No. 755,601. PATENTED MAR. 29, 1904.

G. A. ANDERSON.

HOSE NOZZLE.

APPLICATION FILED NOV. 18, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

Fig 1

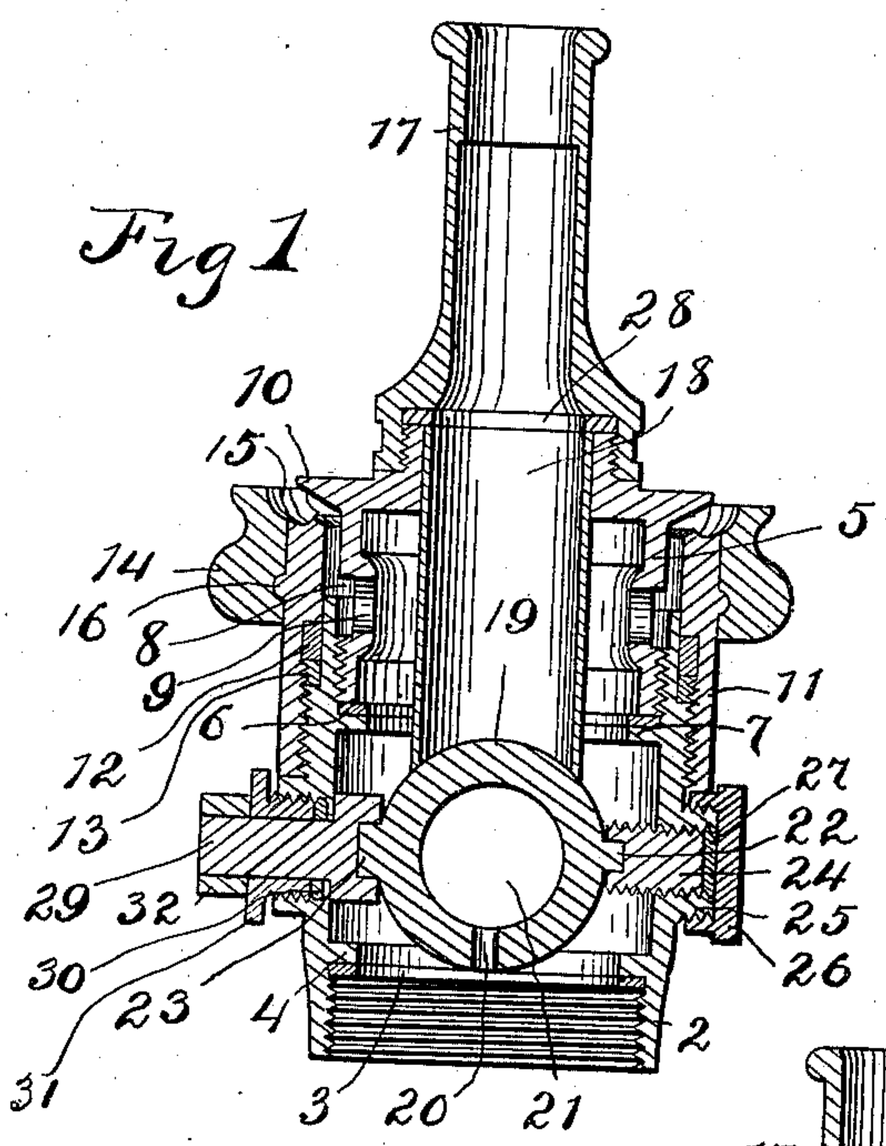


Fig 2

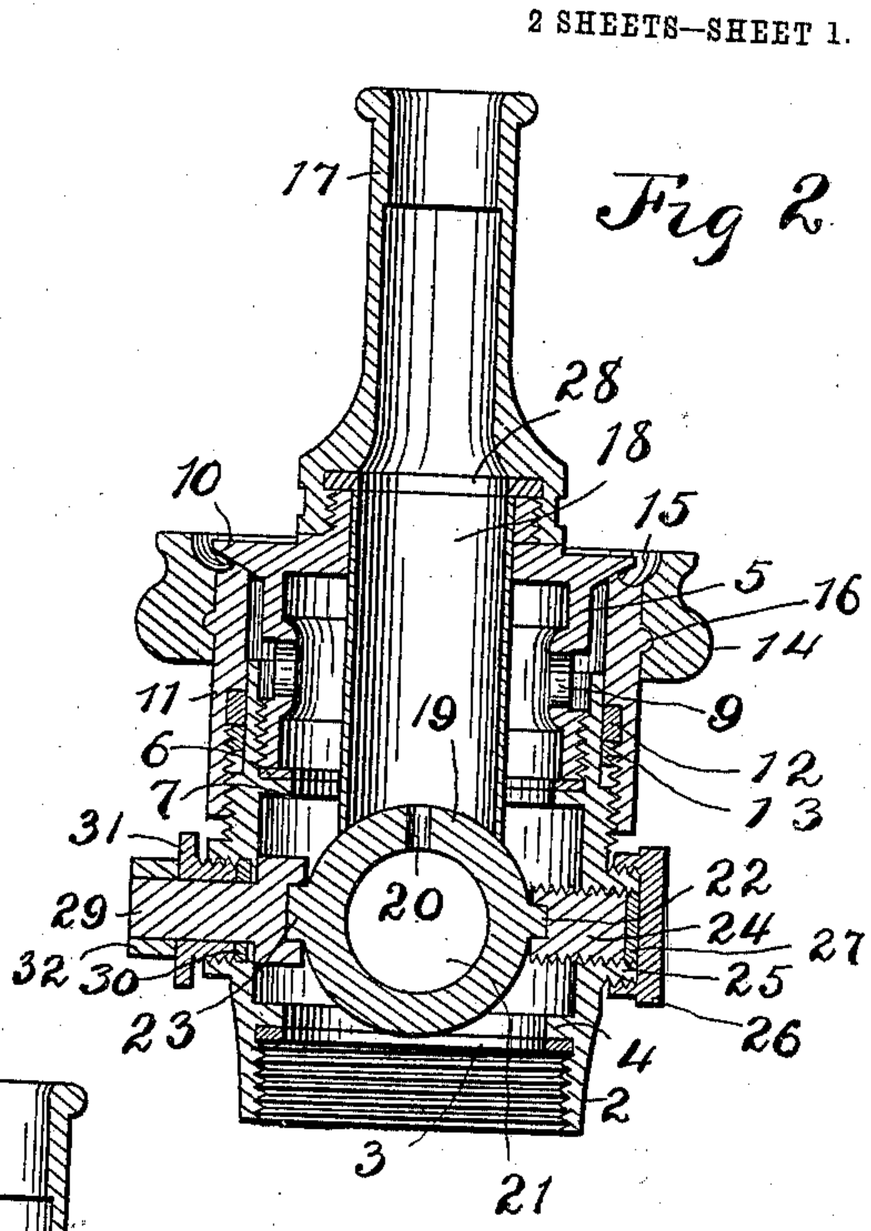
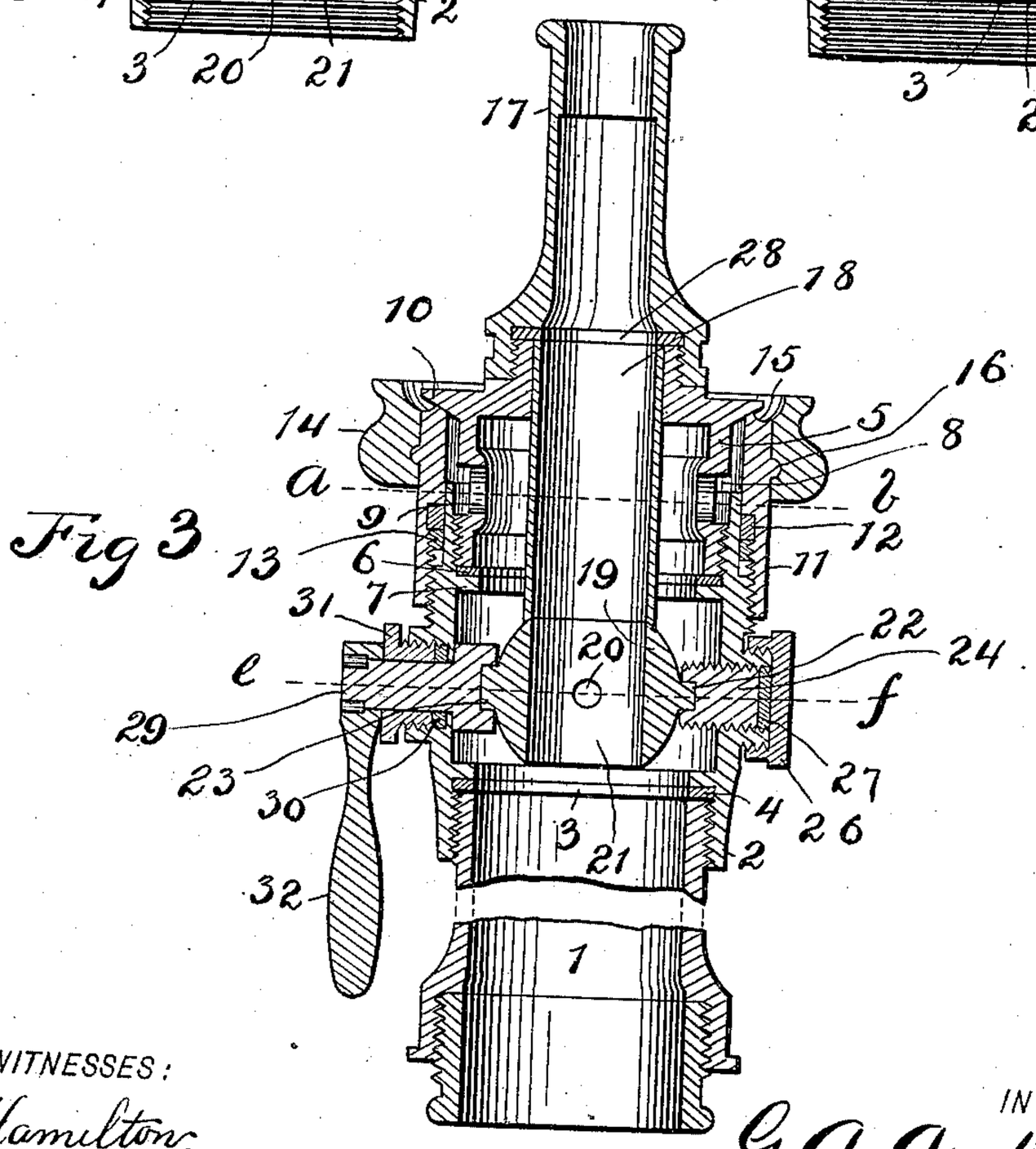


