

April 4, 1944.

W. R. HARRIMAN ET AL,

2,345,812

NOZZLE

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Fig. 1.

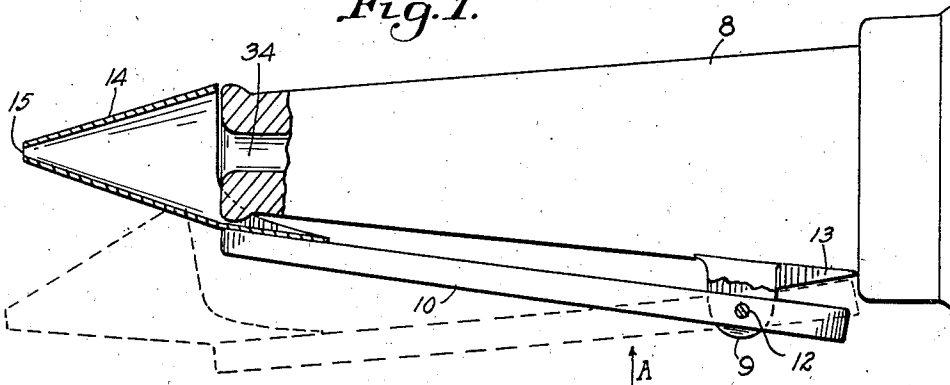


Fig. 2.

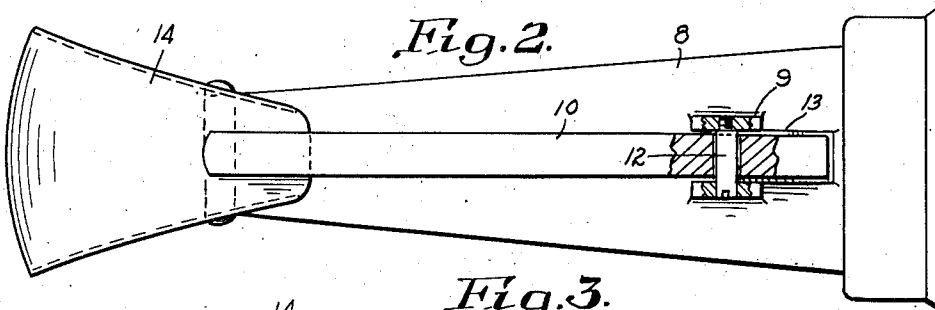


Fig. 3.

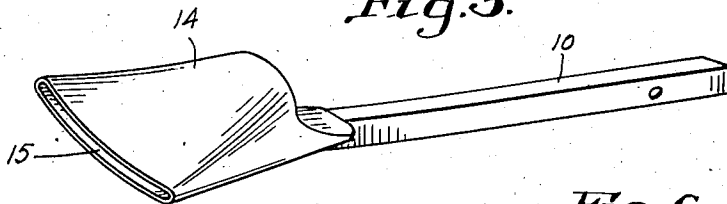


Fig. 5.

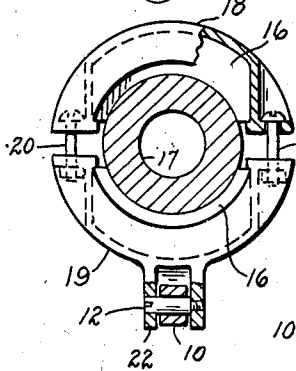


Fig. 4.

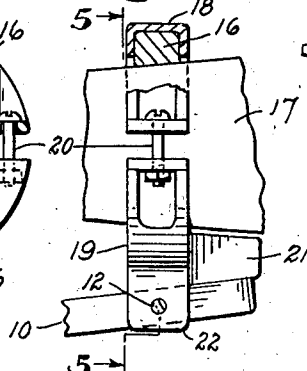


Fig. 6.

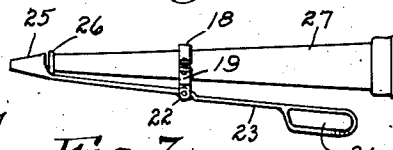
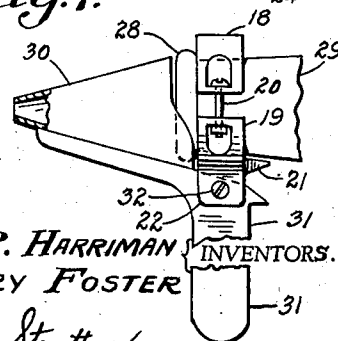


Fig. 7.



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2,345,812

NOZZLE

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Application April 25, 1942, Serial No. 440,424

2 Claims. (Cl. 299—129)

Our invention relates to nozzles and most particularly to adjustable spray nozzles particularly adapted for controlling the flow of water from a fire hose nozzle or play pipe.

An object of the invention is to provide means for quickly changing the stream from a cylindrical stream of water to a fan-shaped spray and vice versa.

Still another object is to provide means to apply such a device to an already existing nozzle or play pipe.

Our invention also has for its objects to provide such means that is positive in operation, convenient in use, easily installed in a working position and easily disconnected therefrom, economical of manufacture, relatively simple and of general superiority and serviceability.

