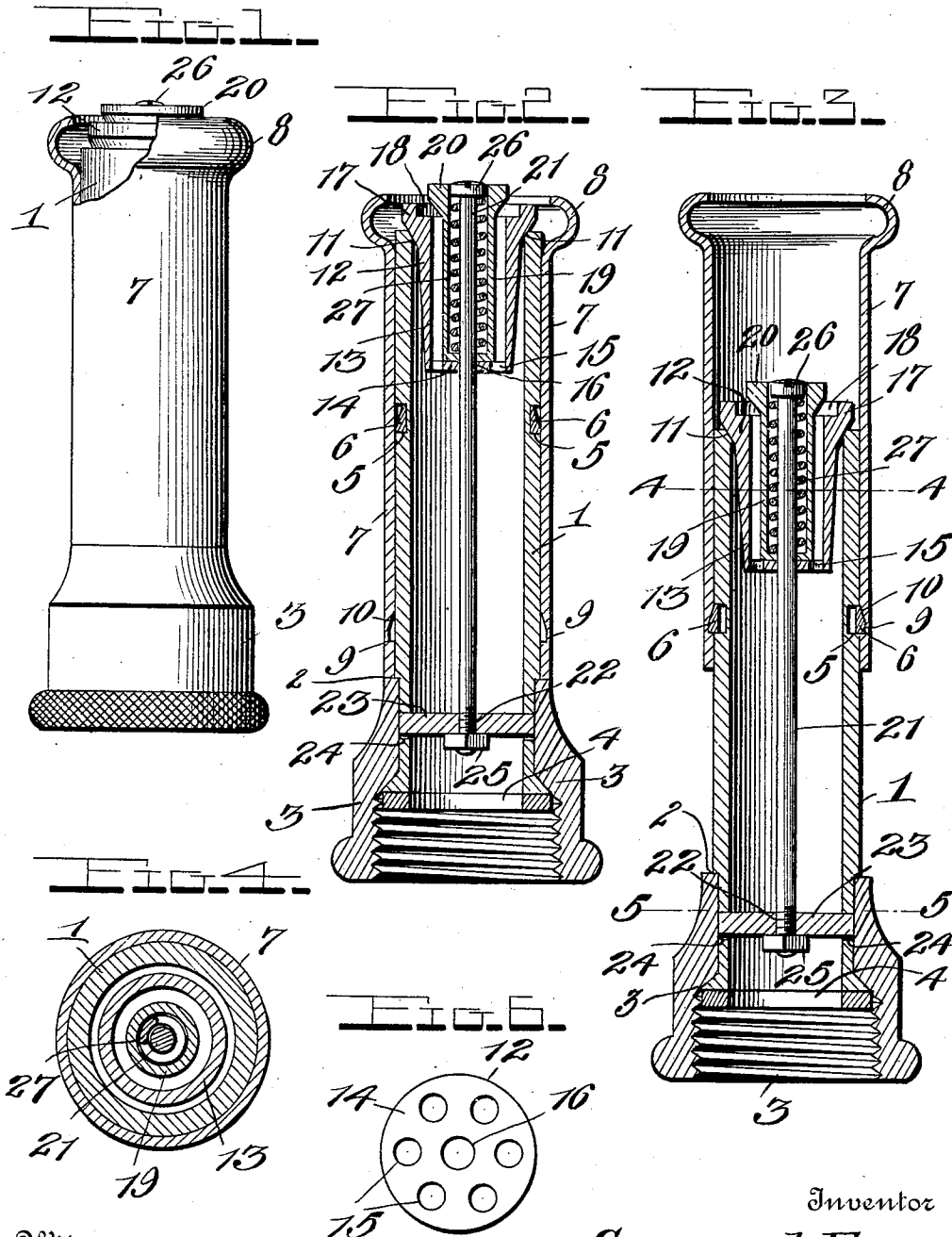


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HOSE NOZZLE.
APPLICATION FILED FEB. 9, 1911.

1,018,310.

Patented Feb. 20, 1912.

