Sept. 12, 1944. F. B. ALLEN 2,358,199

FIRE EXTINGUISHING SYSTEM

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Fig. 1.

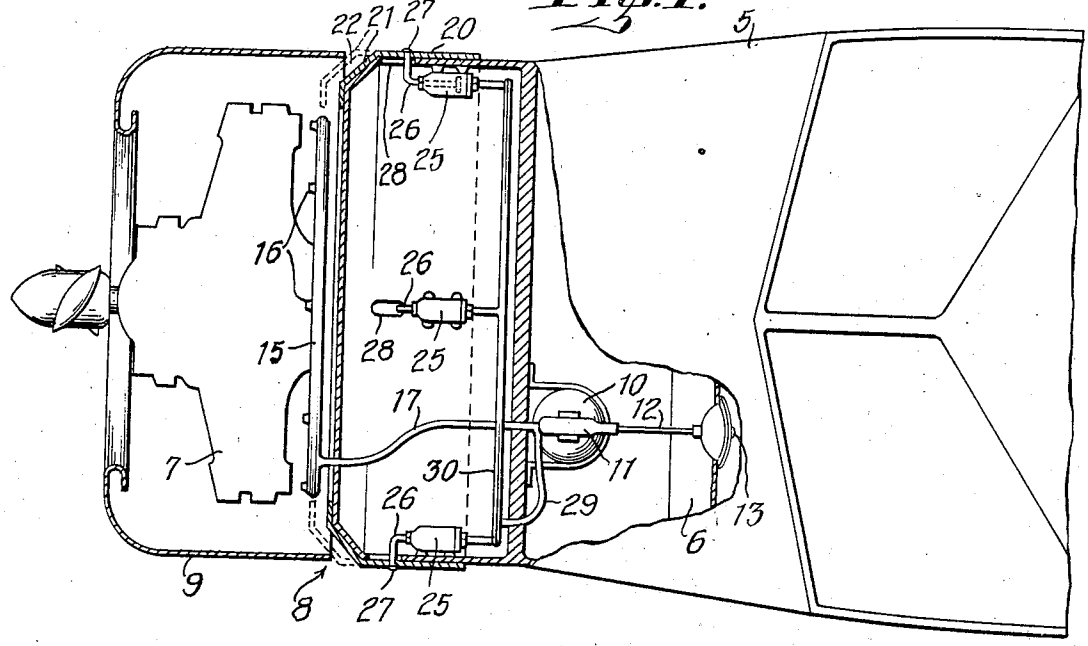
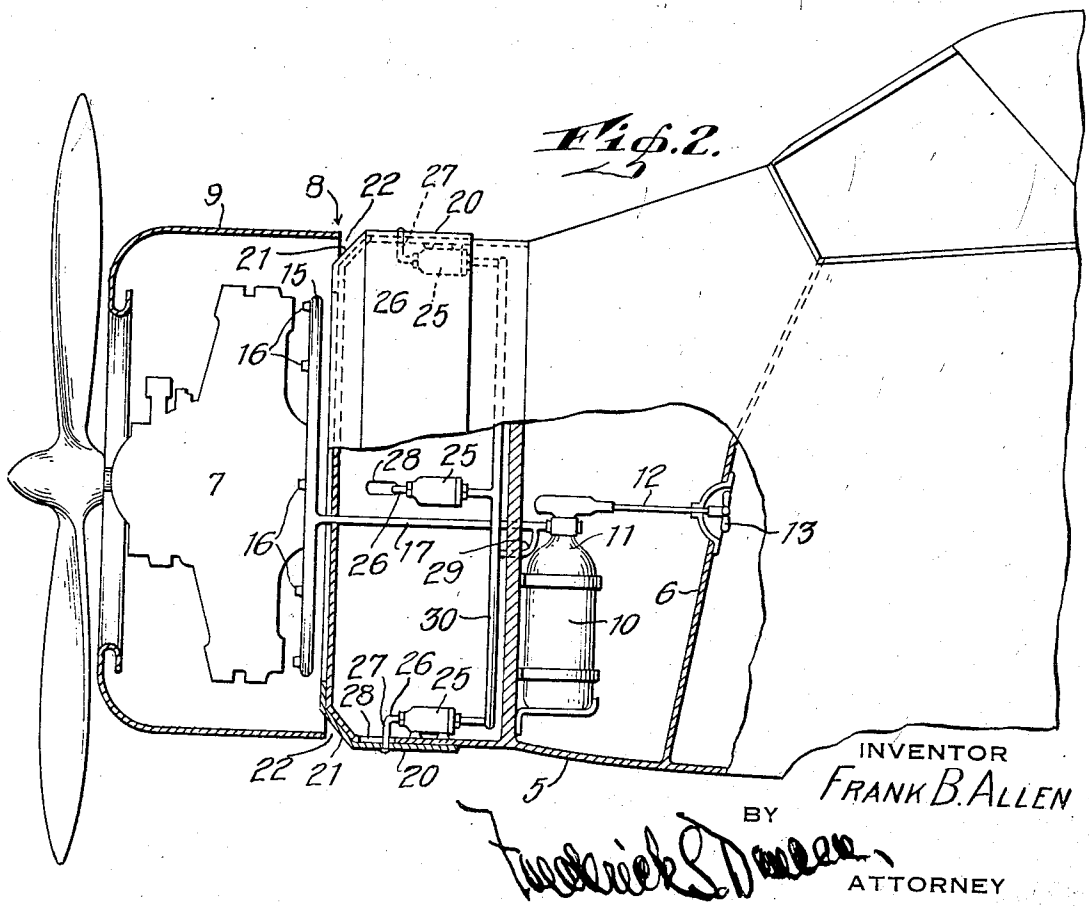


