

Aug. 6, 1957

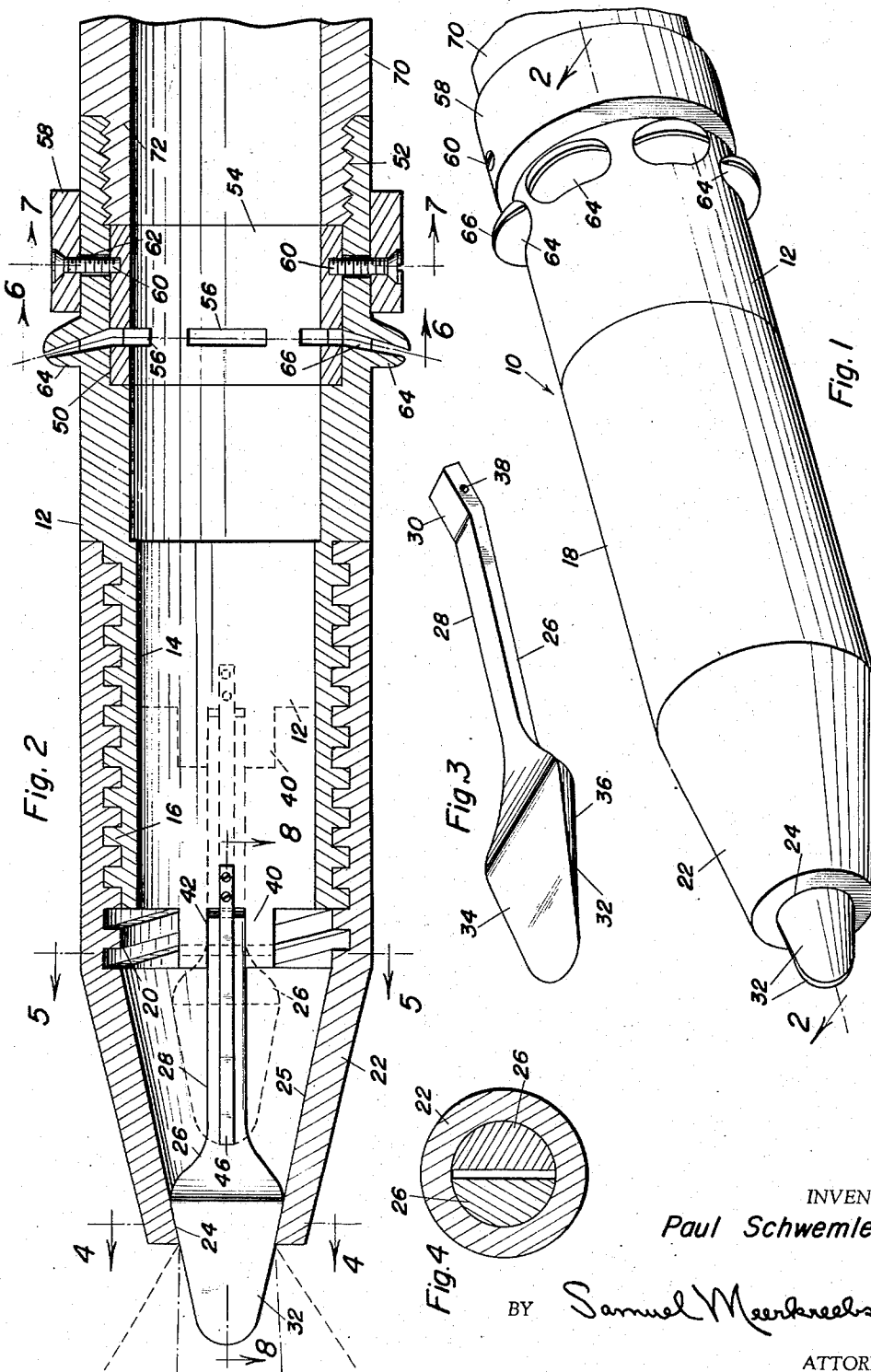
P. SCHWEMLEIN

2,801,882

HOSE NOZZLE

Filed Aug. 13, 1956

2 Sheets-Sheet 1



INVENTOR
Paul Schwemlein

BY Samuel Maerkle

ATTORNEY

Aug. 6, 1957

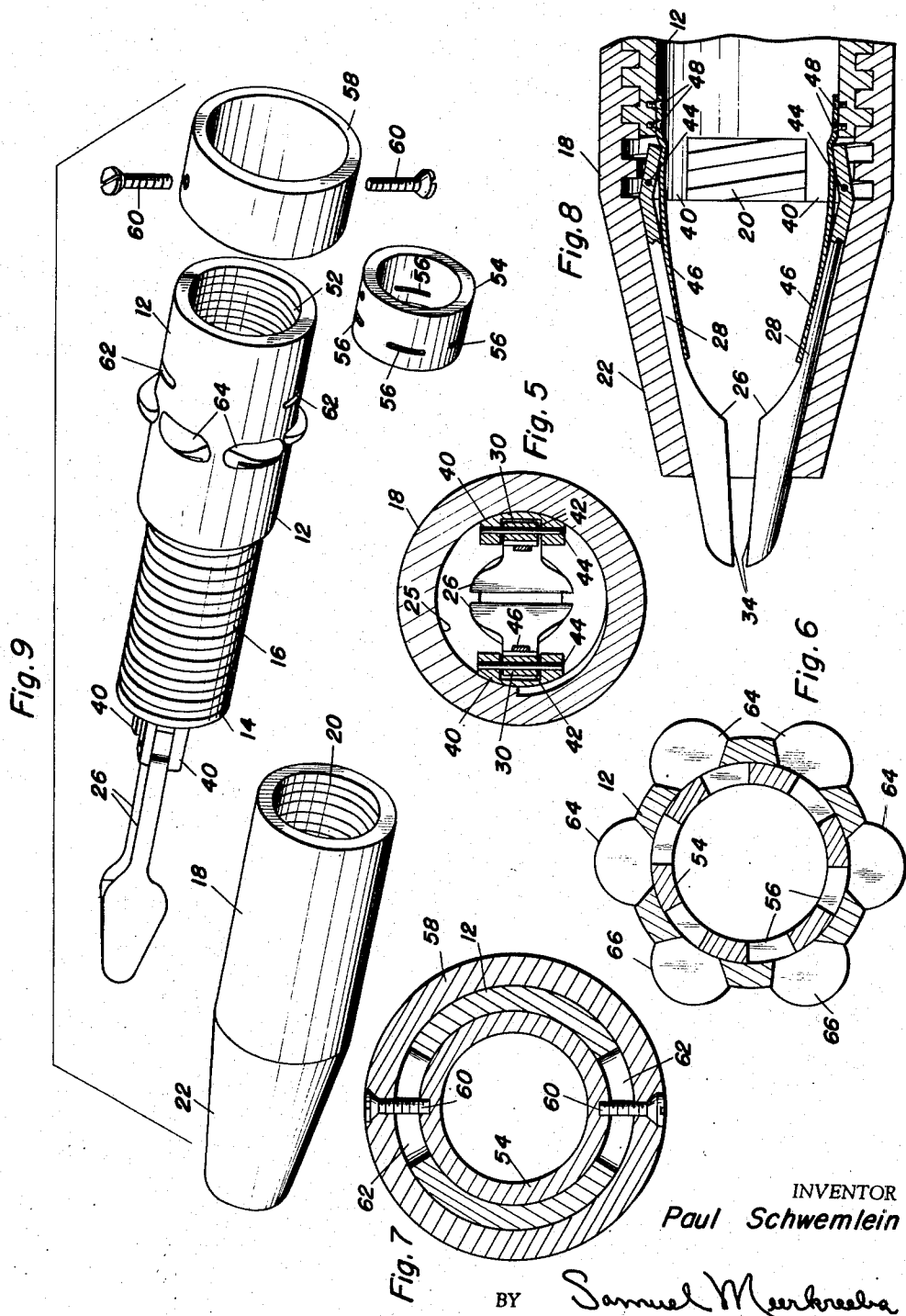
P. SCHWEMLEIN

2,801,882

HOSE NOZZLE

Filed Aug. 13, 1956

2 Sheets-Sheet 2



1

2,801,882

HOSE NOZZLE

Paul Schwemlein, Toronto, Ontario, Canada

Application August 13, 1956, Serial No. 603,553

2 Claims. (Cl. 299-136)

This invention relates in general to new and useful improvements in fire fighting equipment, and more specifically to an improved and novel hose nozzle.

For many years the hose nozzle used in fire fighting was so constructed whereby a round stream of water flowed therefrom. Thus fires were put out only by the sheer volume of water being played upon the fire. In recent years there has been developed the so called "fog" type of nozzle which produces a fine spray for a relatively large area. This fog will smother a fire providing one can reach a position relatively close to the fire so that the fog will be effective. However, in the case of large fires even with recent developments in hose nozzles the fireman still plays a solid round stream of water on the fire in an attempt to put the fire out due to just a volume of water.

It is therefore the primary object of this invention to provide a hose nozzle which is so constructed whereby it may normally effect a round stream flow as in the case of the conventional hose nozzle and when so desired may produce a flat fan shaped spray so that water, while being placed upon the fire in volumes, will be spread over a relatively large area so that a large fire may be placed under control in a much shorter time.

