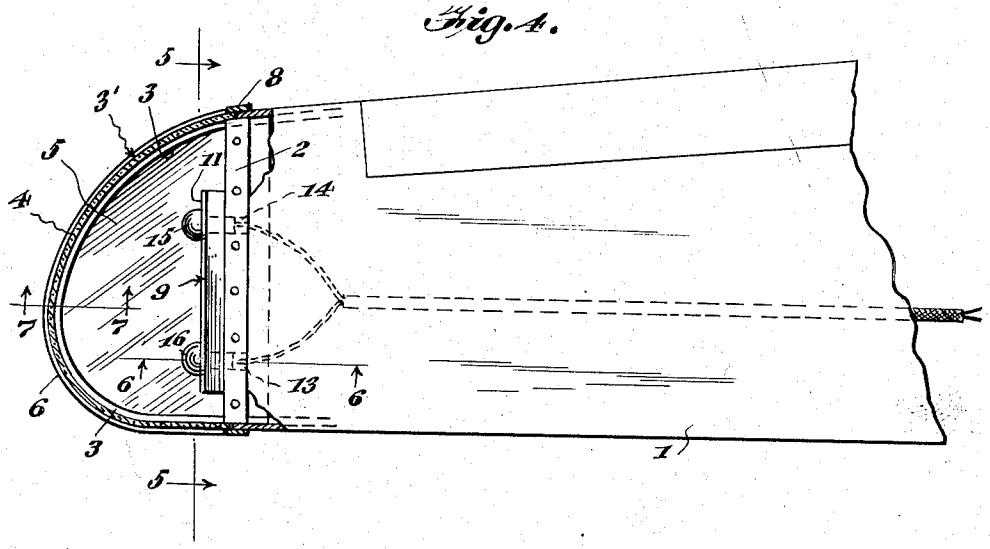


Fig. 5.

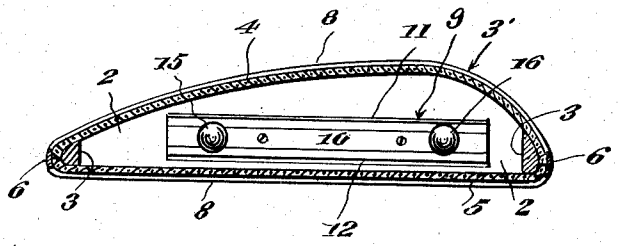


Fig. 6.

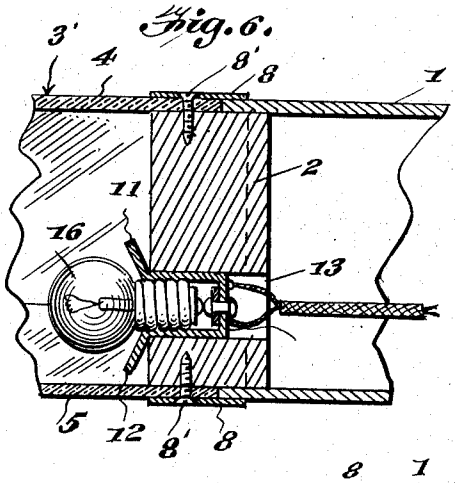
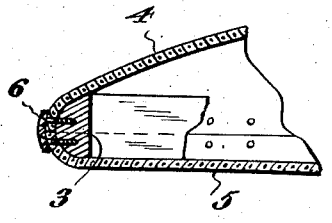


Fig. 7.



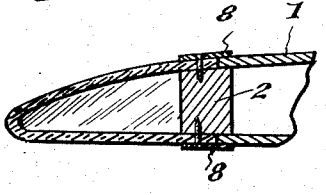


Fig. 8.

Inventor

DONALD D. CARRUTH

By

Attorney

Patented May 1, 1945 2,375,075

UNITED STATES PATENT OFFICE

2,375,075

RUNNING LIGHT FOR AIRPLANES

Donald D. Carruth, Washington, D. C., assignor of one-half to Edgar F. Puryear, Silver Spring, Md., and John S. Wynne and R. F. Camalier, both of Washington, D. C.

Application May 29, 1941, Serial No. 395,852

1 Claim. (Cl. 244—129)

The present invention is directed to improvements in running lights for airplanes.

The primary object of the invention is to provide novel means for mounting running lights and casings upon the terminals or tips of the airplane wings, the construction being such that the light rays emitted from the light bulbs will be clearly discernible by other airplanes from above and below, fore and aft, and laterally of the plane equipped with running light assembly. Further the invention contemplates clear visibility of the running lights by land crews.

Another object of the invention is to provide a novel form of transparent lamp casings adapted to be readily attached to the tips of conventional types of wings, and so constructed that replacement of burnt out bulbs can be easily and quickly accomplished.

Another object of the invention is to so mount the casings upon the wings as to eliminate projections, which would tend to offer considerable wind resistance during flight of the plane.

