

July 9, 1929.

W. J. O'CONNOR

1,720,140

ANTIFREEZE AND FIRE PROTECTING DEVICE

Filed April 28, 1928

2 Sheets-Sheet 1

Fig. 1.

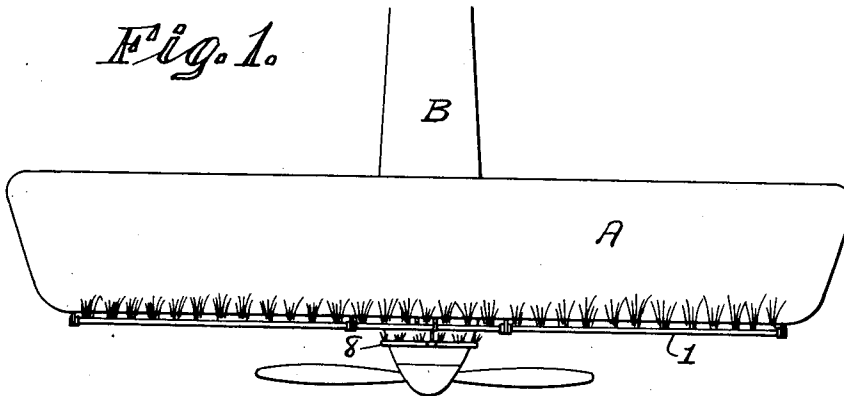


Fig. 2.

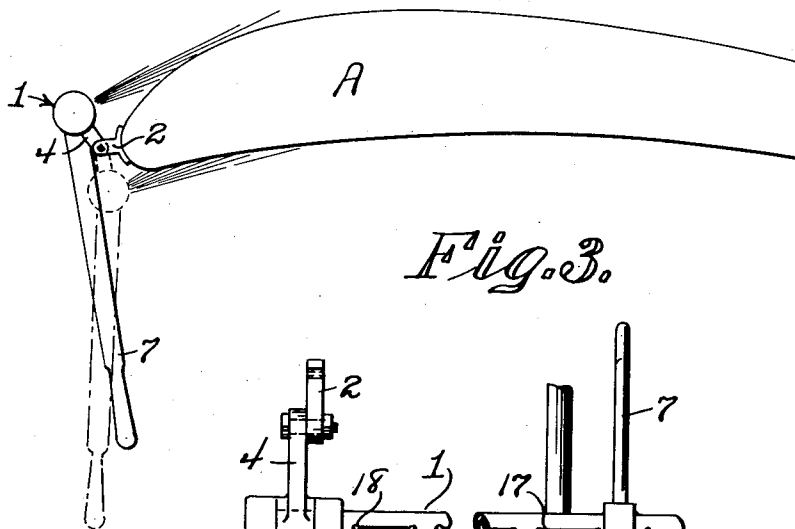
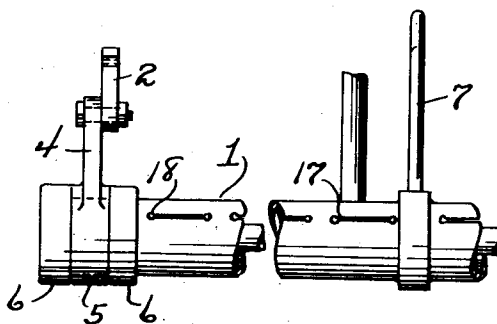


Fig. 3.



