Feb. 26, 1952 J. H. THOMPSON 2,587,407

HOSE NOZZLE

Filed Oct. 29, 1946

Fig. 1.

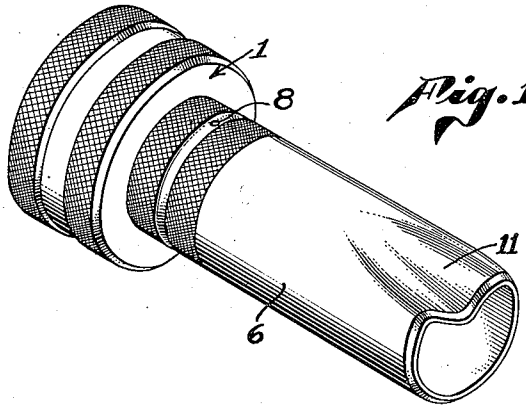


Fig. 2.

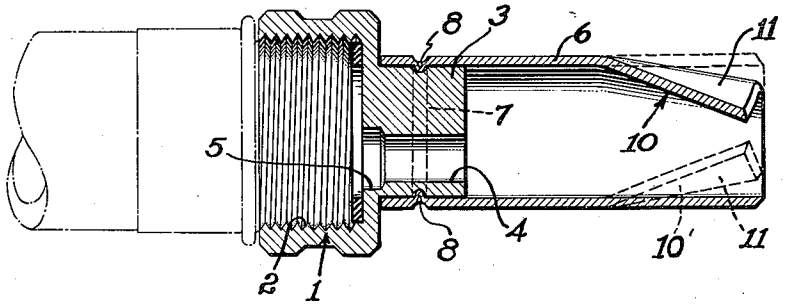


Fig. 3.

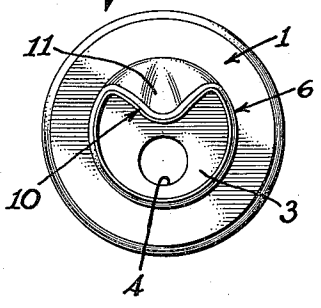
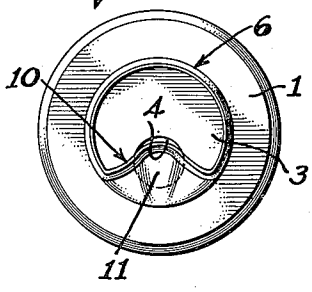


Fig. 4.



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HOSE NOZZLE

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1 Claim. (Cl. 299—127)

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This invention relates to hose nozzles and more particularly to nozzles for garden hose, especially adapted for use in spraying and watering gardens, lawns and the like.

A general object of this invention is to provide an improved hose nozzle of the type adapted to discharge water in either a substantially solid stream or in a sheet or spray for sprinkling purposes.

A further object is to provide an improved hose nozzle of the foregoing type wherein the water may be selectively discharged in the form of a spray by interposing a deflecting and dispersing surface in the path of a substantially solid stream.

A more particular object is to provide a hose nozzle having novel and improved means for converting, at the will of the operator, a solid stream of water into a uniformly distributed thin sheet.

A still further object is to provide a hose nozzle of the character set forth above which is of simple and inexpensive construction.

This invention possesses many other advantages and has other objects which may be made more easily apparent from a consideration of one embodiment of the invention. For this purpose there is shown a form in the drawings accompanying and forming part of the present specification. This form will now be described in detail, illustrating the general principles of the invention; but it is to be understood that this detailed description is not to be taken in a limiting sense, since the scope of the invention is best defined by the appended claim.

In the drawings:

Figure 1 is a perspective view of a hose nozzle made in accordance with the invention;

Figure 2 is a sectional view taken in a vertical plane through the axis of the nozzle illustrated in Figure 1;

Figure 3 is an end elevation showing the discharge end of the nozzle when the parts are adjusted to deliver a solid stream; and

Figure 4 is a view similar to Figure 3 but illustrating the position of the deflector for discharging the water in a flat spray.

Referring to the drawing, and particularly to Figures 1 and 2, it will be observed that the invention may be embodied in a nozzle consisting of two elements of simple and inexpensive construction. A body 1, in the nature of an adapter, is provided at one end with an internally threaded socket 2 for connection with a male fitting such as is customarily provided on one end of a section of garden hose. A cylindrical boss 3, preferably of smaller diameter than the socket portion and preferably coaxial therewith, is formed on the other end of the body.

