

(No Model.)

J. H. PARKER.

HOSE NOZZLE.

No. 356,372.

Fig. 1. Patented Jan. 18, 1887.

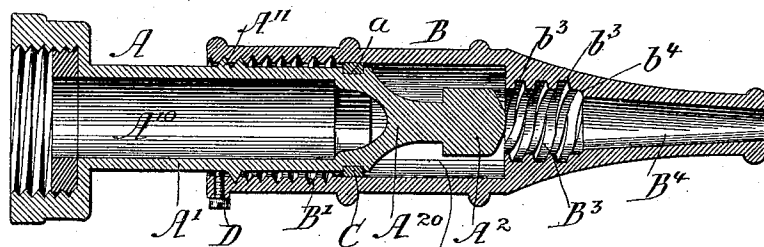


Fig. 2.

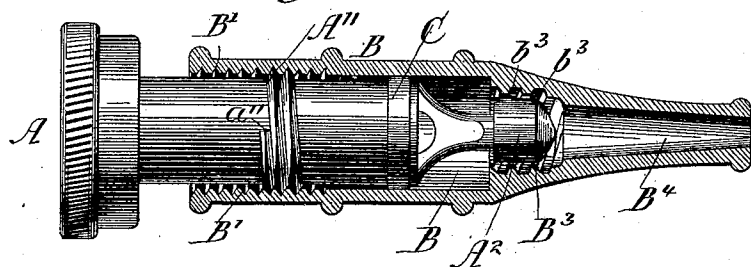


Fig. 3.

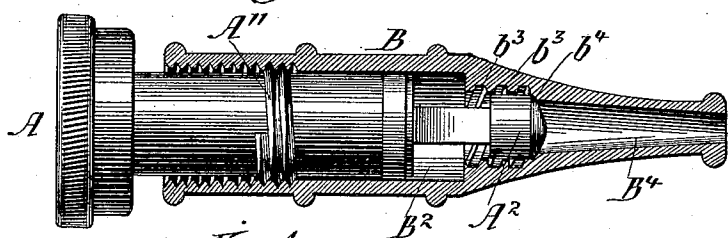
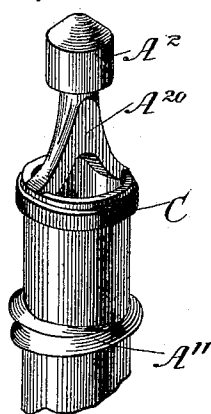


Fig. 4.



Witnesses:

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Francis W. Parker

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UNITED STATES PATENT OFFICE.

JOHN H. PARKER, OF CHICAGO, ILLINOIS.

HOSE-NOZZLE.

SPECIFICATION forming part of Letters Patent No. 356,372, dated January 18, 1887.

Application filed October 11, 1886. Serial No. 215,824. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. PARKER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Hose-Nozzles, which are fully set forth in the following specification, reference being had to the accompanying drawings, forming a part thereof.

Figure 1 is an axial section showing the device in position to throw a solid stream. Fig. 2 is an axial section showing it in position to throw a spray, the base being shown in elevation. Fig. 3 is a similar section as in position to cut off the stream entirely. Fig. 4 is a perspective of the forward part of the base, designed to show the formation of the terminal valve or plug thereon.

A is the base. B is the tip. The former is longitudinally inserted into the latter at the rear or inner end.

C is the gasket or packing-ring, secured in a groove, *a*, in the part A, and serving to make a water-tight bearing for the part A in the part B. The base A terminates at the rear or inner end in any proper and convenient device by which it may be connected to a hose-pipe. It comprises the cylindrical portion A', which has the longitudinal passage A¹⁰, hereinafter called the "receiving-passage." It terminates in the plug or piston-valve A², which is connected with the tubular part by the longitudinal diaphragm or stem A²⁰, which does not prevent the passage A' discharging freely about the plug. I prefer the form illustrated, because it can be most cheaply constructed, the entire base A, including the plug A² and the connecting-stem A²⁰, being easily cast in one piece by the use of a core, and requiring no work except lathe-finishing to complete it for its purpose. Upon the exterior of the cylindrical portion A' is formed the raised thread, or, as it may be considered, the threaded boss A¹¹. The tip B has a longitudinal passage, hereinafter called the "discharge-passage," and is interiorly threaded at the inner or rear portion, B', to receive the exterior thread, A¹¹, of the base A. The discharge-passage comprises, as illustrated, three distinct portions, B², B³, and B⁴, and for the purpose of its operation fully, as designed, the first

two of these parts are essential. The portion B² is larger in diameter than the portion B³, and when the portion B⁴ is added it is preferably somewhat smaller than either of the others, and most preferably slightly tapered, as illustrated.

