No. 806,460. PATENTED DEC. 5, 1905.

W. S. BUCKLIN.

SPRAYING DEVICE.

APPLICATION FILED SEPT. 19, 1904.

Fig. 1.

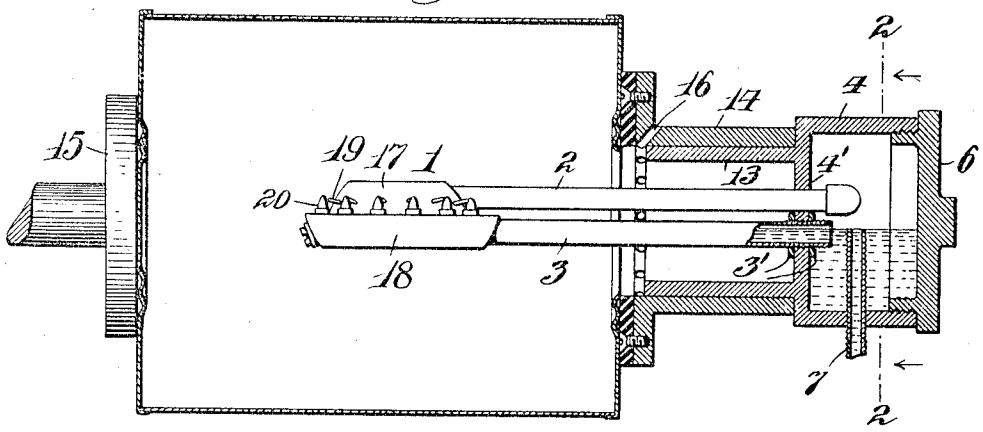


Fig. 2.

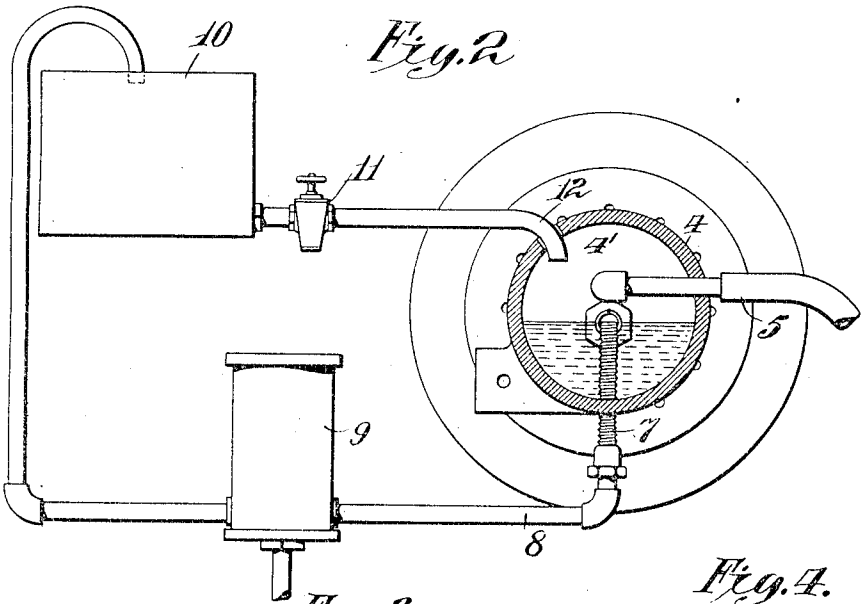


Fig. 3.

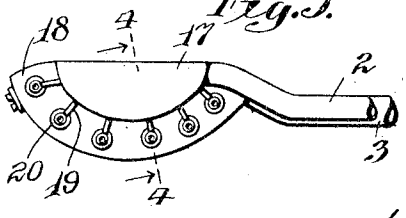
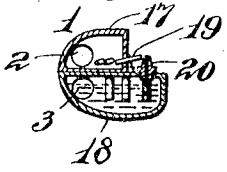


Fig. 4.