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A fluid passage 4 extends through the boss 3 and communicates at its inlet end with the socket 2. In its simplest form, and that most adaptable to low-cost manufacture, the passage 4 is straight and parallel to but offset laterally with respect to the axis of the boss 3. It will be appreciated that in reducing the cross-sectional area of the liquid stream from that of the hose to that of the relatively small passage 4, a turbulent condition will be created at the inlet end of the passage. This turbulence may be reduced to a low order by providing a gradual rather than an abrupt reduction in area. In the present instance this is accomplished by counterboring the inlet end of the passage, as at 5. Comparable results may also be obtained by flaring or countersinking the inlet end. The passage 4 should be of sufficient length to restore a condition of laminar flow at the discharge end of the passage in order that the water or other liquid will issue therefrom in a substantially solid stream.

Although a straight, cylindrical bore with a flared inlet is preferred from a standpoint of manufacturing cost, it is to be understood that it is within the purview of the invention that the passage 4 may assume various shapes and proportions, the only requirement being that the discharge end thereof be disposed eccentrically of the axis of the boss 3, and that the liquid be discharged therefrom in a substantially solid stream directed parallel to the axis of the boss.

An important feature of the invention is the provision of a tubular member rotatably mounted on the body 1 and having an inclined deflecting surface thereon adapted to be selectively moved, upon rotation of the tubular member relative to the body 1, into or out of the path of the stream discharged from the passage 4. When disposed in the path of the stream, the deflecting surface intercepts the substantially solid stream and, by virtue of its particular configuration, converts the stream into a spray in the form of a diverging flat sheet.

The tubular member, designated 6, may be rotatably mounted on the body 1 in any desired manner. As shown, it is journaled on the peripheral surface of the boss 3. In order to retain the tubular member on the boss, an external circumferential groove 7 is formed in the boss, and the wall of the tubular member is wedged inwardly into the groove at two diametrically op-

posite points, as shown most clearly at 8, 8 in Figure 2.

The aforementioned deflecting surface is indicated at 10 in Figure 2, and it will be observed that it converges inwardly toward the axis of the tubular member in the direction of fluid flow. As shown most clearly in Figure 1, it is formed by pressing a portion of the wall of the tubular member inwardly to form a trough-shaped indentation 11 of progressively increasing depth toward the free end of the tubular member. In this manner the inner wall of the indentation forms a transversely convex deflecting surface inclined toward the axis of the tubular member. The discharge opening at the free end of the tubular member is generally crescent-shaped, as seen most clearly in Figures 3 and 4.

In the use of the nozzle, when it is desired to discharge a substantially solid stream from the nozzle, the tubular member 6 is disposed in the position shown in Figures 1 and 3 and in solid lines in Figures 2. In this position the deflecting surface 10 is disposed outside the path of the stream issuing from the passage 4 and is wholly inactive. Upon rotation of the tubular member about its axis relative to the body 1, the deflecting surface is gradually moved into the path of the stream, causing the solid stream to be progressively converted into a diverging spray. The maximum dispersion of the stream into a spray occurs when the tubular member has been rotated through an arc of 180° into the position shown in Figure 4, the deflecting surface 10 being indicated in this position at 10' in Figure 2.

The inwardly rounded shape of the deflecting surface 10 is an important feature of the invention, inasmuch as it has been demonstrated by tests that a deflecting surface of this shape more effectively disperses the solid stream of liquid into a uniformly distributed sheet or spray than can be produced by a flat or a V-shaped surface.

From the foregoing description of a preferred embodiment of the invention, it will be evident that there has been provided an extremely simple and inexpensive and yet highly effective hose nozzle for watering or sprinkling purposes.

I claim:

A nozzle comprising a body having a passage therethrough adapted to discharge a substantially solid stream of liquid; a tubular extension mounted on said body for rotation about an axis eccentric with respect to the discharge end of said passage; said tubular extension having an indented portion forming an inwardly transversely convex surface converging toward said axis between a point in the wall of said extension and the open end of said extension, said indented portion being joined to the wall of said extension by reversely curved surfaces on the opposite sides thereof, the portions of the wall of the tubular extension to which said reversely curved surfaces are joined being concentric with the axis of the extension out to the discharge end of the latter rotation of said extension relative to said body serving to move said surface into and out of the path of said stream.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
560,922	Pearson	May 26, 1896
699,554	Neumeyer	May 6, 1902
820,328	Alderman	May 8, 1906
1,705,188	Kelly	Mar. 12, 1929
1,761,422	Wagner	June 3, 1930

FOREIGN PATENTS

Number	Country	Date
11,504	Great Britain	July 18, 1889
375,429	Great Britain	June 27, 1932