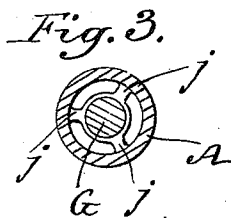
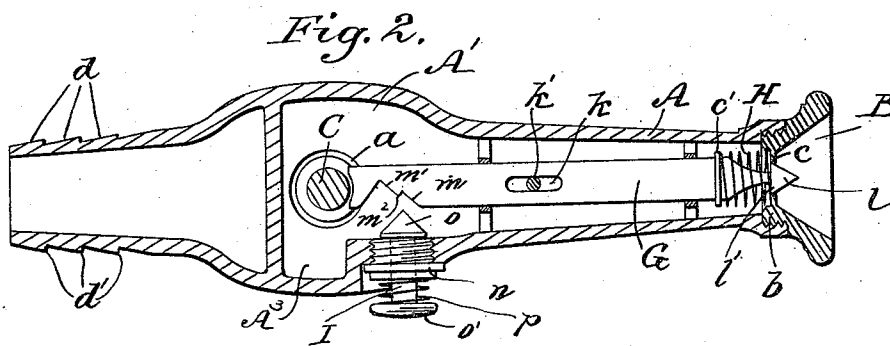
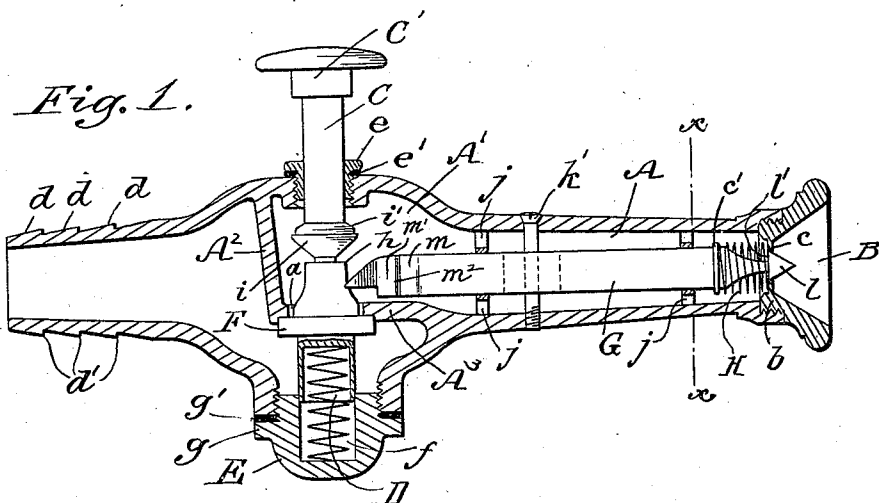


(No Model.)

H. NICHOLSBURG.
HOSE NOZZLE.

No. 553,999.

Patented Feb. 4, 1896.



WITNESSES:
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HOSE-NOZZLE.

SPECIFICATION forming part of Letters Patent No. 553,999, dated February 4, 1896.

Application filed February 11, 1895. Serial No. 537,861. (No model.)

To all whom it may concern:

Be it known that I, HENRY NICHOLSBURG, a citizen of the United States, and a resident of New York, county of New York, and State of New York, have invented certain new and useful Improvements in Hose- Nozzles, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof, in which similar letters of reference indicate corresponding parts in all the figures:

This invention relates to hose-nozzles, and has for its object to provide a simple, cheap, readily-constructed, and perfectly-operating device by means of which a single movement of a lever, rod, or the like will open said nozzle, a further movement thereof cause the same to spray, and a third movement, preferably independent of said lever, will wholly close said nozzle, a further object being to provide such a device as may be operated wholly by one hand.

The invention consists in the novel construction and arrangement of parts, whereby the above-mentioned and other desirable results are attained, and hereinafter fully described.

Referring to the drawings, Figure 1 is a longitudinal vertical section taken through the exact center of a device embodying my invention. Fig. 2 is a similar horizontal central section. Fig. 3 is a transverse section upon the line *x x*, Fig. 1.

In the practice of my invention I form the nozzle A with an annular flaring central portion A', within which is a transverse angular, preferably integral, partition A², comprising a horizontal valve-seat A³, provided with an aperture *a*. At the forward end of the nozzle is a flaring mouth B, interiorly conical, having upon the rear thereof an externally-threaded flange *b*, within which is an inwardly-projecting flange *c*, said mouth being removably screwed in the end of said nozzle. Upon the rear end of the nozzle are formed a plurality of annular projections or flanges *d*, frusto-conical or tapered rearwardly to form projecting shoulders *d'*.

