March 10, 1931. P. W. MELLBERG 1,795,664

HEATING MEANS FOR AIRPLANE WINGS

Filed Oct. 31, 1927 2 Sheets-Sheet 1

Fig. 1.

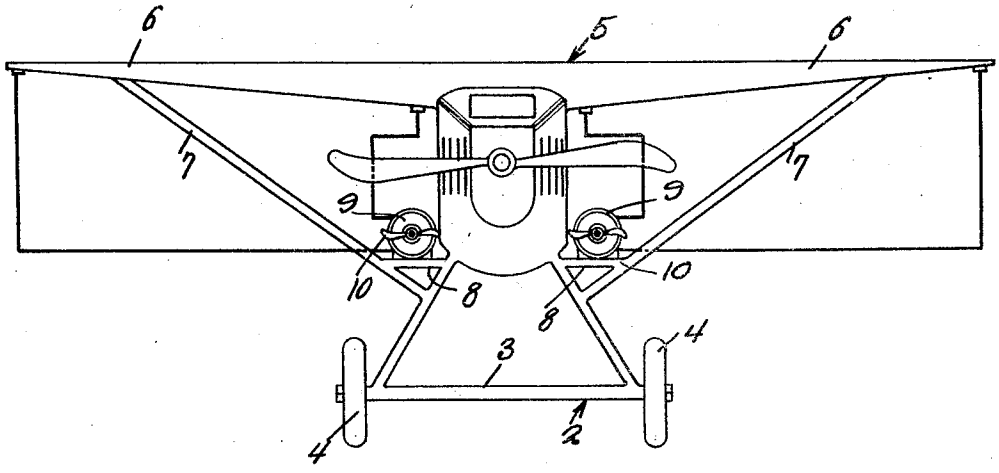
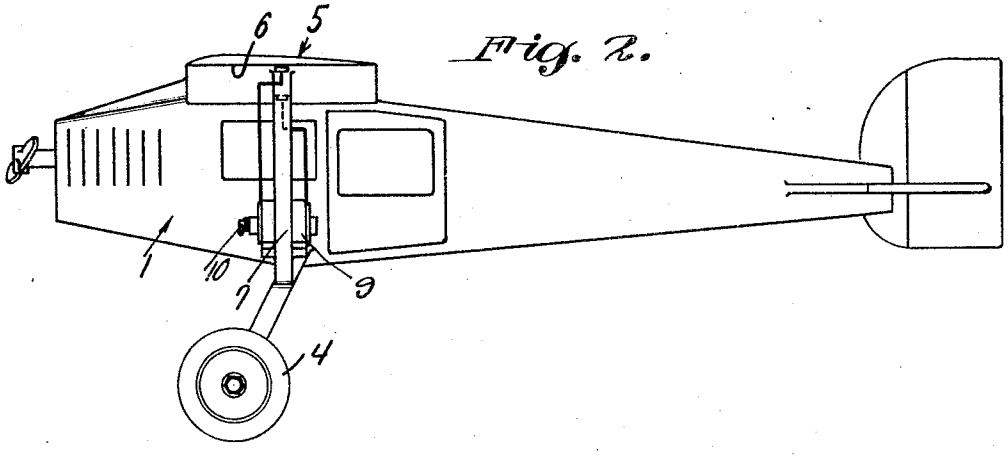


Fig. 2.