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UNITED STATES PATENT OFFICE.

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SPRAYING DEVICE.

No. 806,460. Specification of Letters Patent. Patented Dec. 5, 1905.

Application filed September 19, 1904. Serial No. 224,935.

To all whom it may concern:

Be it known that I, WILLIAM S. BUCKLIN, a citizen of the United States, residing at Phalanx, Monmouth county, State of New Jersey, have invented certain new and useful Improvements in Spraying Devices, of which the following is a full and true specification.

This invention relates to spraying devices, and more particularly to special constructions of the same adapted for use in applying linings to the interior of metal food-cans, although the said improvements are capable of application to other uses with equal facility and advantage.

The invention also involves numerous and various features of importance in construction and mode of operation, as will presently appear and be more particularly pointed out in the appended claims.

Referring to the accompanying one sheet of drawings, forming a part hereof, Figure 1 represents in vertical longitudinal section, partly in elevation, a spraying device constructed in accordance with this invention; and Fig. 2, a transverse section on line 2 2 of Fig. 1, showing also adjoining and connected parts. Fig. 3 is an enlarged detail plan view of the spray-head proper, and Fig. 4 a cross-section of the same in line 4 4.

The apparatus comprises a spray-head (represented generally by numeral 1) receiving air and the liquid to be sprayed thereby, respectively, from the supply conduits or pipes 2 and 3. The liquid-pipe 3 is horizontally disposed and is in free communication with the liquid-reservoir 4, being secured thereto by means of the threaded engagement shown and the jam-nuts 3′. The air-pipe 2 is disposed parallel to and above pipe 3, passing into the interior of the reservoir and from thence out to a connection with a hose or pipe 5, in turn connected with a suitable source of compressed air. (Not shown.) The liquid-reservoir may be of any convenient shape and size and, as shown in the drawings, consists of a cylindrical body portion having a flat end wall 4′, pipes 2 and 3, and a removable cap 6, opposite said wall, whereby the interior may be readily exposed for inspection or cleansing. The horizontal liquid-pipe 3 and the air-pipe 2 are preferably located at about the center of the side wall, and an adjustable overflow-conduit 7 leads out of the said reservoir from a point a little below the level of the top of the liquid-pipe or at such height as will prevent the liquid therein rising higher than the openings of the spray-head nozzles, presently to be described. The said overflow-conduit may assume various forms, but is shown simply as a tube threaded into a tapped opening in the bottom of the reservoir, being rendered adjustable in this manner. The pipe 8 leads from the overflow to a pump 9, by means of which excess of liquid is pumped back into the relatively higher tank 10, from whence its return by hydrostatic pressure to the reservoir 4 is by way of the control-cock 11 and the pipe 12, debouching into said reservoir, as shown in Fig. 2. In this manner the liquid in the reservoir which supplies the spray-head is preserved at a constant level, which level, moreover, is predetermined and is slightly below the points from which the liquid issues from the spray-head.

The receptacle or food-can to be sprayed with the liquid of the reservoir is intended to be pushed over the spray-head 1 and rotated one or more revolutions, as may be desired, to receive a complete interior coating. The apparatus by means of which this operation is automatically performed forms no part of the present invention and is therefore not illustrated or described, it being understood that the said operation may also be done by hand, if so desired. To the end of providing suitable and adequate support for the head of the can when so placed an annular boss 13 is formed on the reservoir 4, surrounding the supply-pipes 2 and 3, and a rotatable sleeve or collar 14 is journaled in this boss, forming an abutment which is engaged by the head or open end of the receptacle when the latter is pushed against it by the rotating pusher 15. The collar 14 is flanged at its free end and its front surface is faced with rubber or other yielding material to afford a full bearing for said can-head. During this operation the spray-head is brought into action and the spray displacement within the receptacle is given vent through a series of apertures 16, provided for that purpose in the collar 14.