The portion B³ is provided with an interior groove or grooves, *b*³, which in the illustration are strictly spiral, being in the form of a double thread commencing at the end of the portion B² and extending continuously to the commencement of the portion B⁴. The plug or piston-valve A² is of such diameter as substantially to close the portion B³ of the discharge-passage when it is located therein, except as to the grooves *b*³ in the wall of said passage, said plug A² having no thread or projection to enter said grooves, but, on the contrary, being strictly cylindrical. The forward end, however, of said plug may be crowning, or conical, or slightly beveled, and the entrance to the portion B⁴ of the discharge-passage is preferably dressed to form a seat for said plug, so that when the plug reaches the seat it may completely close the discharge passage by seating at that point.

The operation of this structure is as follows: When the device is in the position shown in Fig. 1, the water entering through the receiving-passage A¹⁰ passes out by the stem A²⁰ into the portion B² of the discharge-passage, and therein passes around the plug A² and then out through the portions B³ and B⁴, being discharged in a solid stream. When the device is adjusted to the position shown in Fig. 2, the water passes, as before, into the portion B² of the discharge-passage, but can escape thence only by following the oblique or, as the case may be, spiral passage afforded by the grooves *b*³ in the wall of the portion B³ of the discharge-passage, and in following that course it acquires an oblique movement, which, owing to the circular character of the remainder of the passage, becomes a spiral movement, whether such is the form of the grooves or not; and this movement, giving to it a centrifugal impetus, causes, as soon as it is beyond the confining-walls of the tip, each particle of water to follow a course divergent from the axial line of its spiral movement, and it is thereby converted, first, into a conical film or sheet of

water, the apex of the cone being at the tip of the nozzle, and next, at a short distance from the nozzle, into a finely-divided and widely-distributed spray. When it is desired to shut
5 off the water entirely, the parts are adjusted by rotating the tip, or the base, as is most convenient, until the plug seats at the entrance to the portion B' of the discharge-passage.

In order to fix definitely the point at which
10 the base and tip should be adjusted in order to throw a solid stream, and to prevent unintentional separation of the two parts by screwing the tip too far forward when thus adjusting it, I provide the screw D, which is set
15 through the shell of the tip at the inner or rear end, and, after the two parts have been screwed together, may be screwed in, so that it will afford a stop for the end a'' of the thread A'' and prevent the base being screwed entirely out
20 of the tip. This screw will be stopped by its head from entering so far as to bind upon the outer surface of the cylindrical portion A'.

I do not design to limit myself to the use of the strictly spiral groove b^3 ; but any oblique
25 groove in the wall of the portion B³ of the discharge-passage would produce the effect designed. Such groove would necessarily be spiral unless made irregular, and any irregularity could have no effect except to retard
30 the current, and to that extent would be undesirable. I prefer, therefore, the strictly spiral groove.

I do not limit myself to the relative position and arrangement shown of the two parts B²
35 and B³ and the valve-seat b^4 , for it is obvious that provision might be made for seating the valve between the parts B² and B³.

I do not limit myself to connecting the two
40 parts, base A and tip B, by screwing them together, though I consider this by far the best

method; but they might simply slide one within the other, and be provided with any means for fastening them at the several positions for producing the described different results.

I claim—

1. A hose-nozzle comprising a discharge-passage having a larger portion, a smaller portion, and a final-discharge portion, the second-
50 mentioned portion being interiorly grooved in oblique direction, in combination with a plug or valve movable longitudinally in said discharge-passage and closing the grooved portion, except as to the grooves, when it is located therein and seating beyond the grooved
55 portion at the entrance to the final-discharge portion, substantially as set forth.

2. In combination with the nozzle-tip having a valve-seat, and a discharge-passage comprising a larger and a smaller portion, the latter
5c being interiorly obliquely grooved, a base having the receiving-passage and terminating in a plug or valve having a cylindrical body which fills the grooved portion of the passage, except
65 as to its grooves, and having an annular seating surface which fits the valve-seat, said annular seating-surface being located relatively to the cylindrical body as the valve-seat is relatively to the grooved part of the discharge-passage, whereby the valve seats at the limit
70 of its movement into said grooved portion, substantially as set forth.

In testimony whereof I have hereunto set my hand, in the presence of two witnesses, this
7th of October, A. D. 1886.

JOHN H. PARKER.

Witnesses:

A. BRUEGGER,
CHAS. S. BURTON.