2 SHEETS—SHEET 1.



Witnesses

Chas. L. Griestauer.
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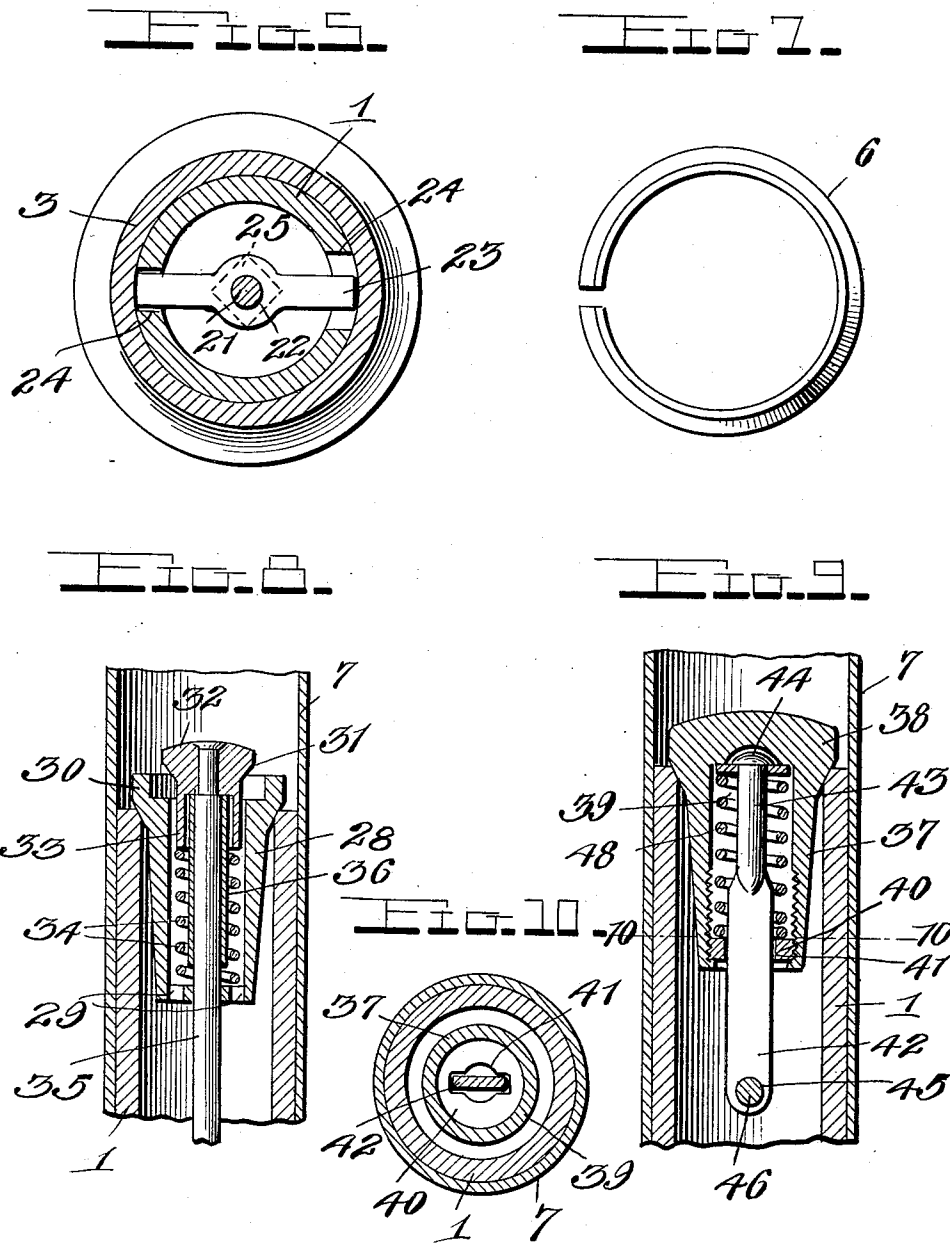
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UNITED STATES PATENT OFFICE.