Fig 3



WITNESSES:

R. E. Hamilton,

R. H. House

INVENTOR

G. A. Anderson

BY

Warren D. House.

His ATTORNEY

No. 755,601. PATENTED MAR. 29, 1904.

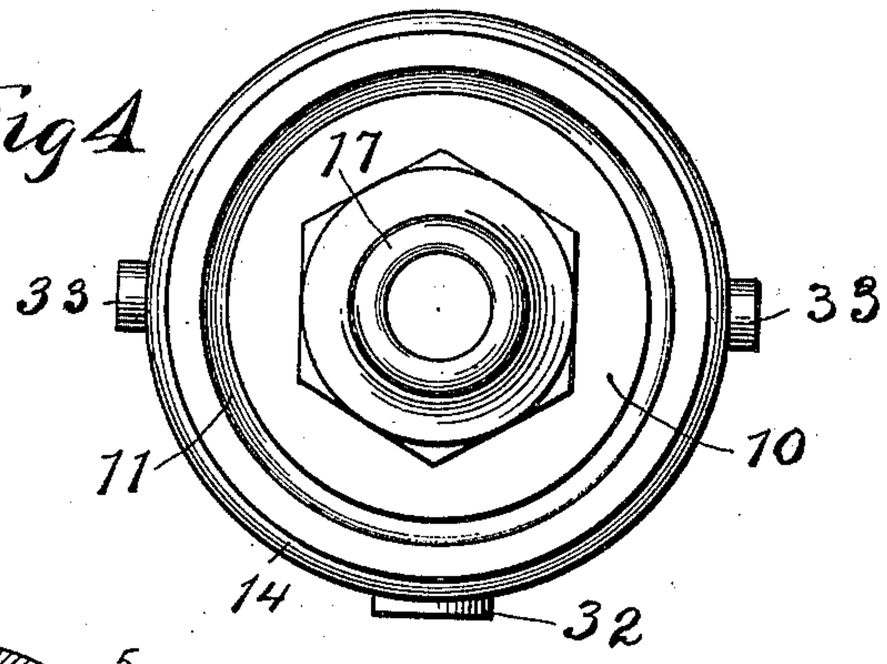
G. A. ANDERSON.

