

Sept. 19, 1939.

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2,173,262

DEICER FOR AIRSHIPS

Filed May 6, 1938

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FIG. 1

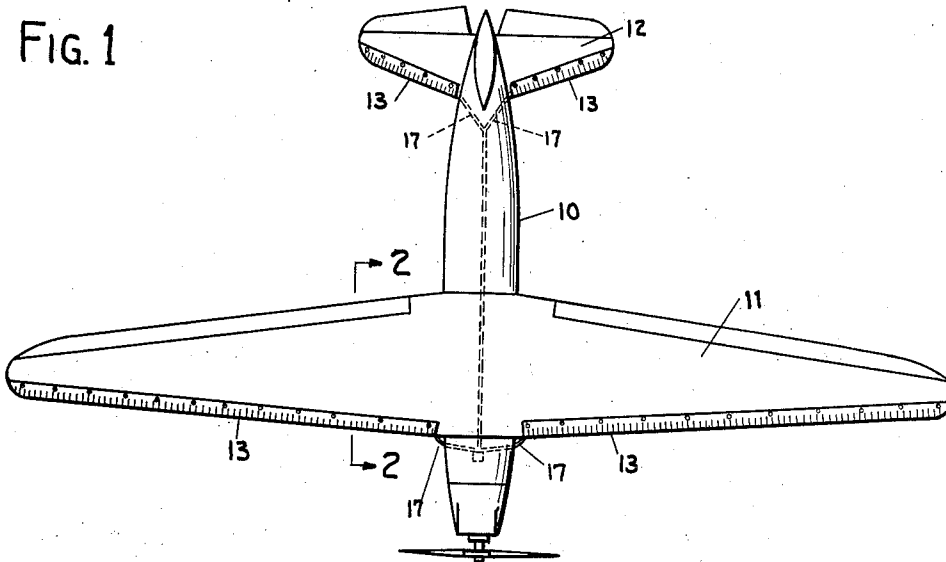


FIG. 2

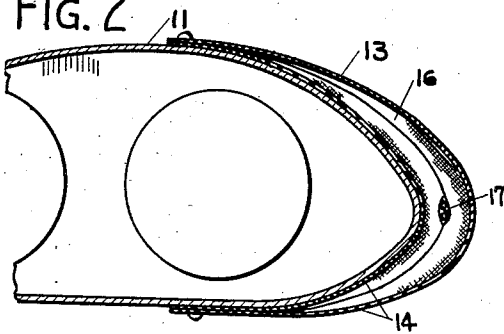


FIG. 3

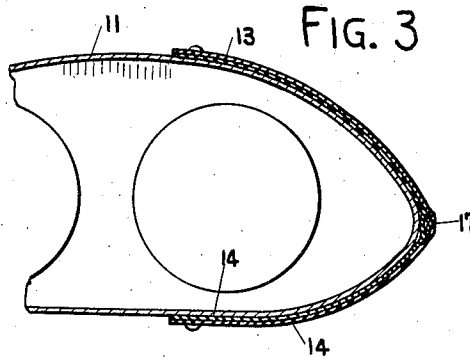
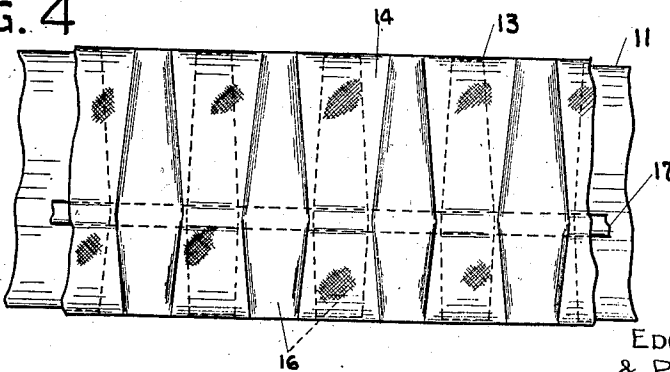