In the roof of the center portion A' is mounted a vertical plunger or rod C, preferably working in a bushing *e*, removably

screwed into said roof with an intervening washer *e'*. The lower end of the plunger C is tubular or apertured to receive therein a spiral spring D, which projects also into a recess *f*, formed in a cylindrical plug E, screwed into the base of the nozzle, and provided with an annular flange *g*, between which and the base portion is a washer *g'*.

Mounted upon the plunger C below its center and bearing against the under surface of the horizontal valve-seat A³ is a flexible washer F, above which the periphery of said plunger is upwardly tapered, and provided with an annular shoulder *h*. Slightly above the shoulder *h* is an upwardly-flaring or conical annular projection *i*, the top of which forms a second shoulder, immediately above which is formed a projection or flange *i'* of appreciably greater diameter than the width of the rod above the shoulder *h*. Upon the top of the plunger C is a removable disk or head C', by means of which said plunger is depressed, the same being maintained normally raised, and the valve F closed against the seat A³, by means of the spring D within the recess *f* and the lower end of the plunger C, which said end normally projects partially into said recess.

Mounted in spider-bearings *j*, secured in the forward portion of the nozzle A, is a rod or bar G, having an elongated vertical slot *k* therein, through which extends a pin or bolt *k'*, inserted through the upper surface of the nozzle and screwed into the under surface thereof, whereby longitudinal movement of said bar is permitted, but limited. The forward end of said bar is appreciably reduced in diameter and provided with a conical annular head *l*, adapted to fit within the flange *c* formed in the mouth B to approximately close said mouth, the rear of said head *l* forming a shoulder *l'*, which the liquid passing through the nozzle strikes when said head is projected beyond the flange *c*. Between said flange *c* and a flange *c'* upon the bar is coiled a spiral spring H, the tendency of which is to retract the bar G. The flange *c'* limits the extreme rearward movement thereof. Upon the rear end of the bar the edge thereof is downwardly beveled or inclined and curved or provided with a slight vertical groove to

engage or clasp the plunger C. Upon one side the said end of the rod G is cut out to form an inwardly-beveled edge *m*, rearward and inward of which is a parallel edge *m'* with an intervening shoulder *m''*, which said edges and shoulder are formed by vertically recessing or notching the side of the bar.

Sliding transversely in the side of the nozzle A, which faces the recessed side of the bar G, and extending through a removable bushing *n*, screwed into said nozzle, is a rod I, having a conical annular head *o* upon the inner end thereof, adapted to engage the beveled or inclined faces *m m'*, and upon the outer end thereof is a disk or head *o'* for actuating said rod, intervening between which and the bushing *n* is a spiral spring *p*.

The operation of the device will be readily understood from the foregoing description, taken in connection with the accompanying drawings.

The nozzle is normally in the position shown in the drawings, the plunger C being raised through the agency of the spring D and the bar G extended forwardly against the spring H by reason of the diameter of the rod at the point of contact thereof with the rear edge of said bar. It being desired to open the nozzle, the plunger C is depressed by bearing upon the disk C' until the shoulder *h* is immediately beneath the bar G, whereupon the spring H will retract said bar against the reduced portion of the plunger. This movement of the plunger opens the valve F and permits the free flow of the liquid through the nozzle, while the retraction of the bar G draws the head *l* inwardly and opens the mouth B, whereupon the greatest flow of the nozzle is had. On further depressing the plunger the flaring projection *i* bears upon the beveled edge of the bar G and extends the same against the spring H, thereby projecting the head *l* beyond the flange *c*, and when the said projection *i* passes the under surface of said bar the projection or flange *i'* prevents retraction of said bar. As the water flows through the flange *c*, it strikes the shoulder *l'* of the head *l*, and, particularly in conjunction with the flaring mouth B, the nozzle is caused to spray, and the force of the flow is increased by the further depression of the valve *f*.

When it is desired to close the nozzle, the head is pressed, thereby forcing the rod I inwardly, and if the bar is retracted beyond the position shown in Fig. 2, as when the mouth of the nozzle is wholly open for free flow, the conical head *o* will engage the beveled face *m* and force the bar forwardly to disengage from the shoulder *h*, whereupon the spring D forces the rod *c* upwardly and closes the valve, the nozzle being then returned to its normal position; and when the bar is extended beyond the position indicated in Fig. 2 by contact with the flange *i'* said head *o* engages the face *m'* and still further extends said bar to release the plunger C, as

before. The spring *p* maintains the rod I normally out of contact with the bar and in position for engagement with either of the faces.