SIGMUND FREY, OF LOS ANGELES, CALIFORNIA, ASSIGNOR OF ONE-HALF TO S. K. ELLIOTT, OF LOS ANGELES, CALIFORNIA.

HOSE-NOZZLE.

1,018,310.

Specification of Letters Patent.

Patented Feb. 20, 1912.

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To all whom it may concern:

Be it known that I, SIGMUND FREY, a subject of the King of Hungary, residing at Los Angeles, in the county of Los Angeles and State of California, have invented certain new and useful Improvements in Hose-Nozzles; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in hose nozzles.

One object of the invention is to provide a hose nozzle having an improved construction of spray regulating devices whereby a large or small spray or a solid stream may be thrown from the nozzle.

One object is to provide a nozzle having an improved discharge mechanism whereby a fine spray may be obtained with a high or low pressure of water.

With the foregoing and other objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts as will be more fully described and particularly pointed out in the appended claims.

In the accompanying drawings: Figure 1 is a side view of my improved nozzle; Fig. 2 is a central vertical section of the same showing the parts in position for throwing a spray; Fig. 3 is a similar view showing the parts in position for throwing a solid stream of water; Fig. 4 is a cross sectional view on the line 4—4 of Fig. 3; Fig. 5 is a similar view on the line 5—5 of Fig. 3; Fig. 6 is an inner end view of the large spray controlling valve or stopper of the nozzle; Fig. 7 is a detail view of the frusto-conical shaped spring for holding the sleeve of the nozzle in its adjusted positions on the barrel of the nozzle; Fig. 8 is a central vertical section of the nozzle showing a modified construction and arrangement of the spray controlling valve; Fig. 9 is a similar view showing another modified form and arrangement of the valve; and Fig. 10 is a cross sectional view on the line 10—10 of Fig. 9.

Referring more particularly to the drawings, 1 denotes the barrel of my improved nozzle, said barrel being in the form of a straight cylindrical tube of suitable length and having its inner end reduced to form

an annular shoulder 2. On the inner end of the barrel is secured a threaded socket 3 by means of which the nozzle is connected to the hose. The socket 3 has its inner end engaged with the shoulder 2 and the outer end of the barrel is upset against the adjacent chafed edge of the socket as shown thereby holding the socket in engagement with the end of the barrel. In the socket is arranged a washer 4.

In the outer side of the barrel 1 and at a suitable point between its opposite ends is formed an annular groove or recess 5 in which is arranged a circular frusto-conical shaped sleeve holding spring 6.

Slidably mounted on the barrel 1 is a water controlling sleeve 7 on the outer end of which is formed an annular bead or corrugation 8 whereby said end of the sleeve is strengthened and the inner working parts of the nozzle protected. In the inner face of the sleeve 7 near its inner end is formed an annular groove 9 having an inclined rear wall 10. When the sleeve 7 is drawn outwardly on the barrel 1 a sufficient extent to bring the groove 9 opposite the groove 5 the sleeve holding spring 6 will spring into engagement with the groove 10 thereby limiting further outward movement of the sleeve 7 and thus preventing the same from being disengaged from the barrel. When the sleeve 7 is pushed inwardly the outer side of the spring 6 has a snug frictional engagement with the inner surface of the sleeve and thus will hold said sleeve in any desired position on the barrel, and at the same time will permit the sleeve to be adjusted inwardly or rearwardly within the limit of its movement on the barrel. When the sleeve 7 is drawn inwardly to the limit of its inward movement the inner end of the sleeve will come into engagement with the outer end of the socket 3 and will form a flush contact therewith as shown in Figs. 1 and 2 of the drawing.

The inner edge of the outer end of the barrel 1 is beveled or inclined to form a valve seat 11 with which is adapted to be engaged a large outer valve or stopper 12 said valve or stopper comprising a tubular body portion, the outer face of the walls of which taper slightly from the outer toward the inner end of the stopper as shown at 13. The inner end of the stopper is closed by an end plate 14 having formed therein

an annular series of water discharge passages 15 and a centrally disposed guide passage 16. On the outer end of the stopper 12 is formed an enlarged head 17 having flared or beveled outer face which is adapted to engage the beveled edge or seat 11 formed in the outer end of the barrel 1 whereby when the valve or stopper is drawn inwardly, the passage of the water between the same and the inner sides of the barrel 1 is regulated to produce a fine or coarse spray or may be entirely stopped. In the outer end of the valve or stopper 12 is formed an annular recess or depression 18.