Fig. 2.



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Fig. 3.

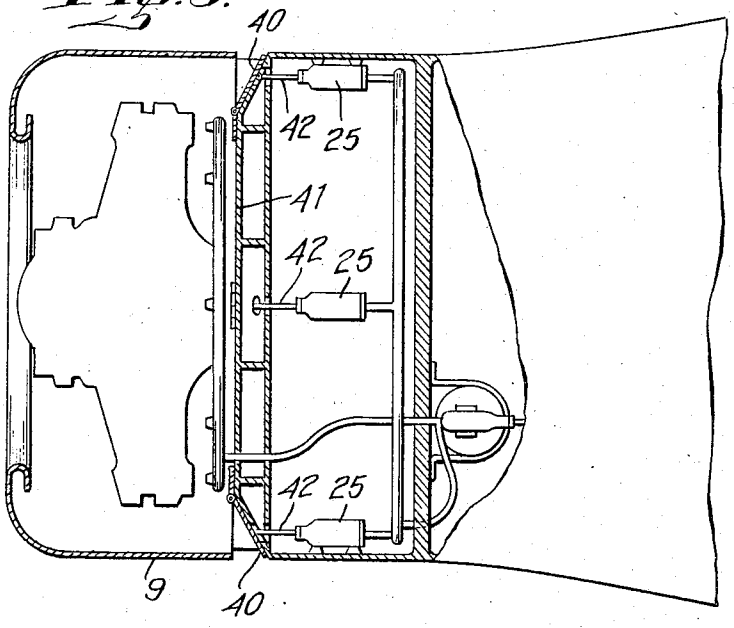
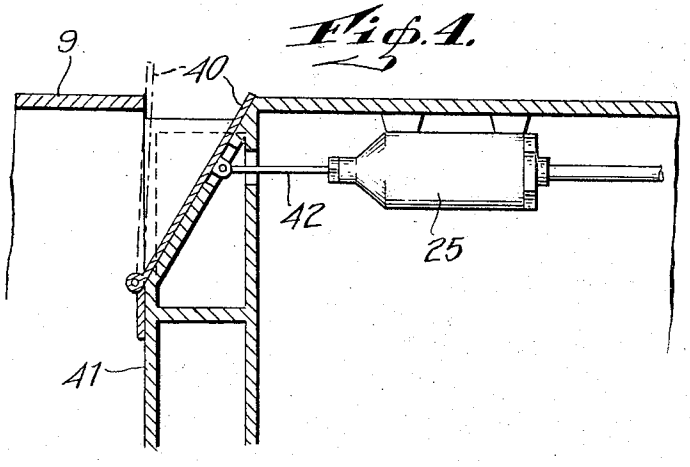


Fig. 4.



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Patented Sept. 12, 1944 2,358,199

UNITED STATES PATENT OFFICE

2,358,199

FIRE EXTINGUISHING SYSTEM

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Application November 25, 1942, Serial No. 466,895

6 Claims. (Cl. 169—2)

This invention relates to a fire extinguishing system especially designed for use in extinguishing airplane engine fires.

One of the principal objects of my invention is the provision of means for preventing the escape of fire extinguishing fluid discharged into the engine hood so as to effectively extinguish engine fires and in a much shorter period of time than heretofore possible.

One of the specific objects of this invention is the provision of means whereby fire extinguishing fluid may be discharged into the engine housing and its escape therefrom prevented by the operation of a single manipulative means.

Another object of this invention consists in providing means for automatically closing engine louvers and preferably by means of the discharged fluid when the same is discharged for extinguishing engine fires.

Still another object of this invention is to provide means for automatically moving a ring type closing member to close the cooling air escape opening in the engine hood at or about the instant that the fluid is discharged into the engine hood.

Other objects of this invention will appear from the following description taken in connection with the drawings, in which—

Fig. 1 is a top plan view, partly broken away, showing my invention carried out in connection with a ring type closing member;

Fig. 2 is a side view, partly broken away, of mechanism disclosed in Fig. 1;

Fig. 3 is a top view, partly broken away, showing my invention carried out in connection with a flap type closing mechanism; and

Fig. 4 is a detail of the flap type closing mechanism.

In the drawings, the fuselage is generally indicated by the reference character 5. The instrument board is shown at 6, the engine at 7, and the engine compartment at 8, the engine hood being indicated at 9.