Another object of this invention is to provide an improved hose nozzle which is so constructed whereby in addition to its stream of water for the purpose of fighting a fire it will also produce a protective screen of water so as to protect the fireman in his attempts to fight a fire from a relatively close distance.

Another object of this invention is to provide an improved hose nozzle which is provided at one end thereof with a conventional type of nozzle portion for effecting a round stream flow, there being disposed within the hose nozzle control members having flat opposed control surfaces which may be selectively positioned with respect to the nozzle portion for changing the flow of water from the nozzle portion from a round stream to a flat fan shaped stream.

A further object of this invention is to provide an improved hose nozzle of the type which will produce both a stream of water for the purpose of fighting fires and a spray for protecting the fireman using the nozzle, there being provided suitable control means for both the spray and the fire fighting stream so that each may be controlled individually.

These together with other objects and advantages which will subsequently become apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a perspective view of the hose nozzle which is the subject of this invention as viewed from the discharge end thereof and shows the hose nozzle set for effecting a flat fan shaped flow of water therefrom;

Figure 2 is an enlarged longitudinal sectional view taken substantially upon the plane indicated by the sec-

2

tion line 2-2 of Figure 1 and shows the details of the interior construction of the hose nozzle, the control members being shown by dotted lines in a retracted position with respect to the nozzle portion of the hose nozzle;

Figure 3 is an enlarged perspective view of one of the control members and shows the general configuration thereof;

Figure 4 is an enlarged transverse vertical sectional view taken substantially upon the plane indicated by the section line 4-4 of Figure 2 and shows the specific relationship between the control members and the nozzle member for effecting the fan shaped spray or stream;

Figure 5 is an enlarged transverse vertical sectional view taken substantially upon the plane indicated by the section line 5-5 of Figure 2 and shows the manner in which the control members are pivotally connected to the body of the hose nozzle;

Figure 6 is an enlarged transverse vertical sectional view taken substantially upon the plane indicated by the section line 6-6 of Figure 2 and shows the specific details of the nozzle portion of the body for producing a protective spray screen for firemen using the hose nozzle, there being illustrated the specific details of the valve member for controlling the producing of the spray;

Figure 7 is an enlarged transverse vertical sectional view taken substantially on the plane indicated by the section line 7-7 of Figure 2 and shows further the details of the valve member;

Figure 8 is an enlarged fragmentary longitudinal sectional view taken substantially upon the plane indicated by the section line 8-8 of Figure 2 and shows further the details of the mounting of the control members; and

Figure 9 is an exploded perspective view on a reduced scale showing the various elements of the hose nozzle.

Referring now to the drawings in detail, it will be seen that there is illustrated a hose nozzle which is the subject of this invention, the hose nozzle being referred to in general by the reference numeral 10. The hose nozzle 10 includes an elongated body 12 which is generally cylindrical in configuration. The body 12 is provided at its forward end with an externally reduced cross sectional portion 14 which is provided with external threads 16. Telescoped over the forward portion 14 is a nozzle member 18 which has at its rear end internal threads, 20, the threads 20 cooperating with the threads 16 to position the nozzle member 18 on the body 12.

The nozzle member 18 is provided with a forward nozzle portion 22 which is of frusto-conical configuration and which terminates in a circular discharge opening 24. The interior surface of the nozzle portion 22 is referred to by the reference numeral 25 and is tapered. The construction of the nozzle member 18 is such that normally it will produce a round stream flow.

Referring now to Figure 3 in particular, it will be seen that there is illustrated a control member 26. The control member 26 includes an elongated shank 28 having offset end 30. The opposite end of the shank 28 terminates in an enlarged generally semi-conical portion 32 which includes a flat control surface 34 and a tapered positioning surface 36. The offset end 30 is provided with a transverse bore 38.

Referring now to Figures 2 and 8 in particular, it will be seen that the body 12 is provided at the forward end thereof with a pair of forwardly projecting, diametrically opposed ears 40. Each of the ears 40 includes a central recess 42 in which there is positioned the offset end 30 of the shank 28. Extending through the bore 38 and carried by the ear 40 is a pivot pin 44 which mounts each of the control members 26 to its respective ears 40.

Secured to the forward portion of the body 12 in alignment with each of its ears 40 extending forwardly therefrom is a leaf spring 46. Each leaf spring 46 is secured

to the body 12 by means of suitable fasteners 48. The leaf springs 46 engage the shanks 28 and urge the control members 26 outwardly away from each other.

