April 19, 1938. R. HLINSKY ET AL 2,114,709

NOZZLE

Filed Oct. 19, 1936

Fig. 1.

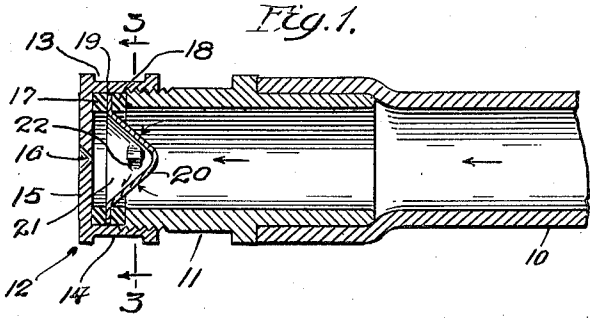


Fig. 2.

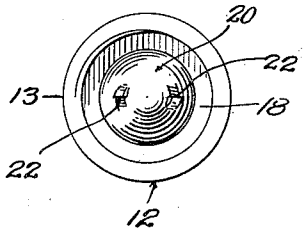


Fig. 3.

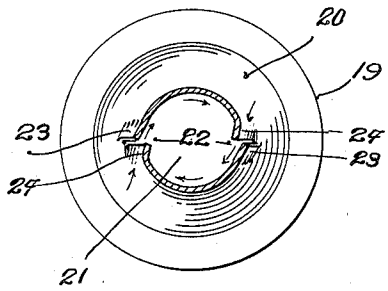
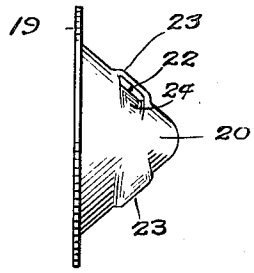


Fig. 4.



Inventors:
Roman Hlinsky, and
Joseph S. Jablonsky,
by Charles O. Herwig,
their Atty.

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UNITED STATES PATENT OFFICE

2,114,709

NOZZLE

Roman Hlinsky and Joseph S. Jablonsky, Berwyn, Ill.

Application October 19, 1936, Serial No. 106,377

3 Claims. (Cl. 299—120)

This invention relates to nozzles for use in removing wall paper and calcimine from walls and ceilings, and its principal object is to provide a nozzle by means of which a mist or a very fine spray of water may be discharged against papered or calcimined walls and ceilings, whereby to soften the paper or calcimine preparatory to removing it from the walls and ceilings.

Another object is to provide a nozzle which is inexpensive, simple, consists of a minimum number of parts, is not likely to get out of order and may be attached to an ordinary garden hose.

With these and other objects and advantages in view, this invention consists in the several novel features hereinafter fully set forth and claimed.

One embodiment of the invention is clearly illustrated in the drawing accompanying this specification, in which:

Fig. 1 is a central, longitudinal section through the nozzle attached to a hose nipple, a fragment of the hose being also illustrated.

Fig. 2 is an end elevation of the nozzle looking into the interior thereof;

Fig. 3 is a detail, enlarged, vertical cross-section, through a diaphragm which forms part of the nozzle, the line of section being indicated at line 3—3 of Fig. 1; and

Fig. 4 is an enlarged side elevation of said diaphragm.

Referring to the drawing, the reference character 10 designates a fragment of an ordinary garden hose, provided with the usual threaded nipple 11. The nozzle 12 comprises, among other things, a cap 13, having a cylindrical wall 14 internally screw threaded at one end, whereby it may be screwed upon the nipple 11. The end wall 15 of the cap is formed with a centrally disposed, outwardly flaring discharge aperture 16, the apex end of which is very small, for instance, about .005 of an inch or thereabouts in diameter. Within the cap are usually two rubber washers 17, 18, one being placed against the end wall 15 of the cap and the other being spaced slightly from the first mentioned washer and adapted to engage the end of the hose nipple 11, whereby to make a tight joint between the nozzle and nipple.

