

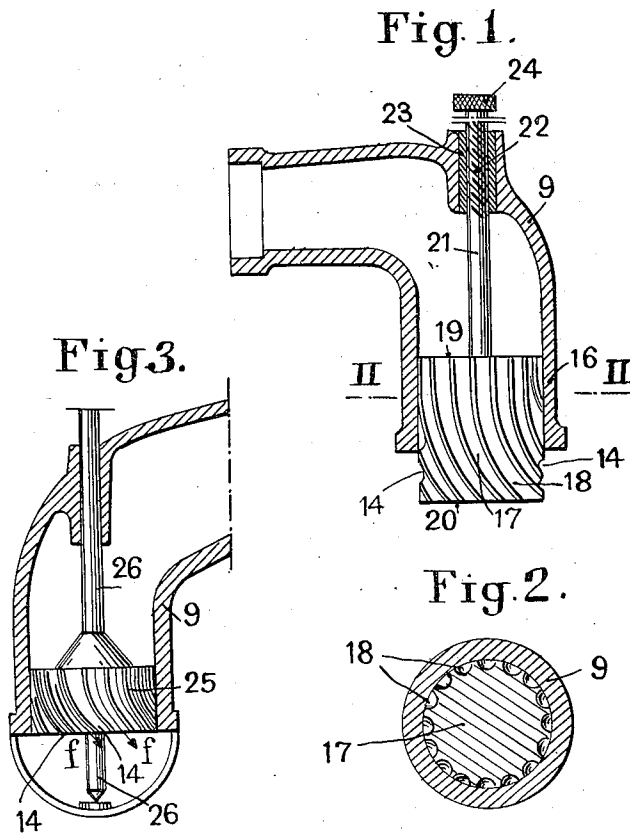
Dec. 31, 1935.

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2,025,953

FIRE EXTINGUISHING DEVICE

Filed March 6, 1934



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UNITED STATES PATENT OFFICE

2,025,953

FIRE EXTINGUISHING DEVICE

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Application March 6, 1934, Serial No. 714,214

In France November 3, 1933

3 Claims. (Cl. 299—130)

The subject of this invention is a device for extinguishing fires.

In the French patent of May 9, 1933, provisional No. 351,611 a fire extinguishing device was described in which an ejector distributes the extinguishing body or fluid in the form of a conical sheet, of suitable apex angle, enabling the burning zone to be encircled and to be progressively reduced by the suitable operation of the ejector. This operation of the ejector may consist either of a variation of the height of the ejector above the burning zone or of a variation in the angle of projection of the ejector in such a way as to obtain the desired variation of the zone encircled.

The extinguishing device according to the invention comprises in combination with a reservoir containing an extinguishing body or mixture of extinguishing bodies, in a suitable form or physical state, fluid, liquid or power under appropriate pressure, one or more ejectors having one or more directional mouthpieces suitably grouped or otherwise, capable of ensuring that the projected body, in a fluid, liquid, powdered, mixed or combined state, will be distributed in the form of a conical sheet, having a constant or variable apex angle, with the object of thus forming by means of the ejector a continuous enveloping surface, sensibly airtight, of the projected body, susceptible of being used for extinguishing the fire prevailing in a certain zone, by separation or isolation of this zone from the exterior surroundings.

In the attached drawing, which represents by way of examples of realization, forms of construction of extinguishing devices in accordance with the invention:—

Fig. 1 shows in section an ejector embodying the present invention and which can distribute an extinguishing body or fluid in the form of a sheet with variable apex angle,

Fig. 2 is a section of the same ejector on line II—II of Fig. 1,

Fig. 3 is a variation of Fig. 1 permitting automatic variation of the apex angle.

In Fig. 1 is shown an ejector which can distribute the extinguishing fluid in the form of a conical sheet with variable apex angle. The nozzle 9 comprises a cylindrical exit orifice 16 in which can be displaced a core 17 having on its periphery channel elements 18 whose section diminishes from the face 19 at which the fluid arrives towards the opposite face 20, these channels forming directional mouthpiece 14 and being formed to follow a helicoidal track on the periphery of the core 17, the pitch of the helix be-

ing variable, maximum near the face 19 and minimum near the face 20, as shown in the drawing.

This core is connected by a spindle 21 carrying, for example, a quick thread screw 22 engaging in a nut 23 attached to the base. An operating knob 24 enables the stem 21 to be rotated.

The functioning is as follows:—

If the core 17 is completely withdrawn into the orifice 16 of the nozzle, the fluid arriving into this nozzle under suitable pressure enters the channels 18 at a high velocity which increases as a result of the reduced section of the channels; each thread of fluid in escaping maintains a direction tangential to the channel at its point of exit, that is to say, at the lower half of the orifice 16.

It will thus be seen that, according to the position occupied by the core 17 in the cylindrical orifice 16, the fluid threads guided by the channels 18 will have a direction more or less inclined to the vertical, thus forming a conical sheet with a variable apex angle. By operating the knob 24 the core 17 can be displaced, thus controlling the variation of this apex angle.

In the form shown in Fig. 3, in the nozzle 9 of the ejector, is mounted a turbine wheel 25 mounted on an axle 26 rotating freely and which may comprise a braking device, not shown in the drawing.

When the fluid under pressure passes through the nozzle, the wheel 25 which is stopped, and which, owing to its inertia, only gradually starts to rotate, acts at first as a fixed distributor in such a way that the fluid threads passing out follow a direction indicated by the arrow *f* (Fig. 3). Then, as the speed of rotation of the wheel increases, the direction of the fluid threads becomes less and less inclined to the axis, thus causing the formation of a conical sheet with decreasing apex angle.

Naturally, a braking device may be arranged on the shaft 26 in accordance with the duration suitably calculated for the extinction of a burning zone, in such a way that the conical sheet which, at the commencement, has a maximum apex angle, only obtains its minimum apex angle at the end of a period in which the burning zone is completely extinguished.

These devices thus permit, by the distribution of the fluid in the form of a conical sheet, the formation of a sort of extinguisher, the conical sheet forming a wall which is sensibly continuous, interrupting communication between the burning zone and the external atmosphere, and thus preventing the air from furnishing the combus-

tible necessary for combustion. In addition the extinguishing gas or fluid used for dispersing the body: powder, foam or other substance, being an inert gas, also helps to impoverish the burning zone in combustible gas and, as a result, to accelerate its extinction.

The extinguishing device may, of course, use any desired extinguishing body, in any suitable physical state, liquid, gaseous, powdered or otherwise, or a mixture of bodies in these various states.

The invention applies to fire extinguishing devices for all applications.

What I claim is:—

15 1. A nozzle for a fire extinguishing device comprising a cylindrical member, a member fitting within and movable relatively to said cylindrical member, said movable member having helical channels in its periphery, said channels diminishing in pitch from the inner towards the outer
20 or discharge face of the member.

2. A nozzle for a fire extinguishing device comprising a cylindrical member, a member fitting within and longitudinally movable relatively to said cylindrical member, said member having helical channels in its periphery, said channels
5 varying in pitch from the inner towards the outer or discharge face of the member and serving to discharge extinguishing medium in the form of a conical sheet, the apex angle of which varies according to the extent of longitudinal movement
10 of the said movable member.

3. A nozzle for a fire extinguishing device comprising a cylindrical member, a rotatable turbine wheel located within said cylindrical member near the outer or discharge end thereof, the
15 vanes on said wheel forming helical channels serving for the discharge of extinguishing medium in the form of a conical sheet, the apex angle of which varies with the speed of rotation of the turbine wheel.
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