D. L. CONNELLY.

NOZZLE.

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1,401,880. Patented Dec. 27, 1921.

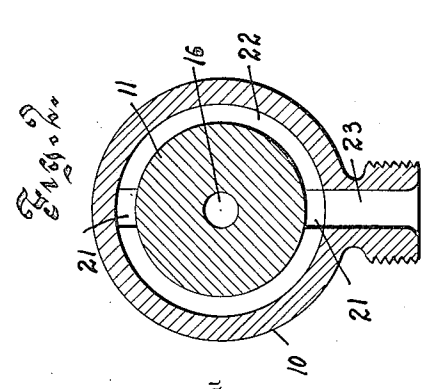


Fig. 3.

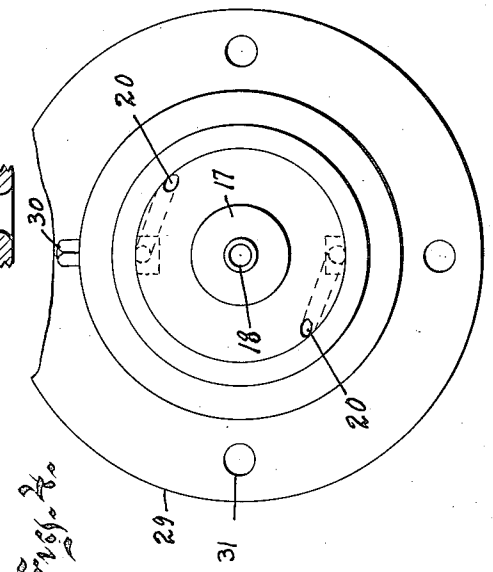


Fig. 2.

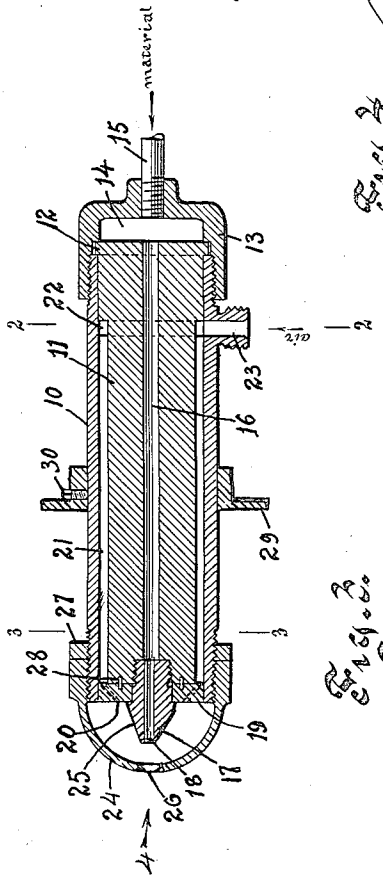


Fig. 1.

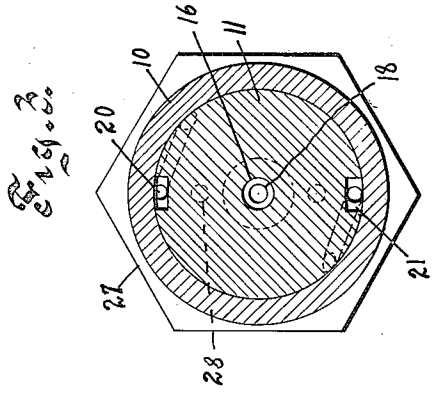


Fig. 4.

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DOUGLAS L. CONNELLY, OF LEONIA, NEW JERSEY, ASSIGNOR TO W. L. FLEISHER & CO. INC., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

NOZZLE.

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To all whom it may concern:

I, DOUGLAS L. CONNELLY, a citizen of the United States, and a resident of Leonia, State of New Jersey, have invented a new and Improved Nozzle, of which the following is a full, clear, and exact description.

My invention relates to an atomizing nozzle suitable for spray drying purposes, and having reference more particularly to a nozzle suitable for materials of sticky nature such as glue, or gummy substances.

An object of my invention is to provide a compact, simple, inexpensive and easily demountable nozzle, so that the same can be easily adjusted while it is attached to a drier.

