J. L. FITTS.

SPRAY NOZZLE.

APPLICATION FILED SEPT. 2, 1913.

1,089,406. Patented Mar. 10, 1914.

FIG. 1.

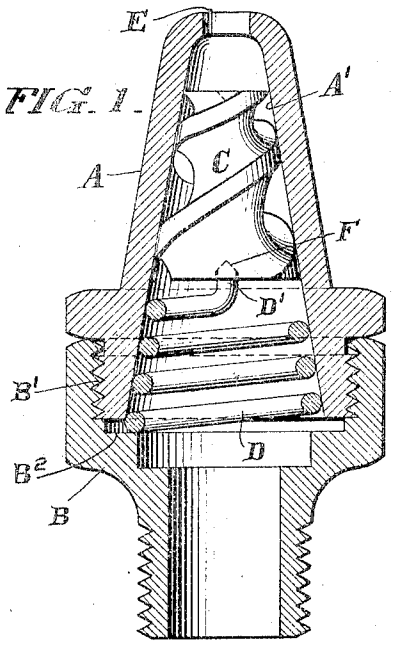


FIG. 2.

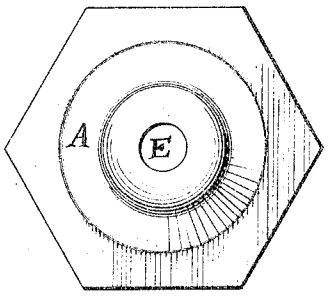


FIG. 3.

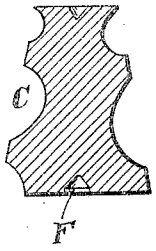
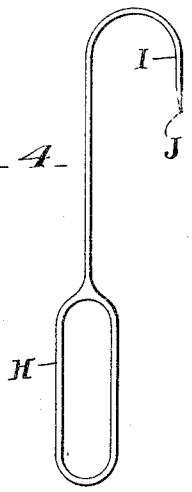


FIG. 4.



WITNESSES

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SPRAY-NOZZLE.

1,089,406. Specification of Letters Patent. Patented Mar. 10, 1914.

Application filed September 2, 1913. Serial No. 787,559.

To all whom it may concern:

Be it known that I, JAMES LOGAN FITTS, citizen of the United States, and resident of Pensauken township, county of Camden, and State of New Jersey, have invented an Improvement in Spray-Nozzles, of which the following is a specification.

The object of my invention is to provide a construction of spray nozzle adapted, more particularly, for air washers and humidifying and cooling apparatus, which shall have capacity for easy cleansing in case of clogging, such that a simple hand manipulation without any dismantling of the parts will insure instant removal of the obstructing matter.

This improvement is especially related to that class of spray nozzles which have a spiral guideway for the water by which it is given a spiral movement and at the same time an accelerated speed by the conical shape of the casing through which the water flows before being released in the form of spray, and my invention particularly comprehends the temporary manual displacement of the relation of the spiral guideway to the casing whereby the water may find a direct passage about the spiral guideway for flushing out the casing and guideway. The improvement is of such nature that this flushing or cleansing operation may be carried on without interrupting the flow of the water or in any way stopping the operation of the apparatus in which the nozzle is located.

More specifically, my invention consists of a casing having a conical passage terminating in a nozzle opening at the small end and having a water inlet at the large end, combined with a conical plug fitting the smaller end of the passage and having spiral grooves through which the water flows and by which it is given a spiral movement, the pressure of the water acting to hold the plug in operative position in the casing; the construction being such that the plug may be freely pushed backward into the larger portion of the passage to provide an annular passage for the direct flow of the water for flushing out the nozzle whenever it becomes obstructed.

My invention may also be provided with a spring within the casing or otherwise, so arranged that it automatically forces the plug into its operative position and holds it there when the water is shut off.