FIG. 4



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FIG. 5

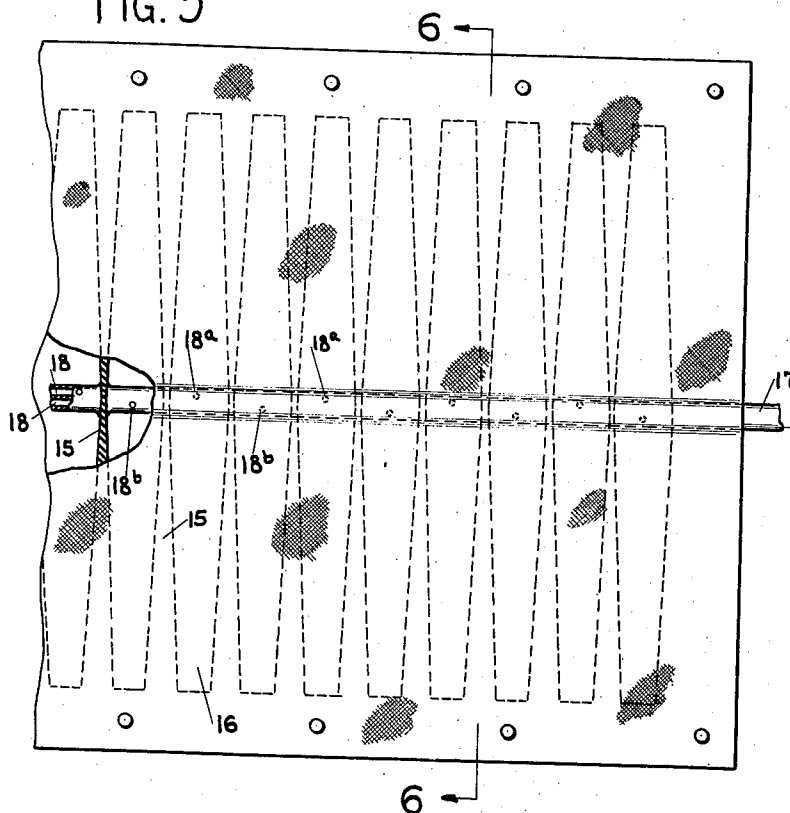
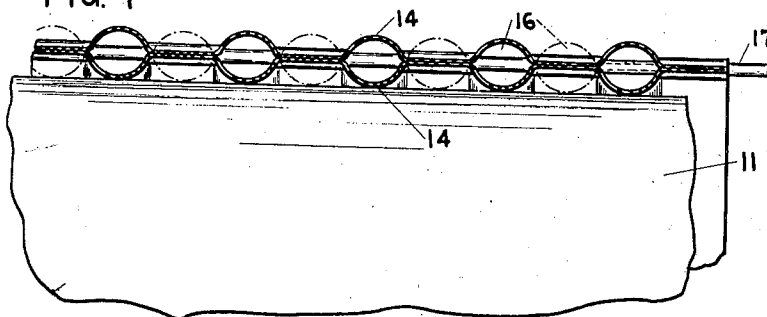


FIG. 6



FIG. 7



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DEICER FOR AIRSHIPS

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3 Claims. (Cl. 244—134)

This invention relates to de-icers for airships.

Heretofore, it has been proposed to provide de-icers for airships and aeroplanes which are applied to the leading edges of the wings of the ship and comprise fabric structures formed with inflatable pockets whereby the fabric structures may be inflated at the will of the pilot to break up any ice forming on the wing which would tend to weight the ship down.

De-icers of this type have not been entirely satisfactory from the standpoint of the expense of manufacture, ease of application, and effectiveness in use. Various attempts have been made to improve upon these structures to attain the foregoing ends but these attempts have not so far been successful.

It is the general purpose of the present invention to provide an improved de-icer construction of the type described which results in a minimum modification of the desired wing formation and least interference with operation of desired airflow principles, both when the de-icer is being used and when it is not in use.

A further purpose of the invention is to provide a more economical structure.

