

H. BIRNBAUM.

NOZZLE.

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1,093,907.

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Fig. 1.

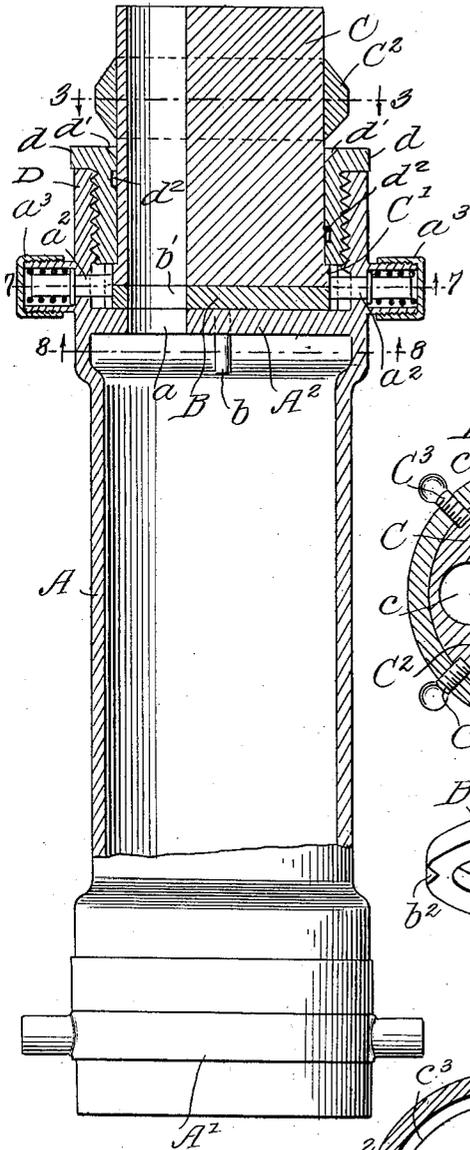


Fig. 2.

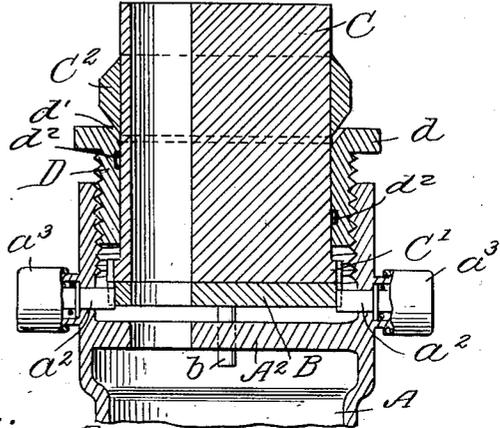


Fig. 3.

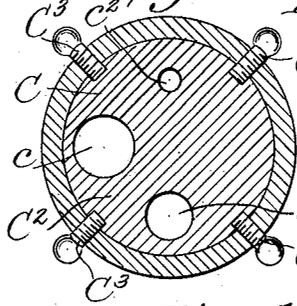


Fig. 4.

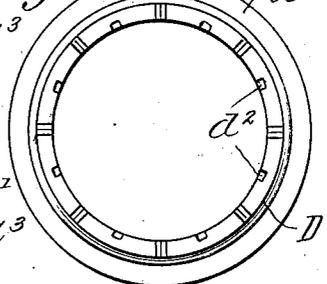


Fig. 5.

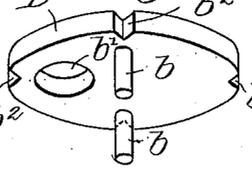


Fig. 6.

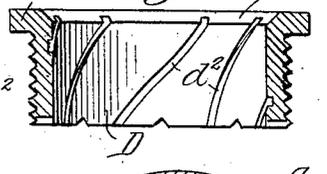


Fig. 7.

