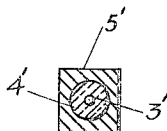
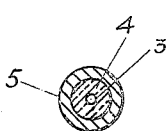
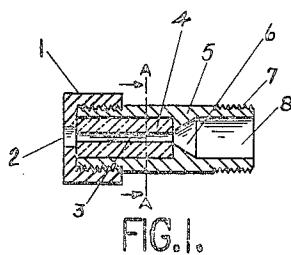


NOZZLE.

Patented Oct. 22, 1912.

1,042,323.



Witnesses

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UNITED STATES PATENT OFFICE.

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NOZZLE.

1,042,323.

Specification of Letters Patent.

Patented Oct. 22, 1912.

Original application filed June 5, 1908, Serial No. 436,968. Divided and this application filed May 5, 1911.
Serial No. 625,333.

To all whom it may concern:

Be it known that I, ALFRED R. CLARKSON, a citizen of the United States, residing at Birmingham, in the county of Jefferson and State of Alabama, have invented a new and useful Nozzle, of which the following is a specification.

My invention relates to improvements in nozzles of the kind used in connection with water wheels, humidifiers, injectors and the like and shown for example in my Patent 921,365 issued May 11, 1909, of which this application is a division and its object is to provide a nozzle having a jet forming portion which cannot be attacked or worn out quickly by a jet of steam or other fluid under pressure, which is easily cleaned, which is easily and cheaply constructed and which can be removed and renewed with ease and which can be replaced, without great expense, by various other sizes of jet forming portions, if desired. I attain these and many other desirable objects, which will appear, by means of my invention one practical embodiment of which is shown in the accompanying drawings and described in this specification.

Figure 1 is a section of my nozzle taken longitudinally through the center line of the nozzle. Fig. 2 is a section of my complete nozzle in its preferred form taken on the line A—A of Fig. 1. Fig. 3 is a similar section to Fig. 2 of a modification of my device.

Similar letters refer to similar parts throughout the several views.

The part 5 consists of a nipple threaded externally at each end as at 7 which may be of any desired metal preferably brass or hardened bronze. The cylindrical passage 8 of the nipple extends for a short distance through the nipple and then merges, by means of the conical passage 6 through the partitioning projection, into another cylindrical passage extending the remainder of the way through the nipple. In the latter cylindrical passage is located a short length of glass tubing having extending through its length a passage 3 the size of which determines to a great extent the size of the jet of fluid passed therefrom. This glass tube is held within the nipple by means of the cap 1 in which there is a hole 2 preferably of somewhat larger diameter than the cylin-

drical passage 3 in the aforementioned glass tube 4. As shown in Fig. 3, the nipple 5 may be square, if desired, having its opposite ends rounded and threaded. I prefer, however, to have the nipple cylindrical as shown in Fig. 2.

By means of the conical reduction of the bore of the nipple 5 as shown at 6 I bring the size of the bore down to almost the size of jet desired and also form the shoulders against which the glass tube rests when in place.

The hardened glass tubing may be very easily procured in short lengths at a very much lower cost than special glass shapes and the hole therein formed is quite accurate, smooth and has walls which will not rust or be easily worn. Furthermore the glass may be used with a great many liquids used as disinfectants where metal would be of no value. The length of the glass tube should be at least three times the diameter of its orifice to form the best jet. By making the hole in the glass of cylindrical shape, without a bell mouth, it may be reversed, if desired, for cleaning or other purpose. If a larger or a smaller jet is desired, the exchange may be easily effected by removing the cap 1, withdrawing the tube 4 and inserting another glass tube having the same outside diameter but having a different bore. As the bore of the glass tube determines to a great extent the size of the issuing jet, it is apparent that wear of the metal parts may be very appreciable without affecting the size of the issuing jet. This feature of the nozzle is of great importance in humidifier or moistening apparatus where water under from fifty to two hundred pounds pressure per square inch is sometimes used, especially if the water contains gritty matter in suspension. Under such conditions a hardened steel jet or nozzle would last but a few months, and then the size of the bore would appreciably increase and the air would not be able to carry off the additional amount of water sprayed into it. When that occurs the water drops upon the floor of the rooms containing the nozzles and also upon the machinery, with disastrous results.

The metallic casing consisting of the nipple 5 and the cap 1 protect the glass nozzle from injury from without but the glass tube

being loose in the sense that it is not cemented or forced into the metal, may easily and quickly be replaced, if desired for any reason. It is, of course, apparent that other
 5 vitreous substances or such substances as hardened and glazed porcelain may be substituted for glass and be, in some respects, of the same value in this connection.

I do not, of course, desire to limit myself
 10 to the exact details of construction of the embodiment of my invention shown in the drawings and various alterations may be made therein without departing from the spirit of the invention as defined by the
 15 scope of the appended claims.

What I desire to claim is:—

1. A nozzle comprising a tube, a perforated cap on said tube and a block having an opening therethrough and held between
 20 said cap and a partition within the bore of said tube, the bore of said tube on each side of said partition being of substantially the same diameter, and an opening through said partition.

25 2. A nozzle comprising a tube, a cylindrical glass block within said tube, a partition projecting within the bore of said tube and a perforated cap holding said block against said partition, substantially as described.

30 3. As an article of manufacture, a nozzle

comprising a nipple threaded externally on each end and having an interior shoulder in the bore thereof, a glass tube of substantially the same bore throughout loosely
 25 lodged in said nipple and a cap holding said glass tube against the shoulder within said nipple.

4. As an article of manufacture, a nozzle comprising a nipple having a shoulder integral therewith and projecting into the
 40 bore thereof and a removable and reversible cylindrical glass block having a bore of substantially the same diameter throughout and lodged against said shoulder and a cap fastened to said nipple and retaining said
 45 glass block in position, as and for the purpose specified.

5. A nipple having a chamber, a removable cylindrical block filling said chamber, and means contacting with the end of the
 50 nipple and block and retaining the block in position.

In testimony whereof I hereby affix my signature in the presence of two subscribing
 55 witnesses.

ALFRED R. CLARKSON.

Witnesses:

JNO. S. LEEDY,

W. B. CALDWELL.