Walter J. O'Connor

INVENTOR

BY *Victor J. Evans*

ATTORNEY

WITNESS:

John D. Moran

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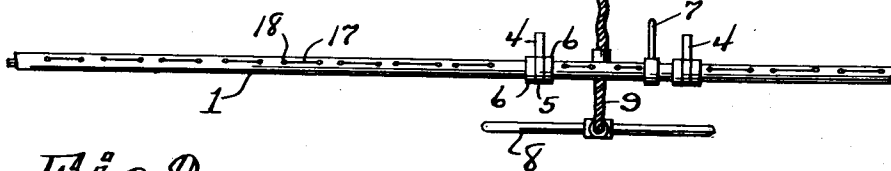
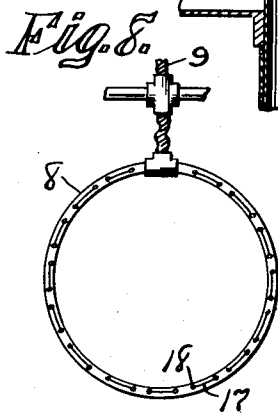
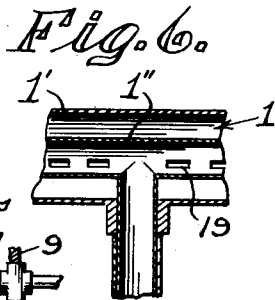
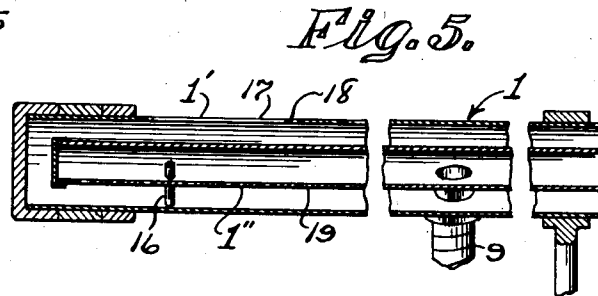
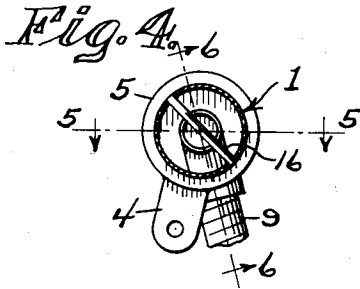
W. J. O'CONNOR

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ANTIFREEZE AND FIRE PROTECTING DEVICE

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2 Sheets-Sheet 2



WITNESS:

John D. Moran

Walter J. O'Connor

INVENTOR

BY *Victor J. Evans*

ATTORNEY

UNITED STATES PATENT OFFICE.

WALTER J. O'CONNOR, OF PITTSBURGH, PENNSYLVANIA.

ANTIFREEZE AND FIRE PROTECTING DEVICE.

Application filed April 28, 1928. Serial No. 273,638.

This invention relates to an attachment for an aircraft, the general object of the invention being to provide means for spraying material upon certain portions of the craft to prevent ice from accumulating thereon or to extinguish a fire, it, of course, being understood that an anti-freeze mixture is used in the first instance and a fire extinguisher in the second instance.

This invention also consists in certain other features of construction and in the combination and arrangement of the several parts, to be hereinafter fully described, illustrated in the accompanying drawings and specifically pointed out in the appended claims.

In describing my invention in detail, reference will be had to the accompanying drawings wherein like characters denote like or corresponding parts throughout the several views, and in which:—

Figure 1 is a diagrammatic plan view showing the invention applied to an aeroplane.

Figure 2 is a view showing how the pipe may be moved to spray material either upon the top surface or the under surface of the wing of the aircraft.

Figure 3 is a detail view of the spray device and its attached parts.

Figure 4 is a transverse sectional view through the spray device.

Figure 5 is a section on line 5—5 of Figure 4.

Figure 6 is a section on line 6—6 of Figure 4.

Figure 7 is a diagrammatic view of the arrangement of the tanks and pipes.

Figure 8 is a view of the ring-shaped spray device adapted to be placed over the nose of the fuselage.

Figure 9 is a view showing a modification.