The foregoing and other purposes of the invention are attained in the de-icer illustrated in the accompanying drawings and described below. It is to be understood that the invention is not limited to the specific form thereof shown and described.

Of the accompanying drawings:

Figure 1 is a top plan view of an aeroplane embodying the invention.

Figure 2 is an enlarged section on line 2—2 of Figure 1, showing the de-icer when in use.

Figure 3 is a similar view showing the de-icer when not in use.

Figure 4 is an enlarged front elevation of a portion of the leading edge of an aeroplane wing as shown in Figure 1 and showing the improved de-icer thereon as in use.

Figure 5 is a plan view of the de-icer before application to the aeroplane, the de-icer being shown partly broken away and partly in section.

Figure 6 is a section on line 6—6 of Figure 5, and

Figure 7 is a transverse section through the de-icer when the same is in use.

Referring to the drawings, the numeral 10 designates an aeroplane having wings 11 and 12, the leading edges of which are provided with de-icers as indicated at 13, 13. As shown in Figures 5, 6 and 7, the de-icer comprises two layers of longitudinally stretchable rubberized or like fabric 14,

14, which may be the same or similar fabric to that which has already been used in de-icer constructions. These two layers of fabric are joined at their margins as by suitable adhesive cement, for example, rubber cement, and also along transverse strips 15, 15, thereby providing between the two layers of fabric a series of extending inflatable pockets 16, 16.

Associated with the two fabric layers and pockets 16, preferably by being extended centrally of the de-icer between the two layers is provided a flexible de-icer inflating header which may comprise rubber tubing 17 formed with two ducts 18, 18. Apertures in one of the ducts 18 are shown at 18^a, 18^a, connecting its duct 18 with alternate pockets 16, apertures from the other duct 18^b, 18^b, connecting to the other alternate pockets whereby the pockets may be alternately inflated and deflated by first connecting air under pressure to one duct 18 and relieving that pressure and then connecting air under pressure to the other duct 18 and so on. The ducts 18 may be connected to a suitable supply of air under pressure in any well known manner.

As shown in Figures 1 to 3, the de-icer may be applied over the leading surfaces of the aeroplane in any well known manner, the transverse pockets, extending transversely about the leading surfaces of the wing.

By alternately inflating first one set of pockets and then the other set of pockets, the de-icer will be deformed alternately as indicated in full lines and dotted lines in Figure 7, one alternate set of pockets being inflated and the other set of pockets being stretched and deflated. This will effectively remove ice from the surfaces of the wing.

As will be apparent the transversely extending rounded rib-like formations of the alternately inflated pockets, because they are aligned with the direction of travel of the ship, will offer a minimum modification of the normal surfaces of the leading edges of the wings and will least affect the air-flow and flight of the plane when the de-icer is being used. When not in use the fabric will lie smoothly on the surfaces of the wing, there being no ribs or edges effecting airflow over the wing surfaces in any appreciable degree.

Modifications of the invention may be resorted to without departing from the spirit thereof or the scope of the appended claims.

What is claimed is:

1. A de-icer for airships comprising two layers of fabric secured together at their margins and along strips between the margins to provide a series of inflatable pockets, a means for intro-

ducing air into said pockets to inflate the same and thereby modify the surfaces of the de-icer, said pockets extending transversely of the de-icer.

5 2. A de-icer for airships comprising two layers of fabric secured together at their margins and along strips between the margins to provide a series of inflatable pockets, a means for introducing air into said pockets to inflate the same and thereby modify the surfaces of the de-icer, said
10 pockets extending transversely of the de-icer, and said fabric being stretchable longitudinally.

3. A de-icer for airships comprising two layers of fabric secured together at their margins and

along strips between the margins to provide a series of inflatable pockets, a means for introducing air into said pockets to inflate the same and thereby modify the surfaces of the de-icer, said inflating means being connected with alternate
5 pockets whereby alternate sets of pockets may be alternately inflated, said inflating means comprising a flexible tube with two ducts extending along the de-icer and connected with the respective alternate series of pockets.
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