No. 850,216.

PATENTED APR. 16, 1907.

J. F. DORNFELD.

SPRAYING NOZZLE.

APPLICATION FILED OCT. 7, 1905

Fig. 1.

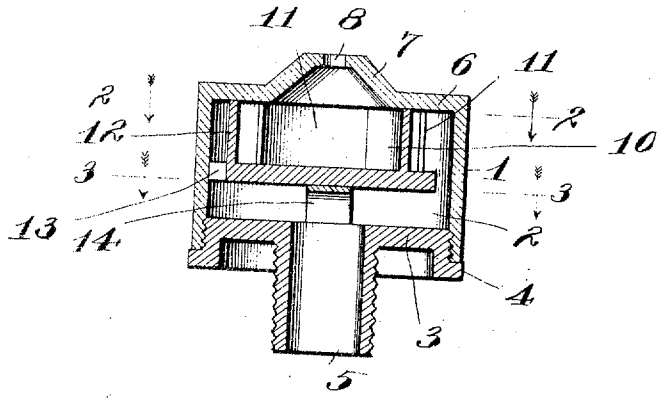


Fig. 2.

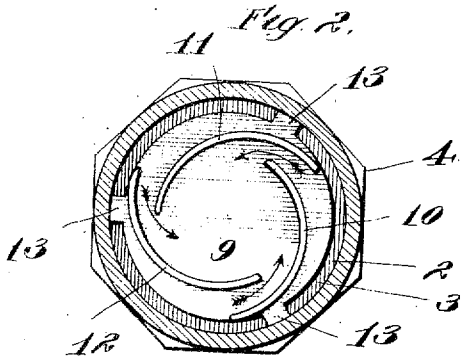
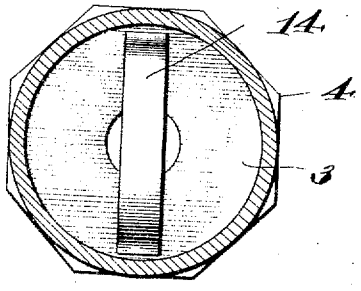


Fig. 3.



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SPRAYING-NOZZLE.

No. 850,216. Specification of Letters Patent. Patented April 16, 1907

Application filed October 7, 1905. Serial No. 281,855.

To all whom it may concern:

Be it known that I, JOHN F. DORNFELD, 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 Spraying-Nozzles, of which the following is a specification.

This invention relates to devices for breaking up a stream of water or other liquid into spray, and while it is adapted for various uses, it is especially designed and intended for use in connection with pneumatic malting. In this method of malting the air to be used is moistened and cooled by passing it through sprays of water.

The object of the invention is the production of an improved device of the character mentioned which shall be self-cleaning, not liable to any considerable wear, and of high efficiency in use.

In the accompanying drawings, Figure 1 is a central section through a spraying-nozzle embodying the features of my invention. Figs. 2 and 3 are sectional views taken through said nozzle on dotted lines 2 2 and 3 3, respectively, of Fig. 1.

The embodiment of this invention shown in the drawings comprises a substantially cylindrical body portion 1, having a chamber 2 therein. Upon its inner walls at one end said body portion is screw-threaded to receive a peripherally-screw-threaded closing-disk 3, said disk having an octagonal annular flange 4 for engagement by a wrench. Said disk also has a tubular exteriorly-screw-threaded integral stem 5, by means of which the nozzle may be mounted upon a water-supply pipe. The opposite end of the cylindrical body portion 1 is closed by the end wall 6, said end wall having a central conical top 7, provided with a central discharge-orifice 8.

The device for breaking up the current of water entering the body portion through the stem 5 comprises a disk 9, bearing three vanes 10, 11, and 12, which vanes are formed integral with said disk. The disk 9 is smaller in diameter than the chamber 2 and is held centrally spaced within said chamber by means of three lugs 13, formed upon the periphery of said disk. The disk 9 is held in position within said chamber with the upper edges of the vanes 10, 11, and 12 pressed against the end wall 7 by means of a curved leaf-spring 14, one end of said spring being fixed to the inner side of the closing-disk 3, the middle portion of said spring bearing against the lower side of the disk 9.

In use water enters the body portion 1 through the stem 5, passes around the periphery of the disk 9, and flows into the space beneath the discharge-orifice 8 in three streams between the adjacent ends of the vanes 10, 11, and 12, as indicated by arrows in Fig. 2. By reason of the curved form of the vanes 10, 11, and 12 said streams are given a gyratory motion and issue from the orifice 8 as a thin whirling sheet or spray. The vanes 10, 11, and 12 form between them an inner chamber communicating with the chamber 2 through the spaces between the adjacent ends of said vanes.

It will be noted that the device comprises but few parts, is easily assembled and taken apart, and that it has no movable members, and thus is not subject to appreciable wear nor liable to breakage.

I claim as my invention—

1. A spraying-nozzle comprising a chambered body portion having an inlet and a discharge orifice; and a disk removably supported within said chambered body portion, said disk permitting the passage of liquid around its edges and being provided with a plurality of curved vanes.

2. A spraying-nozzle comprising a chambered body portion provided with an inlet and an outlet, a member extending across the chamber in said body portion and lying between the inlet and the outlet and adapted to permit the passage of the liquid around its edges, and a plurality of curved vanes on said member arranged to prevent the passage of the liquid through said outlet save between the adjacent ends of said vanes.

3. A spraying-nozzle comprising a chambered body portion, an inlet in one wall of said body portion, an outlet in the opposite wall of said body portion, a member extending transversely between said end walls and adapted to permit the passage of liquid past its edges, and curved vanes extending between said member and the end wall provided with the outlet, said vanes being arranged to form an inclosure open to the inflowing fluid only between the adjacent ends of said vanes.

4. A spraying-nozzle comprising a cylindrical chamber body portion having an inlet in one of its walls; a central conical tip in its opposite wall, said tip being provided with a

discharge-orifice, an imperforate disk extending across the interior of said body portion, lugs located upon the periphery of said disk for spacing it in said body portion, and a plurality of curved vanes on the side of said disk adjacent to said discharge-orifice, said disk and vanes preventing the passage of liquid from said outlet to said discharge-orifice save between the adjacent ends of said vanes.

5. A spraying-nozzle comprising a substantially cylindrical body portion having a chamber therein, a closure-disk for closing one end of said body portion, said disk having a central tubular stem, a wall closing the opposite end of said body portion, said wall having a central conical tip provided with a discharge-orifice, a disk extending transversely between said tubular stem and said discharge-orifice, and means extending between said disk and the end wall having the discharge-orifice for giving the liquid passing through said body portion a gyratory motion.

6. A spraying-nozzle comprising a substantially cylindrical body portion having a chamber therein, a closure-disk for closing one end of said body portion, said disk having a central tubular stem, a wall closing the opposite end of said body portion, said wall having a central conical tip provided with a discharge-orifice, a disk extending transversely between said tubular stem and said discharge-orifice, and curved vanes on said disk extending between said disk and the end wall having the discharge-orifice for breaking up the stream entering said body portion through said tubular stem into a plurality of streams and for giving said streams a gyratory motion.

7. A spraying-nozzle comprising a substantially cylindrical body portion having a chamber therein; a closing-disk for closing one end of said body portion, said disk having a tubular cylindrical securing-stem fixed thereto, an end wall closing the opposite end of said body portion and having a central discharge-orifice, a disk lying transversely between said tubular stem and said discharge-orifice, said disk having a plurality of curved vanes upon its side adjacent to said discharge-orifice, and a spring lying between said closing-disk and said other disk tending to force them apart.

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