HOSE NOZZLE.

APPLICATION FILED NOV. 18, 1902.

NO MODEL. 2 SHEETS—SHEET 2.

Fig 4



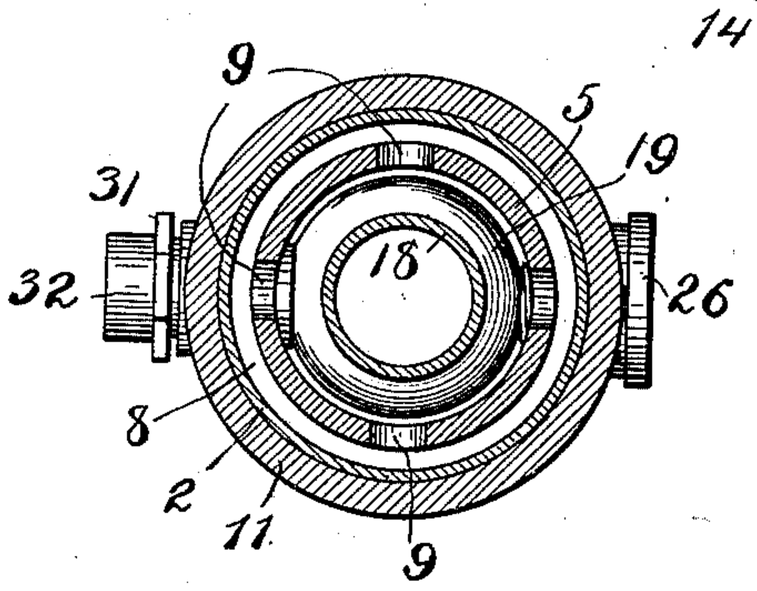


Fig 5

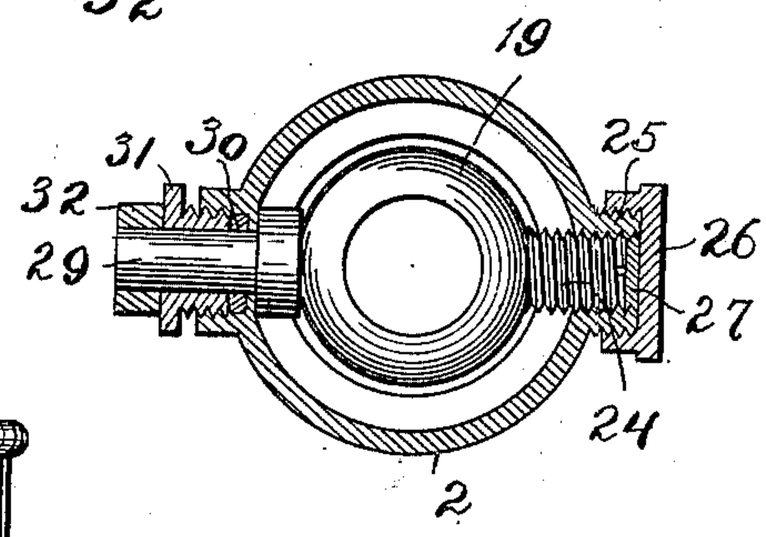


Fig 6

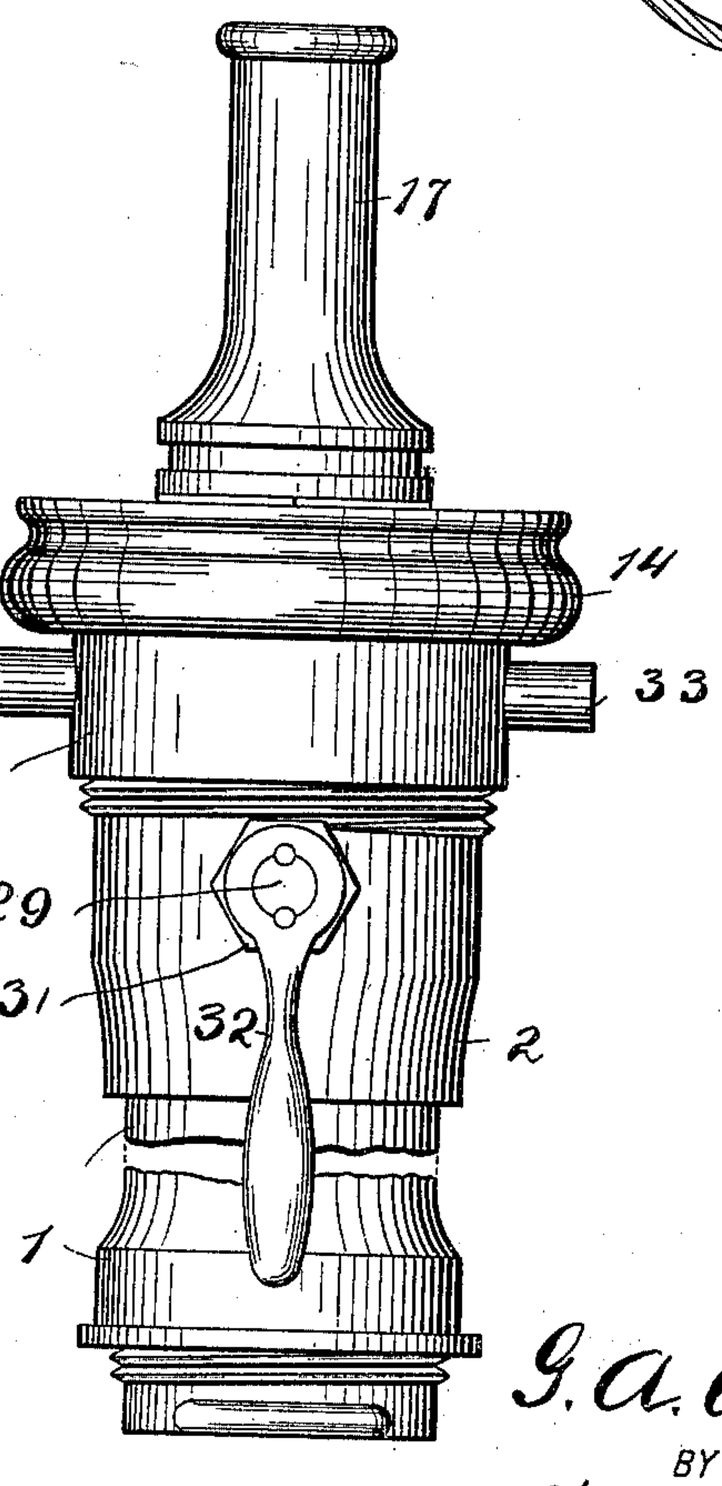


Fig 7

WITNESSES:

R. E. Hamilton.

R. H. House

INVENTOR

G. A. Anderson

BY

Warren D. House

His ATTORNEY

No. 755,601. Patented March 29, 1904.

UNITED STATES PATENT OFFICE.

GUSTAF A. ANDERSON, OF KANSAS CITY, KANSAS.

HOSE-NOZZLE.

SPECIFICATION forming part of Letters Patent No. 755,601, dated March 29, 1904.

Application filed November 18, 1902. Serial No. 131,809. (No model.)

To all whom it may concern:

Be it known that I, GUSTAF A. ANDERSON, a citizen of the United States of America, residing in Kansas City, in the county of Wyandotte and State of Kansas, have invented a new and useful Improvement in Hose-Nozzles, of which the following is a specification, reference being had therein to the accompanying drawings, forming a part thereof.

My invention relates to improvements in hose-nozzles.

The object of my invention is to provide a hose-nozzle with means for throwing a variety of forms and sizes of streams. It provides, further, a construction by means of which two different kinds of streams may be separately or simultaneously thrown from the same nozzle.

Its object, further, is to provide a nozzle having a novel means for forming a spray-stream.

My invention provides, further, a resilient ring encircling one of the tip-outlets, by means of which ring the form of the stream issuing from the said outlet may be varied, the ring by its resiliency resuming its original form when the pressure employed to distort its shape has been removed.