The spray-head proper comprises a liquid-chamber 18 and an air-chamber 17 in connec-

tion, respectively, with the pipes 3 and 2, the said air-chamber being vertically superposed upon the other and both having their corners rounded off so as to offer the least obstruction to the passage over it of the can-head. The fronts of the chambers are preferably, though not necessarily, curved and air-blast orifices in the shape of fine tubes 19 are formed in the front of the air-chamber, discharging in diverging directions throughout a total angle of about one hundred and eighty degrees, or so that the receptacle will be sprayed from top to bottom. Adjacent each air-blast orifice and in atomizing relation thereto is a liquid-nozzle 20, which nozzles are straight nipples screwed into the top wall of the chamber 18, with their lower extremities extending below the level of the liquid, which is determined, as above described, by the adjustment of the overflow-conduit. The liquid-nozzles are preferably arranged in a curve conforming to the angles of discharge of the air-orifices, and both the tubes 19 of the air-orifices and also the liquid-nozzles 20 are disposed within the angle or corner formed between the top of chamber 18 and the front of chamber 17, so that these comparatively delicate parts are protected from accidental contact and possible injury by the can-head as the latter is pushed into position over them. In vertical direction the parts are so adjusted and proportioned that the edge of the opening in the can will pass equidistantly over the head, and in horizontal direction the same result is produced by forming a jog or bend in the pipes 2 and 3, as shown in Fig. 3, whereby the general axis of the pipes substantially coincides with the general axis of the two chambers or head, thereby bringing the entire body of the spray-head compactly into the center of the can or receptacle.

I claim—

1. A spray-head comprising a chamber for compressed air, having a curved front, a plurality of divergent air-blast orifices in said front, in combination with a liquid-chamber adjacent said chamber for compressed air having also a curved front and a plurality of communicating liquid-nozzles in atomizing relation to said orifices.

2. A spray-head comprising adjacent air and liquid chambers, forming between them an angle or corner, a plurality of liquid-nozzles communicating with said liquid-chamber and disposed within the protection afforded by said angle, and air-blast orifices in said air-chamber in atomizing relation to said nozzles.

3. A spray-head comprising liquid and air chambers with liquid-nozzles and air-blast orifices provided respectively therein in mutual atomizing relation, said orifices and nozzles being disposed to spray throughout a total angle of substantially one hundred and eighty degrees, liquid and air supply conduits respectively for said chambers and a jog or bend in said conduits bringing the general axis of the same into substantial alinement with the general axis of said liquid and air chambers.

4. In a receptacle spraying device, a liquid-reservoir and a spray-head supplied with liquid therefrom, in combination with a rotary receptacle-abutment journaled on said reservoir.

5. In a receptacle spraying device, a liquid-reservoir and a spray-head supplied thereby with liquid, in combination with an annular boss on said reservoir and a rotary collar journaled thereon acting as an abutment for the head of the receptacle.

6. In a receptacle spraying device, a liquid-reservoir and a spray-head supported thereby, an abutment for the head of the receptacle on said reservoir surrounding the support for said spray-head and an aperture in said abutment acting as a vent for the spray displacement.

7. In a receptacle spraying device, a liquid-reservoir and a spray-head connected therewith, an overflow-conduit in said reservoir, a tank at a higher level than the level of said reservoir in combination with a pump forcing said overflow into the tank, and a valve-controlled feed-pipe from said tank to the reservoir.

8. In a receptacle spraying device, a liquid-reservoir, a spray-head, a liquid-pipe rigidly secured to said reservoir, an air-pipe adjacent said liquid-pipe and parallel thereto, both of said pipes supplying said spray-head, in combination with an annular boss surrounding said pipes and a rotary abutment for the head of the receptacle journaled on said boss.

In testimony whereof I have signed my name to the specification in the presence of two subscribing witnesses.

WILLIAM S. BUCKLI

Witnesses:
PERCY O. DAVIS,
B. C. APPLEGATE.