Another object of the invention is to provide reflectors for the casings so formed and mounted as to prevent the light rays from being directed toward the fuselage of the plane.

A still further object of the invention is to provide running lights, which when installed will replace a relatively small area of the wings, and do not in any way affect the streamlined effect of the wings.

In the drawings:

Figure 1 is a top plan view of a plane showing the running lights thereon.

Figure 2 is a fragmentary top plan view on an enlarged scale.

Figure 3 is a fragmentary edge view.

Figure 4 is a top plan view, partly in section.

Figure 5 is a sectional view on line 5—5 of Figure 4.

Figure 6 is a sectional view on line 6—6 of Figure 4.

Figure 7 is a sectional view on line 7—7 of Figure 4.

Figure 8 is a detail view showing a slightly modified form of lamp casing.

Referring to the drawings, 1—1 designates the conventional type of airplane wings, and to which my invention is adapted to be applied.

Since the running lights and casings are identical in construction the description of one will suffice for both.

To apply a running light assembly to a wing tip it is only necessary to remove the upper and lower sections of the wing covering or skin of a sufficient area to leave exposed the outermost wing rib 2 and wing bow 3.

In the preferred form of the invention the lamp casing 3' is formed from upper and lower sections 4 and 5, respectively, the same being formed from plastic glass, or any other material suitable for the purpose. The sections 4 and 5 are adapted to be placed with confronting edges in intimate contact, and have their inner ends engaged with the rib 2 and abutting the wing covering or skin, as shown in Figure 6 of the drawings.

When the sections 4 and 5 are thus assembled their opposed edges will be intimately engaged, and at a point medial of the outer surface of the wing bow 3.

After the sections 4 and 5 are thus placed, a relatively thin strip of metal 6 is applied at the abutting edges thereof, said strip being secured to the wing bow 3 by screws 7, the heads of which are countersunk so as to eliminate projections tending to offer wind resistance.

A band 8 is placed around the wing at the juncture of the sections 4 and 5 and wing covering and is secured to the rib 2 by screws 8', the heads of which are countersunk for the reason mentioned in connection with the screws 7. Obviously by countersinking the screw heads and employing metal of relative thin gage, the surface of the wings and lamp casings are devoid of projections which would tend to offer wind resistance.

It will thus be seen that by the use of the strip 6 and band 8 the lamp casing sections 4 and 5 will be secured to the wings with sufficient rigidity to withstand the strain of wind resistance, regardless as to any high speed the airplane may be travelling.

It is well known that airplanes attain speeds of several hundred miles per hour, and at which time the wings are subjected to terrific air pressure, but owing to the fact that the wing bow 3 is utilized not only as an interior brace for the casings and means for securing the casings in operative position, the danger of collapsing or fracture of the casing is eliminated when the plane so equipped is travelling at high speed.

A reflector 9 is provided and comprises a back plate 10 suitably fixed to the outer face of the rib 2, said plate terminating in upper and lower arcuate plates 11 and 12. A reflector thus formed is trough shaped in cross section, but lacks end closures, thus eliminating obstructions of the light rays from the bulbs in fore and aft directions.

In the plate 10 of the reflector and rib 2 are sockets 13 and 14, and in which are screwed bulbs 15 and 16, respectively. Only one of these bulbs will be illuminated at a time so that should one burn out the other may be switched into use in any conventional manner. The illumination of the bulbs are under the control of the pilot through the medium of any well known circuit.

It will be noted that the parallel edges of the plates 11 and 12 of the reflector are so positioned as to be slightly rearwardly of the bulb filaments in order that the rays will be projected upwardly and downwardly, and thus illuminate the upper and lower sections of the casing.

Since the plates 11 and 12 of the reflector are curved outwardly rays from the bulbs will be prevented from projecting in a direction toward the fuselage, thus preventing any likelihood of the running lights interfering with the vision of the pilot.

When necessary to replace a burnt out bulb it is only necessary to remove the strip 6 and band 8 in order that the lamp casing sections can be separated and a new bulb placed in the socket.

In Figure 8 the casing 17 is molded in one piece and fixed to the wing rib 2 in the same manner as the casing sections 4 and 5 are secured thereto. This type of casing is designed more particularly for airplanes of comparatively slow speed.

What is claimed is:

In combination with an airplane and its wing tip bow and outermost end rib, a transparent casing constituting the total area of the wing tip, the inner end of the casing encircling the rib and having intimate contact therewith, the wing skin having a portion enclosing the rib and abutting the inner end of the casing, said wing bow having intimate contact with the inner surface of the casing, a band disposed transversely of the casing and overlapping the wing skin, securing devices passable through the casing and engaging said rib to hold the band fixed, and illuminating means within the casing and supported by the rib.

DONALD D. CARRUTH.