My invention provides, further, the constructing of the said resilient ring so as to form a cushion for protecting the nozzle from injury in the event of the nozzle being struck by a hard object of any kind.

Other novel features of construction are hereinafter fully described and claimed.

In the accompanying drawings, which illustrate my invention, Figure 1 is a central vertical sectional view. In this view the spherical valve is shown in the closed position and the spray-valve is shown in the open position. Fig. 2 is a view similar to that shown in Fig. 1, the spherical valve being shown turned so that a pin-stream will be emitted and the spray-valve being shown closed. Fig. 3 is a view similar to Figs. 1 and 2 and including the upper and lower end portions of the stem of the nozzle. In this view the spray-valve is shown in the closed position and the spherical valve turned so as to emit the large straight stream. Fig. 4 is a plan view of the nozzle. Fig. 5 is a cross-section taken on the dotted line *a b* of Fig. 3. Fig. 6 is a cross-section taken on the dotted line *e f* of Fig. 3. Fig. 7 is a side elevation view showing the central portion of the stem broken away.

Similar characters of reference indicate similar parts.

1 indicates the stem of the nozzle, which may be of any ordinary construction, its upper end being screw-threaded to engage the tip mechanism. The body of the tip mechanism comprises two principal parts, of which 2 indicates the lower part, which is a tubular supporting-shell internally screw-threaded at its lower end to receive the screw-threaded upper end of the stem 1, which bears against a packing-ring 3 upon the under side of an annular flange 4 on the interior of the shell 2. The upper end of the shell 2 is internally screw-threaded and has fitted to it the lower externally-screw-threaded end of the flange-shell 5, which forms the upper part of the body of the tip mechanism and the lower end of which rests upon the packing-ring 6, mounted on the annular flange 7 in the shell 2. An annular groove 8 is provided in the outer periphery of the shell 5. One or more radial holes 9 connect the groove 8 with the interior of the shell 5. Above the groove 8 the shell 5 is provided with an annular upwardly and outwardly beveled flange 10, which serves to deflect upwardly and outwardly water issuing from the holes 9. The upper end of the supporting-shell 2 is externally screw-threaded and has fitted thereon the lower internally-screw-threaded end of an annular valve 11, between which and the upper end of the shell 5 is formed an annular water-passage for water passing through the holes 9. The upper end of the valve 11 is beveled to fit the flange 10, and by turning the valve 11 upon the threaded end of the shell 2 the valve may be made to seat against the flange 10 or be withdrawn therefrom to permit water to pass outward. Within the valve 11, above the screw-threaded portion thereof, is fitted a resilient packing-ring 12, which is made to tightly embrace the outer periphery of the upper end of the shell 2 by an annular externally-screw-threaded ring 13, fitted to the screw-threaded portion of the valve 11. Upon the exterior

of the upper end of the valve 11 is mounted a resilient ring 14, preferably of rubber, the upper end of which is of greater diameter than the diameter of the flange 10 and the inner side of which at the upper end is curved at 15, so as to deflect the water upwardly and outwardly from the flange 10. On the inner side of the ring 14 is provided an annular groove which is fitted to an annular peripheral flange 16 on the valve 11. The flange-and-groove connection between the valve 11 and the ring 14 serves to prevent the ring 14 from slipping off the valve 11. The body of the resilient ring 14 opposite the flange 16 is of considerable cross-section width, so as to form a cushion which protects the flange 10 from injury in case the device is struck by a hard object. The other object of the resilient ring 14, as above stated, is to change the course of the water passing below the flange 10, and thus cause the nozzle to throw a wide or narrow spray-stream. The upper end of the shell 5 is externally screw-threaded and has fitted to such portion the internally-screw-threaded lower end of the tip 17, which is provided with a vertical hole through its entire length. The axis of the cylindrical hole in the tip 17 is in line with the axis of a vertical tube 18, the upper end of which is fitted to the central hole in the upper end of the shell 5. The lower end of the tube 18 is fitted to the periphery of a spherical valve 19, having a hole diametrically therethrough corresponding in diameter to the diameter of the hole through the tube 18. The said hole through the spherical valve 19 is at right angles with the axis of the said valve. A small hole 20 extends through the valve 19 at one side thereof and connects at its inner end with the large hole therethrough. The hole 20 is called the "hole for the pin-stream." This hole is disposed at right angles to the large hole through the valve, the large hole being indicated by 21. Upon each side of the valve 19, at right angles to the axis of hole 20, are provided the projections 22 and 23, respectively. The projection 22 is cylindrical and is fitted to a cylindrical hole in the inner end of a horizontal screw 24, which is mounted in a transverse screw-threaded hole in one side of the shell 2. Upon the said shell and encircling the said transverse hole is a boss 25, the exterior of which is screw-threaded. Fitted to the said boss 25 is an internally-screw-threaded cap 26, which closes the transverse hole through the shell 2. Between the cap 26 and the outer end of the screw 24 is a packing-disk 27, which prevents water passing through the transverse hole around the screw 24. A packing-ring 28 is mounted upon the shell 5 and the top of the tube 18 and is held in place by the tip 17. The projection 23 is square and is fitted to an opening in the end of the crank-shaft 29, the axis of which is in line with the axis of the screw 24 and which extends horizontally through a hole in the externally-screw-threaded packing-ring 31. The packing-ring 31 is fitted in a screw-threaded hole in the shell 2 and serves to hold in place a packing-ring 30, the inner side of which bears upon the shell 2. Upon the outer end of the crank-shaft 29 is secured and rotatable therewith a crank or handle 32, by means of which the spherical valve 19 may be rotated.