Our present invention has numerous uses. The spray nozzle may be used for general gardening use and especially for fighting fire, particularly in the control of the "electron" magnesium incendiary bomb, or other incendiary bombs. The fine spray from the fish-tail nozzle avoids striking the molten magnesium or iron with a heavy stream of water to avoid explosive results.

On the other hand, our nozzle may be quickly moved to an inoperative position to wet the surrounding area and to control secondary fires. The wide spray is also of great value as a water curtain interposed between any flames or source of heat and men who must remain in an exposed position to operate another hose line, or in rescue work.

The invention also comprises novel details of construction and novel combinations and arrangements of parts, which will more fully appear in the course of the following description. However, the drawing merely shows and the following description merely describes one embodiment of the present invention, which is given by way of illustration or example only.

In the drawing, like reference characters designate similar parts in the several views.

Fig. 1 is a drawing partly in section showing an embodiment of our nozzle.

Fig. 2 is an underneath view of Fig. 1 looking in the direction of arrow A.

Fig. 3 is a perspective view of the spray nozzle.

Fig. 4 is a modified construction partly in section and partly broken away.

Fig. 5 is a sectional view taken on the line 5—5 of Fig. 4.

Figs. 6 and 7 are still further modified constructions of nozzle controls.

Referring more in detail to the drawing, the

reference numeral 8 generally designates a play pipe of a fire hose (the hose is not shown). An integral lug 9 on the play pipe 8 pivotally supports a lever 10 through the intermediary of a pin 12. One of the lugs 9 may be tapped to receive a threaded end of the pin 12 as shown in Fig. 2. A stop 13 limits movement of the lever 10, as indicated by the broken lines in Fig. 1.

The outer end of the lever 10 carries a spray nozzle 14 that is fan-shaped, providing an elongated slit 15 for the discharge of a fish-tail spray of water.

In the form shown in Fig. 4, complementary washer member or jaw piece 16 engages the play pipe 17. Complementary channeled ring members 18 and 19 embrace the washer members which in turn grip the play pipe. The washer members 16 may be of fibre, rubber, fabric or any other strong material, preferably resilient.

Clamping bolts 20 hold the ring members 18 and 19 in position on the play pipe. A stop 21 is provided on the ring member 19, which also carries ears 22 for pivotally supporting a lever 10. The pin 12 is also used in this form.

The construction shown in Fig. 6 utilizes the complementary clamping rings 18 and 19 and ears 22. However, this construction comprises an attenuated lever 23 having a hand opening 24 for moving the nozzle 25 into and out of alignment with nose 26 of the play pipe 27.

In the form shown in Fig. 7, the clamping ring members 18 and 19 are mounted directly behind a bead 28 on the play pipe 29. Nozzle 30, in this form, is controlled by a laterally extending lever arm 31, which lever is pivoted at 32 on ears 22.

In the use of our invention, the play pipe 8 may be used for directing a cylindrical stream of water, but when it is desired to direct a spray of water, such as on an incendiary bomb, the longer arm of the lever 10 is moved toward the play pipe 8, from the broken line position to the full line position of Fig. 1. As soon as the stream of water strikes the converging inner faces of the fan-shaped nozzle 14, the pressure thereof tends to maintain the nozzle directly in front of the outlet 34 of the play pipe 8. When it is desired to return the stream of water to a cylindrical stream, the lever 10 may be moved from the full line to the broken line position of Fig. 1. The stop 13 provides a limit for such movement.

The operation of the other forms is similar to that just described. It is believed clear without further explanation that the forms shown in Figs. 4 to 7 inclusive, may be applied to an existing play pipe. In the form shown in Fig. 6, the

lever 23 is operated manually to move the nozzle 25 into and out of the path of a stream of water flowing from the outlet 26.

In the form shown in Fig. 7, the laterally extending arm 31 provides manual means for actuating the nozzle 30.

While we have illustrated and described what we now regard as the preferred embodiment of our invention, the construction is, of course, subject to modifications without departing from the spirit and scope of our invention. We, therefore, do not wish to restrict ourselves to the particular form of construction illustrated and described, but desire to avail ourselves of all modifications that may fall within the scope of the appended claims.

Having thus described our invention, what we claim and desire to secure by Letters Patent is:

1. In a device for a liquid conduit having a discharge opening for liquid, a nozzle having sides converging toward an outlet, a lever to pivotally support the nozzle relative to the conduit, clamping means including resilient, non-metallic means gripping the conduit and pivotally supporting the lever, and stop means on the clamping means limiting swinging movement of the nozzle out of

the path of the liquid, the converging sides of the nozzle being arranged for the pressure of liquid thereon to tend to maintain the nozzle in the path of the liquid.

2. In a device for a liquid conduit, a liquid conduit member having a discharge opening at its forward end adapted to throw a solid stream, a fishtail nozzle member shaped to throw a fan shaped spray, a lever below, and lengthwise of, the conduit member and on the forward end of which the nozzle member is carried forwardly of the said discharge end of the conduit member, and means forming a pivotal support for said lever intermediate its ends on the underside of said conduit member and remote from the forward end of the conduit member, the nozzle member thereby normally resting by gravity in a lower inactive position below the conduit member and being shiftable vertically with the lever to an upper active position in line with the conduit discharge, the pressure of discharging liquid against the nozzle in the upper active position of the latter tending to hold the nozzle in said active position.

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