Arranged in the outer stopper or valve 12 is an inner water deflecting valve or stopper 19, said valve being of tubular cylindrical form closed at its inner end and provided on its outer end with a flared head 20. The valve 19 is of less size than the inner diameter of the outer valve 12 with which it is engaged whereby an annular space is formed between the inner and outer valve through which the water passing through the openings 15 in the end of the outer valve, will flow and upon reaching the outer end of the valve 12 will strike the flared head 20 of the inner valve or stopper and will pass out between said flared head and the recessed outer end of the valve 12 in the form of a fine spray. The water discharge space between the inner valve or stopper 19 and the outer valve 12 is always open and said discharge space always remains the same. By thus providing the water discharge space between the inner and outer valves the flow of water cannot be entirely stopped in the nozzle so that the hose will be relieved of the pressure of the water which would occur if the flow of the same was entirely stopped in the nozzle.

The valves or stoppers 12 and 20 are held in position and the former adjusted in the outer end of the barrel by means of a holding and adjusting bolt 21 which is inserted through the inner valve and the opening 16 in the end of the outer valve and has its threaded inner end engaged with a threaded aperture 22 formed in a spider or cross bar 23 arranged in the inner end of the barrel and having its ends secured in openings 24 formed therein. On the inner end of the bolt 21 is arranged a nut 25. On the outer end of the bolt is formed a head 26 which engages the outer end of the valve 19 and around the part of the bolt in said valve and between the head of the bolt and the inner end of the valve is arranged a coiled spring 27 the pressure of which is exerted to hold the valve 19 in engagement with the valve 12 and also hold the latter in engagement with its seat when in a closed position. It will be understood that the spring 27 has a limited action on the valve 12 so that while the bolt holds the inner valve 20

by means of its threaded connection with the cross bar or spider 23 the pressure of the water will open the valve 12 to a greater or less extent and will pass between the flared outer end thereof and the beveled end of the barrel in the form of a spray which will be coarser or finer according to the distance the valve is opened.

In Fig. 8 of the drawings is shown a slightly modified arrangement of the valves, the latter being shown in this instance as comprising an outer valve 28 which is substantially the same as the valve 12 and is provided with a closed inner end having formed therein water discharge passages 29 and an enlarged outer end 30 having inclined or beveled walls as shown. The inner valve 31 comprises a head 32 having a beveled inner end and is provided with an inwardly projecting sleeve or socket 33 which projects into the outer end of the outer valve 28 as shown. Between the inner end of the sleeve 33 of the inner valve and the inner end of the outer valve 28 is arranged a coiled spring 34 which serves the same purpose as the spring 27 shown in the first figures of the drawings. The valve 28 is provided with an attaching bolt 35 which projects through the valve and has its outer end secured in the inner valve 32 as shown. The inner end of the bolt 35 is secured in the inner end of the barrel 1 in the same manner as the bolt 21 and is similarly arranged. On the outer end of the bolt 35 within the outer valve 28 and the inner valve 32 is arranged a stop sleeve 36 the inner end of which is adapted to be brought into engagement with the inner end of the valve 28 thereby limiting the inward movement of the inner valve 32 which is adjusted by the bolt 35 thus preventing said inner valve from being entirely closed.