When the control members 26 are utilized to effect a fan like type of flow, the control members 26 and their control portions 32 are disposed within the discharge opening 24, as is best illustrated in Figure 2. At the same time, the shanks 28 and the surfaces 36 engage the surface 25 of the nozzle portion 22 for positioning thereabout. By turning the nozzle member 18 in the desired direction, the nozzle portion 22 may be moved with respect to the control members 26 so that the space between the opposed control surfaces 34 may be slightly increased to control the shape of the fan like stream flowing from the nozzle member 18.

When it is desired to produce a round stream type flow with the hose nozzle 10, it is merely necessary to turn the nozzle member 18 so that the relationship between the control members 26 and the nozzle member 18 is such as that illustrated by dotted lines in Figure 2. At this time the control members 26 are so positioned with respect to the nozzle portion 22 that they do not interfere with the normal round stream type flow from the discharge opening 24.

Referring once again to Figure 2 in particular, it will be seen that the rear end of the body 12 is provided with a recess 50. The recess 50 is relatively deep and terminates at its rear end with internal threads 52 formed on the body 12. Seated within the forward part of the recess 50 is a valve member 54. The valve member 54, as is best illustrated in Figure 9, is in the form of a sleeve which is provided with a plurality of radially extending, circumferentially spaced water outlets 56. The valve member 54 is retained on the body 12 by means of a control member 58 which is in the form of an annular ring telescoped about the outer rear portion of the body 12. The control member 58 is secured to the valve member 54 by a pair of diametrically opposed fasteners 60 which pass through circumferential elongated openings 62 in the body 12, as is best illustrated in Figure 7.

Carried by the body 12 in alignment with the valve member 54 is a plurality of circumferentially spaced projections 64. The projections 64 slope slightly forwardly from the body 12, as is best illustrated in Figure 2, and have fan shaped openings 66, as is best illustrated in Figure 6.

The discharge openings 66 extend down through the body 12 and communicate with the interior thereof. In view of the fact that the valve member 54 is disposed in alignment with the discharge openings 66, the flow of water therethrough is controlled by the valve member 54.

It is to be understood that the openings 62 in the body 12 are of such a length so as to permit selective alignment of the slots or openings 56 of the valve member 54 with the discharge openings 66 so that the flow of water therethrough may be shut off or may be controlled as desired by the valve member 54. This arrangement is best illustrated in Figures 6 and 7. Thus by turning the control member 58, the discharge of water through the nozzle portions 64 may be controlled.

It is to be noted in Figure 6 that the discharge opening 66, being of a fan shaped outline, are such to form an overlapping spray. Further, inasmuch as the discharge

opening 66 faces slightly forwardly, as is best illustrated in Figure 2, a slight funnel shaped spray is formed. This provides an effective screen for the firemen utilizing the nozzle 10.

The nozzle 10 may be secured to a hose fitting 70 by means of engaging external threads 72 thereof with the threads 52. This is best illustrated in Figure 2.

From the foregoing description of the hose nozzle 10, it will be readily apparent that not only will the hose nozzle 10 permit the producing of a round stream type flow, as is possible with conventional types of nozzles, but also will permit a fireman to effect a flat fan type flow for placing volumes of water over a relatively wide area to effectively fight a large fire. At the same time, the fire nozzle 10 is so constructed whereby it may selectively produce a protective screen spray for the fireman so that he may come relatively close to the fire without suffering from exposure to heat.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the appended claims.

What is claimed as new is as follows:

1. A hose nozzle assembly comprising an elongated tubular body, means at one end of said body for attachment to a hose, a nozzle member circumposed on the opposite end of said body, cooperating flow control means in said body and said nozzle member for selectively effecting a round stream type flow or a flat fan type flow from said nozzle member, said flow control means including at least two forwardly tapered opposed flow control members, said flow control members including flattened adjacent spaced flow control surfaces, said control members including in opposed relationship to the flow control surfaces opposed remote transversely arcuate surfaces, said nozzle member including a forwardly tapered open end portion having a circular cross section engageable with the remote surfaces of said control members, hinge means pivotally mounting said flow control members in the body member permitting the flattened flow control surfaces to be adjusted toward and away from each other, and adjusting means connecting and permitting longitudinal movement of said nozzle member on said body for regulating the spacing between the flow control surfaces.

2. A hose nozzle assembly as set forth in claim 1 including spring means extending longitudinally of said body and having one end secured thereto, the other end of said spring means terminating intermediately of the flow control members and biasing the same away from each other in response to relative longitudinal movement between the body and the nozzle member.

References Cited in the file of this patent

UNITED STATES PATENTS

157,526	Leggett	Dec. 8, 1874
457,874	Whittaker	Aug. 18, 1891
969,573	Storrs	Sept. 6, 1910
1,072,951	Johnson	Sept. 9, 1913
1,185,585	Bower	May 30, 1916