



# UNITED STATES PATENT OFFICE

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## FIRE EXTINGUISHER OF THE PRESSURE-CONTAINING TYPE

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2 Claims. (Cl. 169—30)

This invention relates to fire-extinguishers of the kind comprising a container for the fire-extinguishing medium under pressure, having an outlet port initially sealed by a frangible diaphragm or the like which can be pierced by means of a plunger furnished not only with a cutter to break the diaphragm, but also with a valve to close the port.

The object of the invention is to provide an extinguisher having valve mechanism which will enable the discharge of fire-extinguishing medium to be controlled by the user without the delays or waste which occurs in constructions hitherto proposed.

According to this invention a plunger which is furnished both with a cutter and a valve, is controlled by a spring tending to move the plunger towards the diaphragm which initially closes the outlet port, a manually-operated member, preferably in the form of a lever or trigger, being also provided by which the valve can be moved away from its seat against the action of the spring after the diaphragm has been pierced.

Normally the plunger and the operating lever or trigger are held away from the sealing diaphragm by means of a safety pin, detent or the like, and in the preferred arrangement the bracket in which the extinguisher is supported is also adapted so to engage the safety pin that this pin is automatically withdrawn when the extinguisher is removed from the bracket. Thereupon the spring advances the plunger to pierce the diaphragm and immediately thereafter to close the outlet port by means of the valve which it carries. Discharge of the extinguishing medium through the outlet jet is then controlled by means of the lever mechanism which enables the valve to be raised and closed at will, in the preferred construction the container having a handle which is slotted to receive the lower end of the valve-operating trigger.

One construction of fire-extinguisher according to this invention is illustrated by way of example in the accompanying drawing, in which

Figure 1 is a side elevation partly in section showing the extinguisher in its supporting bracket, and

Figure 2 is a sectional elevation on an enlarged scale through the operating head showing the valve in its closed position.

In the construction illustrated the apparatus comprises a container or bottle A normally mounted in a supporting bracket B and pro-

vided at its upper end with a hollow detachable head C. Communication between the interior of the head C and the upper end of the siphon tube A<sup>1</sup> within the container is initially closed by means of a copper diaphragm D which is held in place by means of an annular screwthreaded member E, the upper end of which carries a lead or like valve seat E<sup>1</sup>.

Extending laterally from the hollow head above the valve seating is a lateral discharge jet C<sup>1</sup>, and mounted within the upper cylindrical end of the head is a plunger F the lower end of which is shaped to form a cutter or piercing member F<sup>1</sup> for the diaphragm and a valve F<sup>2</sup> to engage the valve seat E<sup>1</sup>. The plunger also carries an annular piston or shoulder F<sup>3</sup> against which bears the lower end of a spring G which tends to move the plunger towards the diaphragm and valve seat.

The upper end of the plunger F extends through an opening in the end of the head C and is slotted so as to receive the bent end of an operating trigger H pivoted at H<sup>1</sup> to the head, and also a safety pin J which, when inserted through a lateral aperture in the head, maintains the plunger in the raised position shown in Figure 1 with the spring G compressed. The safety pin J is provided with a ring J<sup>1</sup> which engages a hook B<sup>1</sup> on the bracket when the extinguisher is supported therein. The extinguisher is further provided with a handle K attached to the side of the head opposite to the jet C<sup>1</sup> and suitably attached to the container as by means of a strap K<sup>1</sup>, and the upper end of this handle is slotted at K<sup>2</sup> to receive the lower end of the trigger.

Normally the extinguisher is supported in its bracket with the plunger in the raised position shown in Figure 1. If the extinguisher is to be used, it is removed from its bracket by means of the handle K, and this automatically causes the safety pin J to be withdrawn, owing to the engagement between the ring on the end of the safety pin and the hook B<sup>1</sup> on the bracket. The withdrawal of the pin causes the spring G to advance the plunger F, thus first piercing the seal D and immediately afterwards closing the upper end of the siphon tube A<sup>1</sup> by the valve portion F<sup>2</sup> engaging its seating E<sup>1</sup>. In this way premature escape of the fire-extinguishing medium which is under pressure within the container is prevented.

The discharge of the extinguishing medium can then be controlled by the operator pulling the lower end of the trigger whilst grasping the

container by means of its handle and in this way the jet of fire-extinguishing fluid can be directed as desired and its delivery can be controlled by means of the trigger so that no waste occurs and at the same time the extinguisher can be brought into operation almost instantaneously.

It will be appreciated that the particular mechanism illustrated is given by way of example only and that some other form of lever mechanism or safety device may be provided without departing from the invention.

What I claim as my invention and desire to secure by Letters Patent is:—

1. In a fire extinguisher, the combination of a container adapted to receive fire extinguishing medium under pressure having an outlet port initially sealed by a frangible diaphragm, a plunger comprising both a cutter for breaking the diaphragm and a valve to close the port, a spring tending to move the plunger towards the outlet port, a safety pin by which the plunger

is initially held away from the diaphragm, a handle on the container, a trigger by which the valve can be moved from its seat against the action of the spring after the safety pin has been withdrawn, and a supporting bracket for the container adapted to engage the safety pin so that the pin is automatically withdrawn when the extinguisher is removed from the bracket.

2. In a fire-extinguisher, the combination of a container having an outlet port, a frangible diaphragm initially sealing this port, a plunger comprising a cutter for breaking the diaphragm and also a valve adapted to close the port, a spring tending to move the plunger towards the outlet port, means for initially retaining the spring-controlled plunger away from the diaphragm, and lever mechanism by which the valve can be intermittently moved from its seat against the action of its spring after the diaphragm has been pierced.

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