

(No Model.)

J. BEAN.
SPRAYING NOZZLE.

No. 351,087.

Patented Oct. 19, 1886.

Fig. 1.

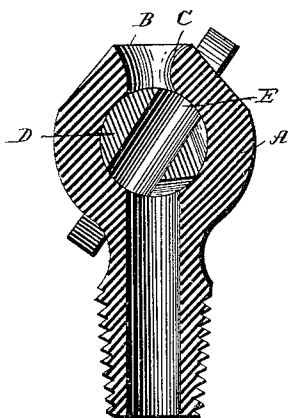


Fig. 2.

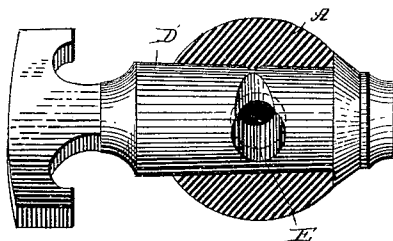


Fig. 3.

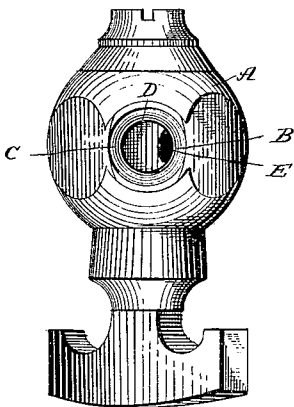
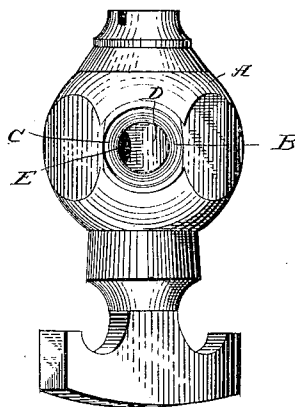


Fig. 4.



WITNESSES

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UNITED STATES PATENT OFFICE.

JOHN BEAN, OF LOS GATOS, CALIFORNIA.

SPRAYING-NOZZLE.

SPECIFICATION forming part of Letters Patent No. 351,087, dated October 19, 1886.

Application filed May 21, 1886. Serial No. 202,862. (No model.)

To all whom it may concern:

Be it known that I, JOHN BEAN, a citizen of the United States, residing at Los Gatos, in the county of Santa Clara and State of California, have invented certain new and useful Improvements in Spraying-Nozzles, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to improvements in nozzles; and it has for its objects, first, to provide a nozzle which shall have the combined capacity of directing both a solid or full stream and a spread or spray-like stream alternately; second, to provide the mouth or discharge portion of the bore through the nozzle with curved walls and with a sharp outer edge, whereby the liquid passing out is caused to assume a thin and fan-like shape when directed so as to impinge against said curved walls, and whereby the liquid is prevented from adhering to the mouth and dripping off; and, third, to provide the cut-off plug with a water-passage having each end enlarged by cutting into the plug about the passage, yet in such manner as not to change the general contour of the passage, whereby a greater volume of liquid is admitted into the passage from the end toward the source of supply, and yet the size of the passage reduced at the opposite end by turning the plug in the nozzle.

In the accompanying drawings, forming a part of this specification, and on which like reference-letters indicate corresponding parts, Figure 1 represents a longitudinal sectional view through the nozzle, showing the cut-off plug in cross-section; Fig. 2, a transverse sectional view through the nozzle, showing the cut-off plug in longitudinal section; Fig. 3, an end view of the nozzle, showing the plug in position to throw a full stream; and Fig. 4, a like view to Fig. 3, showing the plug in position to throw a spray or fan shape stream.

The letter A designates the body of the nozzle generally, being, by preference, constructed of a brass casting, and at one end it is provided with a screw-threaded portion, or a portion otherwise made, to allow of ready connection with a hose, while through the same the usual water-passage is formed. This passage is peculiar, however, at that part which extends from the plug to the discharge end. This peculiarity consists in curving the wall

of the passage as shown particularly in Fig. 1, the curvature being especially prominent on the sides B and C, against which the water or liquid is essentially directed from the plug-passage, when the plug is turned substantially as shown in Figs. 1 and 4. The result of this construction is to give the water or stream a thin and fan-like shape as it issues from the nozzle.

The plug, it will be seen, may be turned the reverse position to that shown in Fig. 1 and the stream issued at the opposite side of the passage. It will also be seen that the curvature is less or more nearly straight at B than at C, the object of which is to permit the stream to be thrown farther from the nozzle and to issue in a more concentrated form, so as to reach a higher spot—on a tree, for instance. On the other hand the greater curvature at C issues the stream in a wider film, and is designed to cover a nearer spot and one of greater area. The edge of the discharge is further peculiar in being reduced to a fine or sharp termination, this fine portion occurring at the termination of the curved portions, the object of which is to prevent the liquid from accumulating about the end and dripping down.

The letter D designates the plug, the same being of tapering form and fitted snugly to the transverse opening in the nozzle, and having a liquid or water passage, E, agreeing in size substantially with the passage in the nozzle, and admitting of the direct outward flow of a full or solid stream, as is usual. This plug, however, at points adjacent to the ends of the passage therein, is cut away, the incisions being preferably of the form shown, and extending into the passage, so as to enlarge the ends of the passage and present a greater opening for the water when the plug is turned to throw a spray stream.

By comparing Figs. 2 and 4, the one showing the passage where the water enters it, and the other the passage where the water issues from it, the relative sizes of the passage at the two points will be seen. The direction of the passage when turned for spraying is found to direct the water against the walls of the nozzle-passage at B or C, as the case may be, which, striking the walls, is made to assume the form of stream already described.

In spray-nozzles wherein a perforated disk

is used sand and other matter are found to accumulate; but in the present device any accumulations which may occur are quickly discharged by turning the plug to throw a full stream.

5 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 the
10 passage thereof having the interior of the outlet portion differently curved on opposite sides to present convex walls, the general direction of said curves being longitudinal with the nozzle, of the plug having a discharge-passage enlarged at each end by a groove cut in the plug
15 and extended to the passage, said plug being located near the curved portion.

2. In a nozzle, a plug having a single discharge-passage, and grooves formed in the
20 body of the plug, one at either end of the passage, and respectively extending to the passage, whereby the ends of the passage are enlarged.

3. In a nozzle, the passage thereof in the outlet portion curved differently on opposite
25 sides, and in such manner as to present convex walls within said portion, the general direction of the curves being longitudinal with the nozzle.

4. In a nozzle, the passage thereof curved
30 on the opposite sides of the outlet portion in such a manner as to present convex walls within said portion, the general direction of the curves being longitudinal with the nozzle, and the opposite sides of the nozzle sharpened to
35 present fine edges at the termination of the curved portions.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN BEAN.

Witnesses:

MAXWELL KIRKPATRICK,
JOHN F. TOBIN.