It is to be noted that the flanges *d* forming the shoulders *d'* upon the rear end of the nozzle permit the same to be inserted in the end of a rubber hose and secured thereto without other fastening or screwing. Furthermore, the construction of the nozzle is such that the whole may be formed of a single casting, and the mouth B, the plug E and the bushings *e* and *n* very readily removed, as for cleaning and repair.

The advantages resultant from the use of the invention will be manifest to all who are conversant with the general class of devices to which the same appertains.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a nozzle the combination with a valve adapted to open and close the same and a depressible plunger arranged to actuate said valve, said plunger being normally raised, of means for holding said plunger in the depressed position and a button engaging said holding means and adapted when pressed to release the plunger therefrom, substantially as described.

2. In a hose-nozzle the combination of a depressible rod or plunger journaled therein, carrying a valve and normally raised, means for wholly opening the mouth of the nozzle, means for causing said mouth to spray, means upon the rod whereby the depression thereof actuates said opening and spraying means, and means for restoring said rod and nozzle to the normal position.

3. In a hose-nozzle the combination of a horizontally-movable spring-actuated bar supported therein, a conical head upon the end of said bar, adapted when the same is retracted to open the mouth of the nozzle, and when projected to cause the same to spray, a single rod adapted to project and permit the retraction of said bar and carrying a valve, and means for releasing said bar and rod from engagement.

4. In a hose-nozzle the combination of a horizontally-movable bar mounted therein, a conical head upon the end of the same, adapted when retracted to open the mouth of the nozzle, and when projected to cause the same to spray, a spring maintaining said bar in the normal position, whereby the head is within the mouth, a depressible rod or plunger carrying a valve, normally raised and engaging with the bar, means upon said rod whereby the depression thereof permits the retraction of said bar, and further depression thereof projects the same, and means for releasing said rod and bar from engagement.

5. In a hose-nozzle the combination of a horizontally-movable bar mounted therein, a conical head upon the end of said bar, adapted

when retracted to open the mouth of the nozzle, and when projected to cause the same to spray, a spring surrounding the bar to force the same rearwardly, a depressible rod or
5 plunger mounted in the nozzle and carrying a valve, a spring normally raising said plunger and closing the valve, said plunger being in contact with the end of the bar, having a shoulder thereon, and reduced in diameter to
10 permit said bar to retract when the plunger is depressed, and provided with a conical or beveled projection to project said bar when the plunger is further depressed, and means for projecting said bar beyond the greatest
15 diameter of the plunger to release said plunger therefrom and restore the nozzle to its normal position.

6. In a hose-nozzle the combination of a horizontal bar mounted therein to be horizontally movable and decreased in diameter at the end, a conical head upon said end, adapted when retracted to open the mouth of the nozzle, and when projected to cause the
20 same to spray, a spring surrounding said bar to force the same rearwardly, said bar being beveled upon its upper face at the rear end, and inclined or beveled upon its side, a depressible rod or plunger mounted in the center of the nozzle and carrying a valve, a
25 spring beneath said plunger to normally raise the same and close the valve, said plunger being in contact with the end of the bar, provided with a shoulder and reduced in diameter to permit the same to retract when the
30 plunger is depressed, a conical or beveled

projection upon said plunger, adapted to engage the end of the bar when said plunger is further depressed and project the same, a rod sliding in the side of the nozzle carrying a conical or beveled head, adapted to engage
40 the beveled side portion of the bar to project the same beyond the greatest diameter of the plunger to release said plunger from the bar, and restore the nozzle to its normal position.

7. In a hose-nozzle the combination of an
45 angular integral partition extending through the center of the same, and having a horizontal extension forming a valve-seat, a plurality of annular beveled flanges or projections upon the rear end of the nozzle to form
50 shoulders, whereby a hose may be frictionally secured upon the end thereof, a detachable flaring mouth screwed into the forward end of the nozzle, a depressible rod or plunger mounted vertically in the nozzle, and nor-
55 mally raised by a spring beneath the same, a valve mounted upon said rod beneath the valve-seat, whereby said valve is normally closed, means for securing the plunger in the depressed position and the valve open, and
60 means for releasing the same.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 4th day of February, 1895.

HENRY NICHOLSBURG.

Witnesses:

PERCY T. GRIFFITH,
A. M. CUSACK.