My invention also comprehends other details of construction which, together with the features above specified, will be better understood by reference to the drawings, in which:—

Figure 1 is a sectional elevation of a spray nozzle, embodying my improvements; Fig. 2 is a plan view of the same; and Fig. 3 is a longitudinal section of the plug having the spiral grooves; and Fig. 4 is an elevation of a hand tool for temporarily displacing the plug during the cleansing operation.

A is the casing, having the conical passage or chamber A′ made with an orifice E at its smaller end. The larger end of the casing screws into a socket part B′ of a base B which has a threaded nipple for attachment to the pipe through which the water is fed to the nozzle. Arranged within the conical chamber is a conical plug C having spiral grooves about its periphery, and which, with the walls of the chamber A′, form spiral channels through which the water is caused to flow and accelerate its speed, so that as it passes from the opening E it is disrupted into fine spray by centrifugal force and impact. The force of the water will hold the plug in place within the conical chamber, but I prefer to employ a coiled spring D, so formed as to snugly fit the large end of the chamber A′ and having its large diameter resting upon an annular shoulder B^2 of the socket B′, and having its smaller diameter terminating in an inturned end which is directed centrally at D′ against the plug and preferably fitting into a recess F therein, for the purpose of normally holding the plug in position when the water pressure is turned off. While I prefer to employ this spring D, I do not restrict myself thereto.

The shape of the plug C is such that it occupies only a portion of the whole length of the conical chamber, as clearly indicated in the drawing. By reason of this, the plug may be pushed inward toward the larger end of the chamber and thereby permit the water to rush directly through the chamber all about the plug, so as to wash out the said chamber and plug. Upon releasing the plug, it is instantly brought to its proper

operative position by the spring D and water presure, either or both. To facilitate this displacement of the plug for cleansing, I provide a small hand tool shown in Fig. 4, consisting of the handle part H and shank I bent into a hook shape and terminating in a point J. This point is inserted through the aperture E and into the recess G of the plug, and by pulling back on the handle H the plug is pushed inward. The rush of the water through the nozzle, during the operation does not reach the person as he may stand back of the nozzle. As a single air washer employs large numbers of these spraying nozzles, it will be seen that they can be rapidly cleansed without turning off the water or dismantling the nozzles themselves.

While I have shown the nozzle in the particular form I have used in practice, I do not confine myself to any particular details of construction, as my invention comprehends the casing and plug providing spiral water grooves and relatively adjustable during the flow of the water that the said parts may be relatively displaced to provide an annular passage about the plug through which the flushing water may directly rush, and therefore the construction shown is by way of example only.

Having now described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. In a spraying nozzle, the combination of a casing having a conical chamber terminating at its small end in a spraying aperture, a base to which said casing is removably secured, said base having an inlet for pressure fluid and an annular abutment encircling said inlet and projecting circumferentially within said conical chamber adjacent the large end thereof, a conical plug having spiral grooves about its periphery and mounted for free movement within said chamber whereby said plug may be pushed back to provide an annular passage for pressure fluid about the plug for flushing purposes and a spring interposed between said plug and said abutment for normally holding said plug in operative position adjacent the smaller end of the said chamber.

2. In a spraying nozzle, the combination of a casing having a conical chamber terminating at its small end in a spraying aperture, a base to which said casing is removably secured, said base having an inlet for pressure fluid and an annular abutment encircling said inlet and projecting circumferentially within said conical chamber adjacent the large end thereof, a conical plug having spiral grooves about its periphery and a recess centrally disposed in each end thereof, said plug being freely movable within said casing, and one of said recesses being adapted to receive a suitable implement inserted by way of said spraying aperture whereby said plug may be pushed back to provide an annular passage about the plug for flushing purposes, and a coiled spring seating at one end against said abutment, and having its other end inserted within the remaining plug recess, whereby the passageway for pressure fluid is substantially unobstructed by said spring.

In testimony of which invention, I hereunto set my hand.

JAMES LOGAN FITTS.

Witnesses:
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WILLIAM H. SNYDER.