In operating my invention the parts are assembled as above described. Then if it is desired to obtain a large straight stream the handle 32 is turned to the position shown in Fig. 3, thus turning the spherical valve 19 to a position such that the large hole 21 is in line with the hole in the pipe or tube 18. Water is then permitted to pass through the stem 1, the valve-ring 11 being first turned so as to bear at its upper end against the flange 10. The water will then enter the shell 2 and will pass through the hole 21 in the valve 19, thence through the tube 18, and out the tip 17. If but a very small stream is desired, the handle 32 is turned to the position shown in Fig. 2, with the valve 19 so turned that the pin-hole 20 will be toward the tube 18. The water will then enter the hole 21 and pass therefrom through the hole 20 into the tube 18 and tip 17. To close the tube 18, the spherical valve 19 is turned by the handle 32 to the position shown in Fig. 1. If now it is desired to throw a spray-stream, the ring-valve 11 is rotated in a direction such that the upper edge of the said valve will recede downward from the flange 10, thus forming an outlet for the water below the flange 10. The water will then pass from the stem 1 through the shell 2 and into the shell 5, out of which it passes into the groove 8 through the holes 9 in the flange-shell 5. From the groove 8 the water will pass between the outside of the shell 5 and the inside of the valve 11 and will be deflected upwardly and outwardly in a spray-stream by the flange 10. The shape and volume of the spray-stream may be varied by turning the valve-ring 11 so as to increase or decrease the distance between the upper end of the valve 11 and the flange 10. The inner upper edge of the resilient ring 14 is so curved as to cause the water to be forwardly thrown when it impinges upon the said curved portion. By compressing the upper part of the said ring 14 the shape thereof is distorted, and the form of the stream is thus varied to suit the desire of the operator. The valve 11, carrying the resilient ring 14, is provided with two oppositely-disposed projections 33 on its periphery, with which the said ring-valve may be turned upon the shell 2.

My invention may be variously modified without departing from its spirit.

Having thus described my invention, what

I claim, and desire to secure by Letters Patent, is—

1. In a hose-nozzle, the combination with a tubular body provided with an outlet-opening and a valve-seat encircling the said outlet-opening, of a crank-shaft extending through one wall of the body at right angles to the axis of the body, a crank secured to the said crank-shaft, a screw mounted in the opposite wall of the body with its axis in line with the axis of the crank-shaft, and a rotatable valve having a hole diametrically therethrough in line with the said outlet-opening and at right angles to the crank-shaft, the said valve resting in the said valve-seat and supported at one side on the said screw and at the other side by the said crank-shaft with which the valve is rotatable, substantially as described.

2. The combination with a tubular body provided with an outlet-hole and a valve-seat encircling the said hole, the body being provided through opposite walls with two holes disposed axially in line with each other and at right angles to the axis of the body, one of the holes being screw-threaded, of a screw mounted in the said screw-threaded hole, a crank-shaft mounted in the opposite hole, a crank on said shaft, a packing-ring encircling the crank-shaft outside the body and provided with external screw-threaded periphery which engages the body, a cap mounted on the body and closing the said screw-threaded hole, and a valve in the body resting in the said valve-seat and supported at one side on the said screw and at the other side by the crank-shaft with which the valve is rotatable, the valve being provided with a diametrical hole therethrough at right angles to its axis, substantially as described.