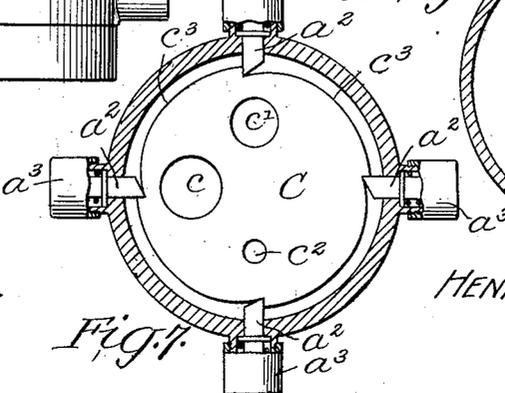
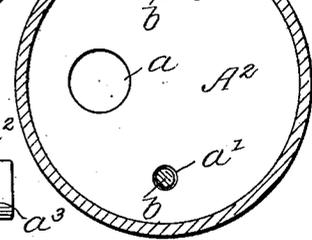


Fig. 8.



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NOZZLE.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, HENRY BIRNBAUM, a citizen of the United States, and a resident of Rapid City, in the county of Pennington and State of South Dakota, have made certain new and useful Improvements in Nozzles, of which the following is a specification.

My present invention relates to hose nozzles, my object being to provide a nozzle which will permit of the discharge of various sized streams therefrom and which may be readily and quickly adjusted to vary the size of the stream, and a further object of my invention is to provide a nozzle with means whereby a spray may be discharged along with any of the streams of water when it is so desired.

With these objects in mind, my invention specifically resides in the features of construction, arrangement and operation to be now described in connection with the accompanying drawings forming a part of this specification and in which,

Figure 1 is a view partly in elevation and partly in central longitudinal section, through my improved hose nozzle, the spray controlling nut being closed; Fig. 2 is a central longitudinal section through the head portion of the nozzle, showing the spray nut open; Fig. 3 is a transverse detail section, taken substantially on line 3—3 of Fig. 1, through the spreader ring; Fig. 4 is an inner end view of the spray nut removed; Fig. 5 is a perspective view of the spray valve plate; Fig. 6 is a detail cross section through the spray nut removed; Fig. 7 is a cross section through the nozzle taken substantially on line 7—7 of Fig. 1; and, Fig. 8 is a similar view taken substantially on the line 8—8 of Fig. 1.

Referring now to these figures, I provide a nozzle which comprises a cylindrical body A having the usual hose coupling ring A' at its inner end, and having its outer portion internally threaded and provided with a transverse web or diaphragm A² extending across its bore at a point inwardly beyond the point of termination of the threads just mentioned, this transverse web or diaphragm A² being provided with a single discharge opening a at one side of its center and with smaller apertures a' also at opposite sides of its center, these latter apertures being adapted to receive the depending pins b of the spray valve plates B. This spray valve plate

B rests upon the outer surface of the web or diaphragm A² and is non-rotatable with respect thereto, by virtue of its pins b extending inwardly through the openings a', as before mentioned, said plate being also provided with a discharge opening b' coinciding with the discharge opening a of the web or diaphragm.

Extending within the outer end of the body A is a nozzle head C, this head being provided with a plurality of longitudinal openings c, c' and c² which, by particular reference to Figs. 2 and 7 it will be noted, are of different sizes. At its inner end, the head C is provided with a slightly enlarged annular shoulder C' resting upon the outer face of the spray valve plate B. It will be noted that the diameter of the head C is substantially reduced as compared to that of the body A, leaving an annular space between these parts which is occupied by the spray nut D, having an annular flange d at its outer end and having its outer surface threaded for engagement with the threaded inner surface of the body A, as before mentioned. Thus with the nut D screwed inwardly to the limit of its movement and bearing at its inner end upon the enlarged shoulder C' of the head C whereby to press the head C, and the spray valve plate B tightly against the web or diaphragm A², liquid passing through the body A will be discharged through the web or diaphragm opening a, the spray valve plate opening b and one of the head openings c, c' and c² which may be alined with openings a and b'.