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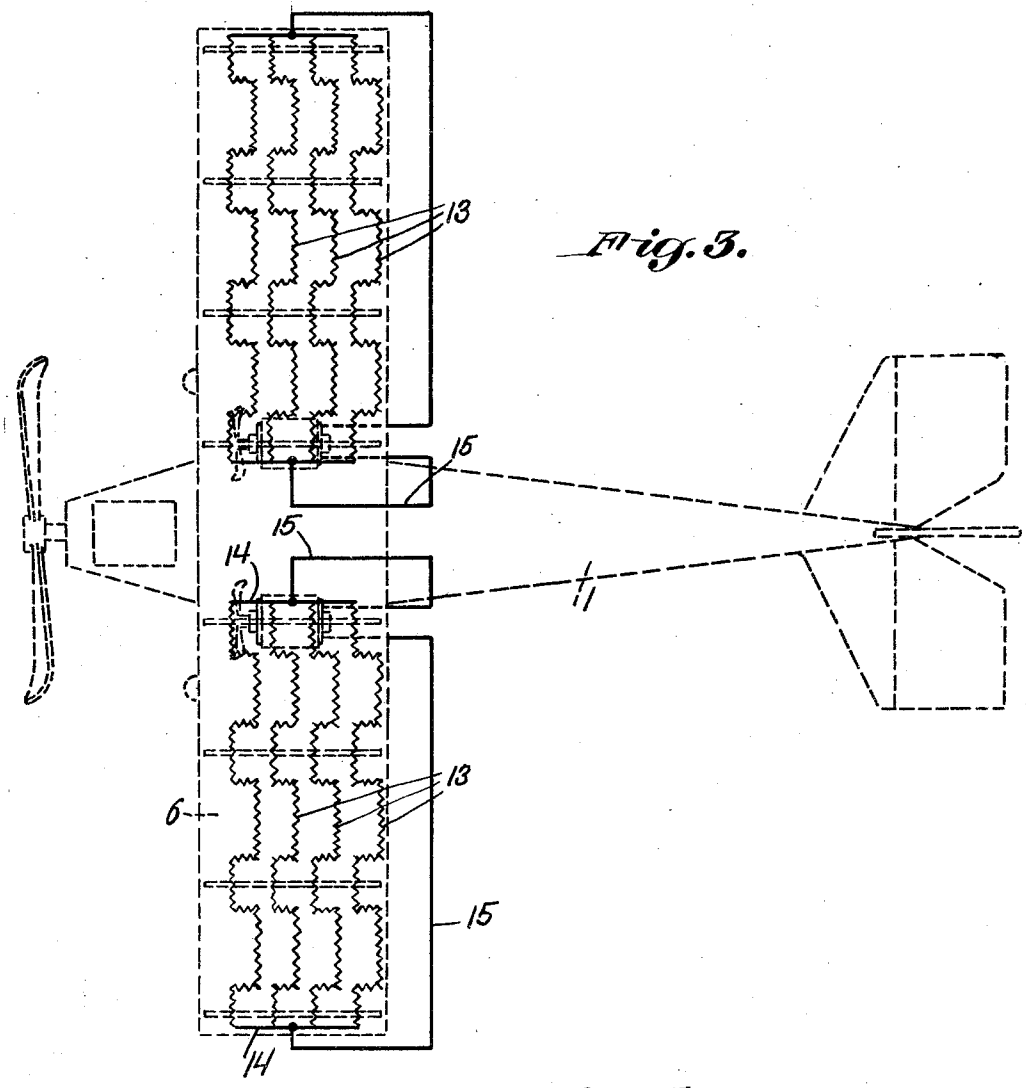


Fig. 3.

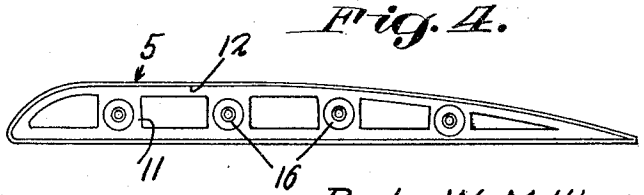


Fig. 4.

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UNITED STATES PATENT OFFICE

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HEATING MEANS FOR AIRPLANE WINGS

Application filed October 31, 1927. Serial No. 230,055.

This invention relates to the class of aeronautics and particularly to means for maintaining certain portions of an airship, particularly the wings of an airplane, at a temperature which will prevent the formation of ice upon the wing structure when the plane is flying at high altitudes or in the extreme northern regions where this difficulty is frequently encountered.