In these views, 1 indicates a spray pipe which is arranged at the tip of the wing A of the aircraft, brackets 2 being fastened to the tip at intervals and having the arms 4 pivoted thereto, each arm being formed on a ring 5 which encircles a part of the tube 1, the tube being provided with collars 6 which receive each ring 5 between them. A handle 7 is connected with the tube 1 so that the tube can be moved from a position shown in full lines in Figure 2, where it will spray the top of the wing, to a position it occupies in dotted lines in Figure 2, where it will spray the under surface of the wing.

A spray tube 8 encircles the nose of the fuselage B of the plane so that the major portion of the fuselage can be sprayed from this tube. The two tubes are connected by the flexible tubes 9 to a pipe line 10, one end of which is connected with a tank 11 and the other end with a tank 12. A compressed air device 13 is connected by the pipes 14 with both tanks so that compressed air can be delivered to either tank from the device. Valves 15 are arranged in the pipe line 10 so that the material from either tank 11 or tank 12 can be allowed to escape through the spray tubes while the material in the opposite tank cannot pass into said tubes.

I prefer to make the spray tubes as shown in Figures 3, 4, 5 and 6. As shown in these views, each spray device comprises an outer member 1 and an inner member 1' which are spaced apart and which are connected together by the pins 16. The outer member is provided with the elongated slits 17 having their ends rounded, as at 18, and the inner member is provided with the oblong openings 19. The material to be sprayed is conducted into the inner member from which it passes through the openings 19 into the outer member and then it will pass from the outer members through the slits 17.

One of the tanks should contain an anti-freeze mixture so that when the material from this tank is sprayed over the parts of the aircraft, the accumulation of ice thereon will be prevented. The other tank is to contain a fire extinguishing liquid so that if a fire should break out, the contents of this tank can be sprayed over the plane to extinguish the fire.

Figure 9 shows the spray tube 1* inserted in the entering edge of the wing instead of being attached to the exterior thereof, as shown in the other views. It will, of course, be understood that the spray device may be placed on any desired part of the wing and that a number of these devices may be used to prevent ice from collecting on the wing and to extinguish fire if the wing should catch on fire.

It is thought from the foregoing description that the advantages and novel features of my invention will be readily apparent.

It is to be understood that I may make changes in the construction and in the combination and arrangement of the several parts, provided that such changes fall within the scope of the appended claims.

What I claim is:—

1. In an aeroplane, a spray pipe arranged at the tip of the wing thereof, means for forcing either a fire extinguishing liquid through said pipe or an anti-freeze liquid and manually operated means for moving the pipe so as to spray the liquid upon either the top surface or the under surface of the wing.
2. In an aeroplane, a spray pipe arranged at the tip of the wing thereof, means for forcing either a fire extinguishing liquid through said pipe or an anti-freeze liquid, manually operated means for moving the pipe so as to spray the liquid upon either the top surface or the under surface of the wing, a spray pipe encircling a part of the fuselage and means for forcing either an anti-freeze liquid or a fire extinguishing liquid through the same.
3. In an aeroplane, a spray pipe arranged at the tip of the wing thereof, means for forcing either a fire extinguishing liquid through said pipe or an anti-freeze liquid, manually operated means for moving the pipe so as to spray the liquid upon either the top surface or the under surface of the wing, a spray pipe encircling a part of the fuselage, means for forcing either an anti-freeze liquid or a fire extinguishing liquid through the same, each spray pipe comprising an outer member having slits therein, an inner member spaced from the outer member and having openings therein and means for connecting the inner member with the liquid to be sprayed.
4. In an aeroplane, a pair of tanks, one containing an anti-freezing mixture and the other a fire extinguishing mixture, means for supplying compressed air to both tanks, a spray pipe pivotally connected with the tip of the wing of the aeroplane, a spray pipe surrounding a part of the body of the plane, a pipe line connecting the two tanks together, a pipe connecting the central part of the pipe line with the two spray pipes and a pair of valves in the pipe line, one on each side of the center thereof.

In testimony whereof I affix my signature.

WALTER J. O'CONNOR.