In the form of the invention shown in Figs. 9 and 10 a single valve 37 is provided, said valve having a flared or cone shaped outer end 38 which is adapted to be moved into and out of engagement with the seat formed in the outer end of the barrel. The valve 37 is provided with a socket 39 having an interiorly threaded outer end with which is operatively engaged a spring adjusting nut 40. Adapted to be inserted through a slot 41 in the nut 40 is a valve stem 42 having a cylindrical outer end 43 provided with a head 44. The inner end of the stem 42 is flat and said flattened end projects through the slot 41 in the nut 40 and projects a suitable distance beyond the inner end of the valve and into the barrel 1 of the nozzle. In the inner end of the flat portion of the stem 42 is formed an eye 45 with which is engaged a transverse fastening pin 46 the ends of which are secured in the opposite sides of the barrel 1 as shown. On the cylindrical outer end of the valve stem

and engaging the head 44 thereof is a washer 47 between which and the nut 40 is arranged a coiled spring 48 the pressure of which is regulated by the nut 40, said nut being screwed inwardly or outwardly in the threaded end of the valve by revolving the barrel 1 in one direction or the other, said revolving movement of the barrel being imparted to the nut through the valve stem 42, which through its connection with the barrel turns therewith. When the spring is in a released condition the pressure of the water in the barrel against the beveled inner portion of the head 38 of the valve will force the latter outwardly away from its seat in the inner end of the barrel thus permitting the water to pass out in the form of a spray which may be regulated by increasing or decreasing the pressure of the spring 48 or may be entirely stopped by increasing the pressure of the spring to such an extent that the same will overcome the pressure of the water and thus prevent the latter from opening the valve.

From the foregoing description taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention as defined in the appended claims.

Having thus described my invention, what I claim is:

1. A hose nozzle comprising a barrel having a valve seat, a valve engaged with said seat and adapted to open under pressure of water passing through the barrel whereby the water is discharged from the nozzle in the form of spray, a sleeve slidably mounted on said barrel adapted to be projected beyond the barrel to convert a spray of water into a solid stream, and a spring arranged between said barrel and sleeve for holding the sleeve in its adjusted position.

2. A hose nozzle comprising a barrel having in its outer end a seat, a hollow outer valve adapted to engage said seat, said valve having formed in its inner end water discharging passages, an inner water deflecting stopper arranged in said outer valve, said stopper being of less diameter than said outer valve whereby water is adapted to pass out between said valve and stopper in the form of an inner spray, a retaining bolt adapted to be engaged with said valve and stopper, a spring arranged on said bolt to

yieldingly hold said valve on its seat, said spring being adapted to be overcome by the pressure of the water whereby the latter is discharged in the form of an outer spray and means to change said sprays to a solid stream.

3. A hose nozzle comprising a barrel having in its outer end a valve seat, a spring retracted valve engaged with said seat, said valve being adapted to open under pressure of water passing through the barrel whereby the water is discharged from the nozzle in the form of a spray, a sleeve slidably mounted on said barrel and adapted to be projected beyond the same whereby the spray of water from the nozzle is converted into a solid stream, and a spring arranged between said barrel and sleeve whereby the latter is held in its adjusted positions.

4. A hose nozzle comprising a barrel having formed in its outer end a seat and in its outer face midway between its ends an annular recess, a spring retracted valve engaged with said seat, said valve being adapted to open under pressure of the water passing through the barrel, a bolt to hold said valve in yielding engagement with its seat, a sleeve slidably mounted on said barrel, said sleeve having formed in its inner face an annular groove having an inclined inner wall, and a spring arranged in the recess in said barrel and adapted to frictionally engage the inner face of said sleeve whereby the same is held in a retracted position and to engage the groove in said sleeve and thereby hold the same in a projected position.

5. A hose nozzle comprising a barrel having in its outer end a valve seat, a spring retracted valve engaged with said seat, said valve being adapted to open under pressure of water passing through the barrel whereby the water is discharged from the nozzle in the form of a spray, a sleeve slidably mounted on said barrel and adapted to be projected beyond the same whereby the spray of water from the nozzle is converted into a solid stream, a bead formed on the outer end of said sleeve, whereby the same is strengthened and said valve protected, means to hold the sleeve in a retracted position and means whereby the same is locked in a projected position.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

SIGMUND FREY.

Witnesses:

GEO. E. TUNS,
THOS. P. BLAIR.