In the space between the two washers is held the flange 19 of a diaphragm 20, here shown in the form of a flanged hollow cone which projects beyond the washer 18 and when the nozzle is attached to the hose nipple, said cone partly enters the nipple and forms an annular space between the internal wall of the nipple and cone. The hollow cone, the washer 17 and the end wall of the cap form a circular chamber 21, into which streams of water are directed in a tangential direction before discharging from the discharge orifice.

In the wall of the cone are formed slots 22, desirably in the form of short and narrow slits that extend toward the apex end of the cone member. To obtain the desired result, water entering the chamber in the cone is caused to move in a circumferential direction in said space, thereby setting up a swirling action before discharging through the orifice in the end wall. To obtain the swirling effect, the wall of the cone, adjacent both edges of the slits, is struck up in an outward direction at one edge of each slit to form an outwardly bulged lip 23 and is struck up in an inward direction at the opposite edge of each slit to form an inwardly bulged lip 24, which lips are tangentially disposed on the wall of the cone and direct the water against the internal face of the cone, thereby causing it to travel circumferentially within the cone. The slits should be very narrow so that the velocity of the water is increased within the hollow of the cone causing it to swirl rapidly therein and because of the pressure back of the water it is caused to discharge from the discharge orifice in the form of a mist or a very fine spray. It is to be observed that the water enters the chamber in the cone from the annular space surrounding the cone, whereby the direction of flow of the water is turned before the water passes through the slits in the cone. The shape of the diaphragm may be altered and, in some cases, a flat disc, provided with the tangentially directed orifices, has been found very effective.

In use, the hose is connected to a house faucet and the water is turned on. The nozzle end of the hose is moved about in front of the wall paper or calcimine and a mist or fine spray is directed thereon, thereby softening the paper or calcimine and permitting its ready removal.

More or less variation of the exact details of construction is possible without departing from the spirit of this invention. We desire, therefore, not to limit ourselves to the exact form of the construction shown and described, but intend, in the following claims to point out all of the invention disclosed herein.

We claim as new and desire to secure by Letters Patent:

1. In a nozzle, an internally threaded cap, having in its end wall a centrally disposed, outwardly flaring discharge orifice, a conical diaphragm held in said cap with its apex end directed

away from said end wall, and providing a conical chamber between the end wall and diaphragm, the conical wall of the diaphragm being slit along lines that run towards its apex end and being formed with outwardly and inwardly bulged lips extending back from the opposite edges of the slits, in approximately parallel planes whereby to form orifices directed tangentially toward the inner face of said wall.

2. A nozzle comprising a screw threaded nipple, an internally screw threaded cap threaded thereon, said cap being formed in its end wall with a centrally disposed, outwardly flaring discharge opening, a conical diaphragm held in said cap with its apex end directed away from the end wall of the cap to form a circular chamber between said end wall of the cap and diaphragm and there being an annular space around the apex end of the diaphragm, the conical wall of the diaphragm being slit at a plurality of places along lines running toward the apex end thereof and said wall being formed with lips extending back in opposite directions from the edges of the slits, the lip at one edge being bulged outwardly and the lip at the other edge of each slit being bulged inwardly to provide orifices directed tangentially toward the inner face of said wall through which water flows into the chamber in the diaphragm in a tangential direction.

3. A nozzle, comprising in combination, a screw threaded nipple, a cap having a centrally disposed discharge orifice in its end wall and being internally screw threaded for attachment to the nipple, and a diaphragm having a hollow conical part the face of which is of substantially the same diameter as the internal diameter of the nipple, said diaphragm being held in the cap with its apex end extending in the direction of the nipple and surrounded by an annular space, the wall of the conical part of the diaphragm having flat slits therein extending in a direction toward the apex end thereof, and the wall of said conical part being formed with outwardly and inwardly struck up lips that extend from the slits in tangential directions with respect to the conical part of the diaphragm and direct water in a tangential direction into the hollow thereof.

ROMAN HLINSKY.
JOSEPH S. JABLONSKY.