With the above and other objects in view, the nature of which will more fully appear as the description proceeds, the invention consists of the novel construction, combination and arrangement of parts as herein described, illustrated and claimed.

In the accompanying drawings, forming part of the application, similar characters of reference indicate the corresponding parts in all the views.

Figure 1 is a longitudinal section through a nozzle embodying my invention.

Fig. 2 is a cross section on line 2—2, Fig. 1;

Fig. 3 is a similar section on line 3—3, Fig. 1; and

Fig. 4 is an end elevation view in the direction of arrow 4, Fig. 1, with the cup removed.

The nozzle comprises a shell 10 threaded externally at each extremity. A core 11 fits snugly into the shell and extends through substantially its entire length. The core terminates with a head 12, which forms a stop against the end of the shell. A cap 13 locks the core to the shell, said cap having means for engaging the threaded end of the shell. The cap 13 has a clearance or hollow 14, forming a chamber at the head of the core, into which the material to be atomized is supplied through the tube 15 threaded into the cap. The core 11 has an axial bore 16 extending through its entire length, and through which the material to be atomized passes.

The end of the core, remote from the cap 13, carries a nozzle 17, preferably having a threaded engagement with the core, the axial bore 18 of the nozzle alining with the bore 16 of the core. The nozzle 17 also serves as a means for securing to the core a distributer plate 19, which distributer plate has spiral openings 20, registering with the slots or grooves 21, formed in the outer surface of the core, and extending longitudinally of same to a common annular groove 22, which annular groove registers with the opening 23 in the shell and through which air is admitted for atomizing the material.

The nozzle and distributer plate are inclosed by a semi-spherical cup 24, which engages the other threaded end of the shell 10 and which may be adjusted on the said end to vary the clearance between the tapering outer face 25 of the nozzles and the opening 26 in the cup, a lock-nut 27 being provided on the shell to lock the cup 24 in any desired position.

The spiral openings 20 are so arranged that the air forced therethrough will create a whirl in the cup before passing out of the openings 26. To obtain a perfect adjustment between the slots 21 and the spiral openings 20 dowel pin or pins 28 are interposed between the end of the core and the distributer plate so that the locking of the plate by the nozzle will locate the core on the distributer plate in proper position.

The shell 10 also carries a flange 29 which can be adjusted longitudinally thereon by means of a set screw 30. The flange 29 has openings 31 whereby the same may be secured to the body of a drier. This arrangement of the flange on the shell permits an in and out movement of the nozzle without taking the nozzle out when it is desired to adjust the relative position of the end of the nozzle with the wall of the drier.

From the above description it will be seen that the nozzle can be easily taken apart when desired, for by unscrewing the cap 13, the core with all the members attached thereto can be easily extracted for inspection and quickly replaced without dismounting the entire nozzle from the drier.

I claim:

1. A nozzle comprising a shell, a core fitting snugly in the shell, a cap secured to the shell and having means for locking the core in the shell, said core having a bore therethrough, and means associated with the cap for supplying material to be atomized to the bore of the core, said core having grooves in the periphery thereof leading to the end

of the core remote from the cap, a plate associated with the core and closing the ends of the grooves, said plate presenting spiral passage forming outlets for said groove, a nozzle secured to the core, and having means for locking the plate to the core, said nozzle having a passage registering with the bore of the core, and a cap secured to the shell and inclosing said plate and nozzle, said cap having an aperture alining with the passage of the nozzle, said shell having means whereby compressible fluid may be supplied to the grooves of the core.

2. A nozzle comprising a shell, a core in the shell, a cap secured to one end of the shell and having means for locking the core in the shell, said core having a bore and grooves in the periphery thereof, said grooves terminating at the end of the core remote from the cap, said cap having means whereby a substance to be atomized may be supplied to the bore of the core, and said shell having means whereby a compressible fluid may be supplied to the grooves of the core, a plate closing the ends of the grooves of the core, and presenting spiral outlets for said grooves, a nozzle secured to the core and forming an outlet for the bore of the core, and a cap secured to the end of the shell and inclosing said nozzle and plate.

DOUGLAS L. CONNELLY.