The invention broadly contemplates the provision of a pair or more of electric generators having propeller blades secured to the armature shafts to be driven by the force of air impressed thereagainst during the flying of the machine, the machine wings having a suitable number of resistance elements housed therein which are supplied with current from the generators. In this manner the interior of the wing structures is kept sufficiently warm to prevent the deposition of ice upon the structure.

The invention will be best understood from a consideration of the following detailed description taken in connection with the accompanying drawings forming a part of the present specification, with the understanding, however, that the invention is not confined to any strict conformity with the showing of the drawings, but may be changed or modified so long as such changes or modifications mark no material departure from the salient features of the invention as expressed in the appended claim.

In the drawings:—

Figure 1 shows a plane in front elevation, showing the manner in which the generators are mounted upon the frame thereof for supplying current to the heating units.

Figure 2 is a view in side elevation of the plane structure shown in Figure 1.

Figure 3 is a dotted outline of the airplane in top plan showing the location of the resistance units in the wings.

Figure 4 is a view in cross section showing the points in the wing frame where the heating coils are located.

Referring now to the drawings in detail, wherein like numerals of reference indicate corresponding parts throughout the several views, the numeral 1 indicates generally the fuselage of an airship such as a monoplane, equipped with the depending landing gear 2 which comprises the axle 3 and rubber tired wheels 4.

Projecting across the fuselage of the plane is the wind structure indicated as a whole by the numeral 5 and comprising the laterally directed wing units 6 . The outer ends of these units are supported by the struts 7, the lower ends of which struts are connected to the landing gear structure in the manner shown. Connecting between the struts and the upper portion of the landing gear on each side of the plane fuselage are the generator supporting platforms 8 upon each of which is mounted an electric generator 9.

The armature shaft of each of the generators 9 has mounted thereon at the forward end thereof the propeller blades 10 which blades are designed to be rotated by the air force created during the movement of the plane through the air.

As shown in Figure 4 the wings are of the usual hollow construction having the spaced frames 11 therein over which the covering fabric 12 is stretched.

Within each wing structure and extending longitudinally thereof is a series of resistance coils 13. These coils being connected at their ends by the cross supply wires 14, each of which supply wires has connected therewith a wire 15. Each pair of wires 15 in each wing section or unit leads to the adjacent generator 9 and is appropriately connected therewith to receive and convey current therefrom to one of the supply wires of the resistance unit, the current being returned through the other one of the pair of feed wires 15.

As seen in Figure 4 the resistance wires run through and are supported by, and electrically insulated from, the wing reinforcing and shaping frames 11, as indicated at 16. In this manner the wires are securely held free from contact with a fabric covering of the wings and in this manner the danger of conflagration is entirely eliminated. In all metal planes also.

For the sake of clarity the feed wires 15 which run to and from the generators 9 and connect the resistance wires 13 therewith,

have been shown as free from contact with the plane structure, but it is, of course, to be understood that when in actual use, these feed wires will be properly housed and insulated within the plane structure so that all danger of the wires becoming entangled with outside objects and broken, will be eliminated.

From the foregoing description it will be readily seen that only a very small amount of current will be needed to maintain the resistance units 13 heated sufficiently to maintain the interior of the wings at a temperature which will prevent ice being formed upon the outer surfaces thereof when the plane is flying in an atmosphere having a frozen temperature.

While the heating units have been shown as only in the wings of the plane it is also to be understood that applicant does not wish to limit himself to the placing of these units in this particular position for the same may be distributed throughout the body of the plane and in the rudders, if found desirable.

Having thus described my invention, what I claim as new is:—

A heater for the wings of an airplane, comprising a series of resistance coils arranged within and extending longitudinally of each wing, conductors connected to the terminals of the coils of each series, an electric generator for each series of coils, means for supporting the generators at each side of the body of the airplane, conductors connected to each generator and the conductors of each series of coils, and propeller blades secured to the armature shafts of the generators.

In testimony whereof I affix my signature.

PAUL WEBESTER MELLBERG.