(No Model.)

H. H. GORTER.

ROTARY NOZZLE.

No. 600,198. Patented Mar. 8, 1898.

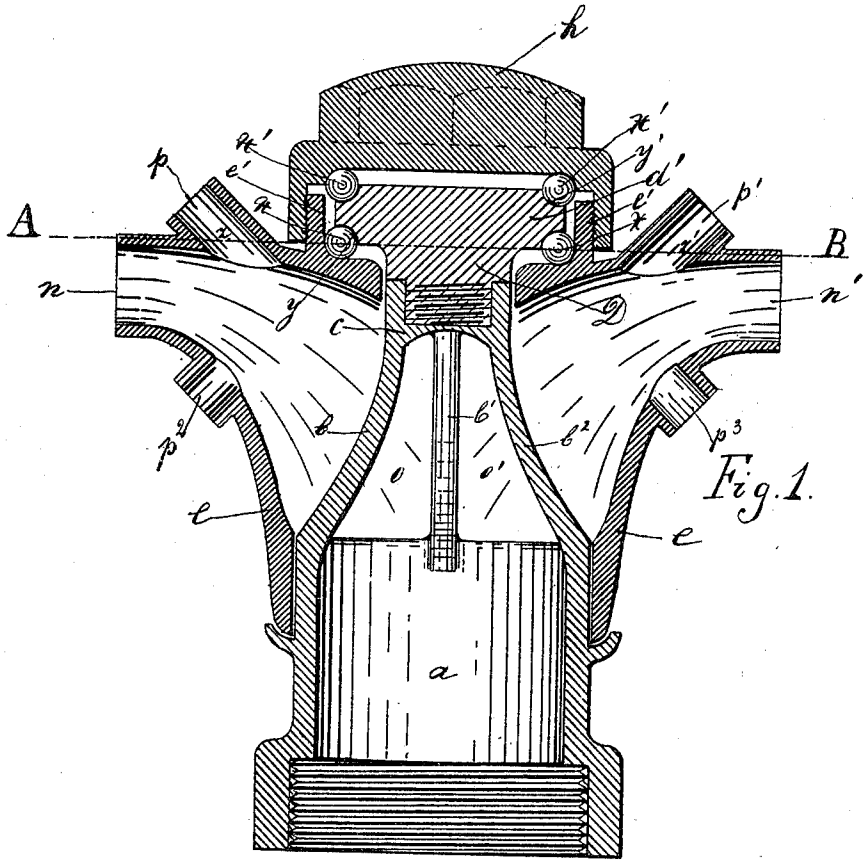


Fig. 1.

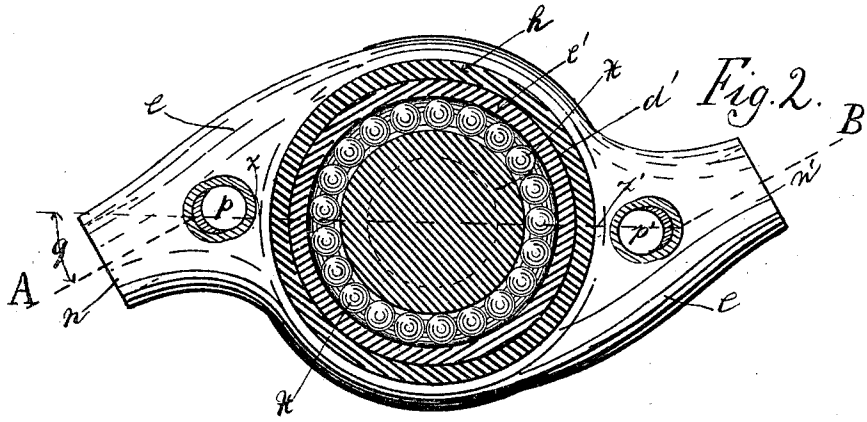


Fig. 2.

Witnesses
Frank Orbell
Chas. Healey

Inventor
Henry H. Gorter

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C

UNITED STATES PATENT OFFICE.

HENRY H. GORTER, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR TO MARY E. GORTER, OF SAME PLACE.