The inner annular shoulder C' of the head C is provided with notches c³ in its periphery which are adapted to be engaged by spring controlled plungers a² carried by the nozzle body and projecting radially and inwardly through the wall thereof, the tapered inner ends of these plungers also extending within notches b² in the spray valve plate B. The cooperating plungers a² and notches c³ thus act to maintain the head C in the desired position, that is with either of its longitudinal openings c, c' and c² alined with the discharge openings a and b', before mentioned.

The spray nut D, as particularly shown in Figs. 4 and 6, is provided with an inner bevel d' at its outer end and with spiral grooves d² in its inner surface, the outer ends of which extend through the bevel portion d', and the inner ends of which re-

ceive fluid when the nut is adjusted outwardly in the position as shown in Fig. 2, from which it will be seen that the valve plate B is forced, by the pressure, away from the web or diaphragm A², thus permitting the liquid to find its way around the edge of this plate and around the annular shoulder C' of the head C. The head C is also provided adjacent its outer end with a spreader ring C², through which are threaded the studs C³ forming handles whereby the head may be readily adjusted, and the lower edge of which ring is beveled, as clearly shown in Figs. 1 and 2 in order to spread the spray delivered from the spiral grooves d³ of the spray nut. Thus by rotating the head C in one direction, either of its longitudinal openings c, c' and c² may be brought into registry with the discharge openings a and b' of the web or diaphragm A² and the spray valve plate B, as before described, whereby to discharge a stream of the desired size, it being apparent that the spray may be discharged simultaneously with a stream of any size and will thus, in case of fire, form a convenient and effective protection for the person manipulating the hose nozzle. It may be seen that the adjustment required to vary either the size of the stream or the discharge or cut-off of spray, are simple and convenient and may be readily and quickly made.

Referring to the spring controlled plunger a², it will be seen that the springs controlling the same may be adjusted by means of the caps a³ whereby to increase or decrease their tension. It is also to be understood that the head C may be rotated so that a solid portion thereof between its longitudinal openings c', c², is registered above the openings a, b' of the diaphragm and the spray valve plate respectively, thus shutting off the flow altogether, and it is to be further understood that when so shut off or in fact when the head is rotated to any desired point, the spray-nut D may be rotated inwardly to such an extent as to bind against the shoulder C' and thus act as a lock to prevent movement of the head.

I claim:—

1. A hose nozzle comprising the combination of a cylindrical body provided with a transverse wall adjacent its outer end, said wall having an opening at one side of

its center, a nozzle head rotatable within the outer end of the body and provided with openings of different sizes adapted for registry with the said wall opening, and a spray nut surrounding the said head and adjustable in the space between the head and the body at the outer end of the latter and having spray forming grooves on its inner surface, for the purpose described.

2. A hose nozzle comprising the combination of a cylindrical body having a transverse wall provided with an opening, a rotatable head disposed in the outer end of the body and having a plurality of openings of various sizes, a spray nut surrounding the head and adjustably mounted in the space between the head and the body, the said nut being provided with grooves in its inner surface and having a beveled inner edge at its outer end, and a spreader ring carried by the said head and having a beveled inner edge, for the purpose described.

3. A hose nozzle comprising the combination of a cylindrical body having a transverse wall adjacent its outer end provided with an opening, an adjustable rotatable head mounted in the outer end of the body and provided with a plurality of openings of various sizes therethrough, a valve plate disposed between the said wall of the body and the inner end of the head, and a spray nut surrounding the head and adjustable in the space between the head and the body and having spray forming grooves on its inner surface for the purpose described.

4. A hose nozzle comprising the combination of a cylindrical body having an apertured transverse wall adjacent its outer end, an apertured head rotatable in the outer end of the body, a valve plate between the inner end of the said head and the said transverse wall, the said head having an enlarged annular shoulder at its inner end, and a spray nut surrounding the head and having a threaded engagement with the body of the nozzle, said spray nut being provided with grooves in its inner surface for the purpose described.

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Witnesses:

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