3. In a hose-nozzle, the combination with a supporting-shell, of an inner shell mounted thereon and connecting interiorly therewith and provided with a discharge-opening at its upper end and having a plurality of radial holes therethrough and an annular peripheral groove connecting the outer ends of said holes, and having also an annular upwardly and outwardly beveled flange on its outer periphery and above the said annular groove, a ring-valve mounted on the upper end of the supporting-shell and encircling the inner shell toward the flange of which the ring-valve is adjustable, the said ring-valve forming with the inner shell a water-passage connecting with the said radial holes, a central vertical tube mounted in the outlet-opening of the inner shell, and a rotatable valve mounted in the supporting-shell and resting against the lower end of the said vertical tube, substantially as described.

4. In a hose-nozzle, the combination with a tubular body provided on its outer periphery with a beveled flange and having a central water-passage and a water-passage leading through the side wall below the flange, of a ring-valve encircling and adjustable upon the body toward and from the said flange and forming between the ring-valve and the body a water-passage connected with the aforesaid water-passage in the side wall, a valve controlling the central water-passage, and a rubber ring mounted on the ring-valve and adapted, when the ring-valve is properly adjusted, to be disposed opposite said flange, substantially as described.

5. In a hose-nozzle, the combination with a tubular body provided on its outer periphery with a flange having a beveled face and having a water-passage leading through the side wall of the body below the flange, of a tubular valve rotatively mounted upon the body and movable when rotated toward and from the said beveled face of said flange and forming with the body a water-passage connecting with the side-wall water-passage, and a resilient ring mounted upon and movable with the tubular valve and disposed so as normally to encircle said flange, substantially as described.

6. In a hose-nozzle, the combination with a tubular body comprising an upper and a lower shell detachably secured together, the upper shell being provided with a flange encircling its outer periphery and having a water-passage leading through the side wall, of a tubular valve rotatively mounted on the lower shell and movable when rotated toward and from the flange on the upper shell and forming with the upper shell a water-passage connected with the aforesaid water-passage, and a resilient ring mounted on said tubular valve and encircling said flange, substantially as described.

7. In a hose-nozzle, the combination with a tubular body provided on its outer periphery with an annular flange and provided with a central discharge-opening and a water-passage in its side wall below said flange, of a discharge-pipe fitted in said central opening and provided with a valve-seat at its inner end, a valve seated in said valve-seat, means for operating said valve, a ring-valve encircling said body and adjustable toward and from said flange and forming with said body a water-passage connected with the side-wall water-passage, and a resilient deflecting-ring mounted on said tubular valve and encircling said flange, substantially as described.

8. In a hose-nozzle, the combination with an upper shell provided with an annular flange on its outer periphery and provided with a central discharge-opening and a water-passage leading through its side wall, of a discharge-pipe fitted in said central opening and provided with a valve-seat at its inner end, a ring-valve encircling the said shell and adjustable toward and from said flange and forming with said shell a water-passage connected with the side-wall water-passage, a lower shell secured to the upper shell and upon which the said ring-valve is mounted, a rotatable valve seated in the valve-seat in said discharge-pipe, and

means for rotating said rotatable valve, substantially as described.

9. In a hose-nozzle, the combination with a lower shell the upper end of which is externally and internally screw-threaded, of an upper shell fitted at its lower end to the internal screw-threads of the lower shell and provided with an annular flange on its outer periphery and a water-passage in its side wall below said flange and having also a central discharge-opening, a discharge-pipe fitted in said central discharge-opening and having a valve-seat at its inner end, a valve controlling said central discharge-opening and seated in said valve-seat, and a ring-valve fitted at its lower end to the externally-screw-threaded portion of the lower shell and movable when rotated toward or from the said flange, substantially as described.

In testimony whereof I have signed my name to this specification in presence of two subscribing witnesses.

GUSTAF A. ANDERSON.

Witnesses:

WARREN D. HOUSE,

GRABLE W. DUVALL.