ROTARY NOZZLE.

SPECIFICATION forming part of Letters Patent No. 600,198, dated March 8, 1898.

Application filed March 25, 1897. Serial No. 629,244. (No model.)

To all whom it may concern:

Be it known that I, HENRY H. GORTER, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Rotary Nozzles, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to that class of nozzles called "rotary nozzles," "rotary sprinklers," or "circulators," such as are used for horticultural, street-sprinkling, and, more especially, fire-extinguishing purposes, in which a nozzle or combination of nozzles rotates around a fixed hollow core or body screwed onto a pipe or length of hose, through which the water gains access to the nozzles proper, which it drives around as it is ejected therefrom.

The object of my invention is to provide means for reducing the friction between the fixed and rotating parts of the nozzle to a minimum, thereby greatly increasing its efficiency in that it requires less pressure to rotate it, thus enabling me to have a greater area of outlets for any given size of supply-pipe than has been possible heretofore, pressure standing in an inverse ratio to the area of discharge. I attain this object by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a vertical section view of the entire nozzle. Fig. 2 is a top view of the nozzle along the dotted line A z z' B, showing ball-bearing journal.

Similar letters refer to similar parts throughout both views.

a represents the body or core of the nozzle, which may be screwed on any supply-pipe or length of hose. It is tapered off at its upper portion and has holes o o' cut through its sides, forming waterways and leaving ribs b b' b^2, which carry on top a boss c, into which is screwed or otherwise fastened an axle D, which has a mushroom-shaped expanded part d' and which forms the fulcrum around which the balls x x' rotate. This axle or fulcrum D may be made of any hard metal; but I prefer to make it of steel, hardened. Around this axle D, and also around a portion of core-piece a, rotates the outer shell e, preferably made of phosphor-bronze. It has cast on its upper end a cup-shaped projection e', which is bored out inside and has a hole through its center, which allows the contracted part of the axle D to pass through it. Around the bottom of this cup-shaped projection e' a suitable number of balls x are placed, whose upper sides lie in a quarter-circular groove y, cut in the lower edge of expanded part d' of the axle D. On the outside of this cup-shaped projection e' a fine thread is cut, on which is snugly screwed the cap h. Between this cap h and into a quarter-circular groove y', cut along the upper edge of the expanded part d' of the axle D, lie a like suitable number of balls x', the whole forming a top and bottom ball-bearing journal, as clearly illustrated in the drawings.

The nozzles n n', which project horizontally from the shell e, are set at an angle with regard to the center line z z', and I prefer to set them at an angle of about thirty degrees, as producing the best results. The nozzles p p' p^2 p^3 are inclined at various angles from the vertical and assist in distributing the water evenly.

I am aware that ball-bearings may in various ways be used in connection with a similar apparatus—for instance, a ball-bearing may be placed between the upper and lower faces of a rotating shell—and I do not wish, therefore, to confine myself particularly to the foregoing described construction.

What I claim as new, and wish to secure by Letters Patent, is—

1. In a rotary nozzle, the combination of a hollow core a, through which the water enters, a ball-bearing journal, on said hollow core, and an outer spherical shell e, rotating around said hollow core a, and having two, or more, discharge-tips mounted on its periphery substantially as, and for the purpose set forth.

2. In a rotary nozzle, the combination of a hollow core a, a ball-bearing journal on said hollow core, and an outer shell e, rotating around said hollow core, and having discharge-tips p, p', &c., mounted on its periphery, said tips being set at various angles, with regard to

the vertical axis of said outer shell *e*, substantially as, and for the purpose set forth.

3. In a rotary nozzle, the combination of a hollow core *a*, a ball-bearing journal placed on said core, and an outer shell *e* rotating around said core *a*, and having discharge-tips *n*, *n'*, mounted on its periphery, said tips *n*, *n'*, being placed in such a manner, that a line drawn through their longitudinal axis, will bisect, the periphery of said shell *e*, in two unequal parts, or run tangent thereto; substantially as, and for the purpose set forth.

HENRY H. GORTER.

Witnesses:
M. E. GORTER,
JOHN MAXWELL.