A high pressure fluid container 10 may be supported as indicated in the various figures between the engine compartment 8 and the instrument board 6. This container may be provided with any suitable form of discharge head 11 which may be operated through a rod 12 by means of a handle 13 suitably mounted on the instrument board 6. Located to the rear of the engine 7 is a distributing discharge ring 15 provided with discharge orifices or nozzles 16 as indicated. This discharge ring is connected by a tubing 17 to the discharge head 11.

As disclosed in Figs. 1 and 2 I may provide a sliding closing ring 20 slidably supported on the outer wall of the engine compartment. The forward end of the closing ring 20 is provided with an inturned flange 21 preferably of the shape disclosed which when the ring is moved from the full line position shown in these figures to the dotted line position shown in Fig. 1 will close the opening or slots 22 at the rear end of the engine hood usually provided for the escape of the cooling air.

As disclosed in these Figs. 1 and 2 a suitable number of cylinders 25 may be suitably supported on the outer wall of the engine compartment and their pistons 26 may be provided with right angular extensions 27 which extend through slots 28 in the outer wall of the engine compartment and are connected to the closing ring 20. I have provided means for utilizing the fluid discharged from the container 10 for operating the pistons in the cylinders. This means consists of a tube 29 connected to the tubing 17 near the discharge head and to a distributing ring 30 connected to each of the cylinders 25.

When the operating handle 13 is pulled, fluid is discharged from the container 10 into the engine hood 9 to extinguish the engine fire and into the cylinders 25 to move the closing ring into sealing position at substantially the same time. This prevents the escape of fluid through the cooling air escape opening or slots 22 at the rear end of the engine hood 9 and confines the fire extinguishing fluid therein.

In Figs. 3 and 4 I have disclosed my invention as applied to a flap type closing means in which the cooling air escape opening or slots at the rear end of the engine hood 9 is closed by means of a circular series of flaps 40 which are pivotally supported on the front transverse wall 41 of the engine compartment. These flaps are operated by pistons 42 in the operating cylinders 25 when fluid is discharged into the engine hood by means such as disclosed in Figs. 1 and 2. As the fluid is discharged the flaps 40 are moved from the full line position disclosed in these figures to the dotted line position shown in Fig. 4 to close the cooling air escape opening or slots at the rear end of the engine hood 9 so as to prevent the escape of the fire extinguishing fluid discharged therein.

While for the purpose of disclosure, I have shown and described specific embodiments of my invention, it is to be understood I reserve the right to all such changes as fall within the principles of my invention and the scope of the appended claims.

I claim:

1. In a fire extinguishing system for extinguishing engine fires, in combination with an engine hood provided with a cooling air escape opening at the rear end of said engine hood, means for closing said opening, a container for fire extinguishing fluid, and a manipulative means for discharging fluid from said container into said hood and for operating said means for closing said opening.

2. In a fire extinguishing system for extinguishing engine fires, in combination with an engine hood provided with a cooling air opening, pivoted flaps adapted to be moved to close said opening, fluid operated means for moving said flaps, a container for fire extinguishing fluid, a discharge tube leading from said container into said engine hood and to said fluid operated means, and a manipulative means for releasing fluid from said container into said discharge tube.

3. In a fire extinguishing system for extinguishing engine fires, in combination with an engine hood provided with a cooling air opening, a ring movably mounted to be moved into position to close said opening, fluid operated means for moving said ring, a container for fire extinguishing fluid, a discharge tube leading from said container into said engine hood and to said fluid operated means and manipulative means for releasing fluid from said container into said discharge tube.

4. In a fire extinguishing system for extinguishing engine fires, in combination with an engine hood provided with a cooling air opening, means for closing said opening, a container for fire extinguishing fluid, a fluid distributing device within said engine hood, a discharge tube leading from said container to said device, means for releasing fluid from said container into said discharge tube, fluid operated means connected to said closing means for moving said closing means into closed position and a tube connecting said discharge tube to said fluid operated means.

5. In a fire extinguishing system for extinguishing engine fires, in combination with an engine hood provided with a cooling air opening, pivoted flaps for closing said opening, a container for fire extinguishing fluid, a fluid distributing device within said engine hood, a discharge tube leading from said container to said device, means for releasing fluid from said container into said discharge tube, a plurality of fluid operated cylinders one for each of said flaps, the piston of each cylinder being connected to the adjacent flap to move the same into closing position, a fluid connection between said discharge tube and each cylinder and means for operating said releasing means for releasing fluid from the container through said discharge tube into said hood and into said cylinders.

6. In a fire extinguisher for extinguishing engine fires, in combination with an engine hood provided with a cooling air escape opening at its rear edge, a ring for closing said opening, a plurality of cylinders provided with pistons connected to said ring, a fire extinguishing fluid distributing device located in said engine hood, a container for fire extinguishing fluid, conduit connections between said container and said cylinders and said fluid distributing device and means for releasing fire extinguishing fluid from said container.

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