P. RASCH.

SPRAYING DEVICE.

APPLICATION FILED FEB. 5, 1919.

1,347,520. Patented July 27, 1920.

Fig. 1.

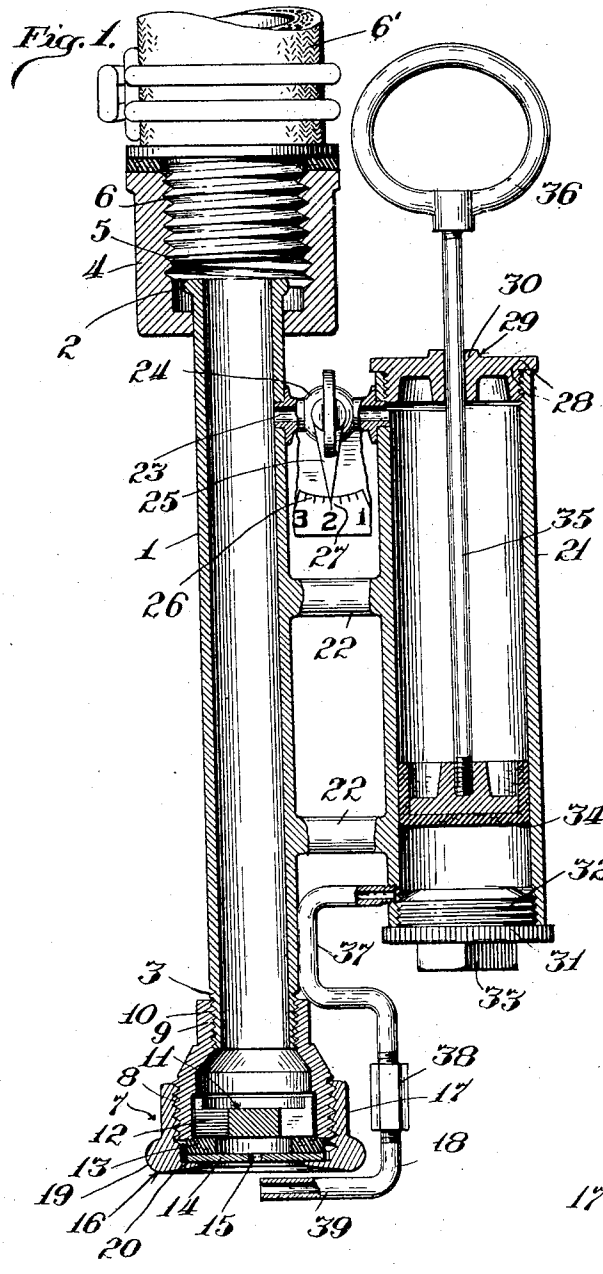


Fig. 2.

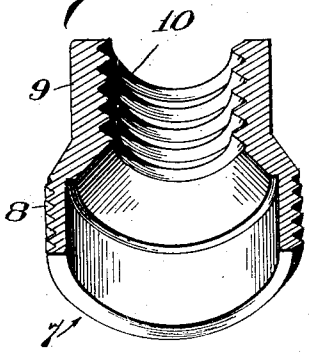


Fig. 3.

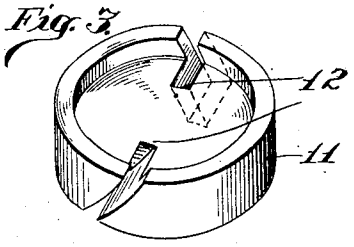


Fig. 4.

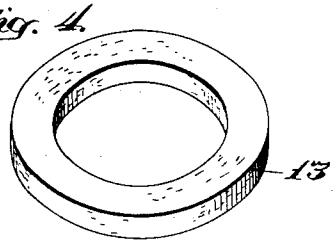


Fig. 6.

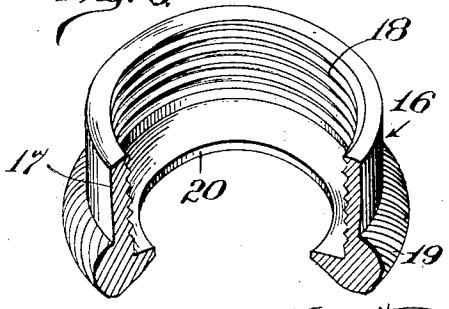
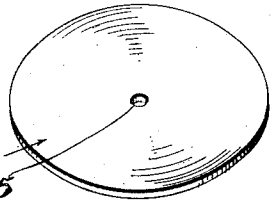


Fig. 5.



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UNITED STATES PATENT OFFICE.

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SPRAYING DEVICE.

1,347,520. Specification of Letters Patent. Patented July 27, 1920.

Application filed February 5, 1919. Serial No. 275,166.

To all whom it may concern:

Be it known that I, PAUL RASCH, a citizen of Canada, residing at Chicago, county of Cook, and State of Illinois, have invented new and useful Improvements in Spraying Devices, of which the following is a specification.

The invention relates to a device for mixing and distributing chemical solutions and mixtures, and more particularly to a spraying device as employed in the administration of medicines, disinfectants, insecticides, fungicides, chemical fertilizers, and the like.

It is an object of the invention to provide a spraying device which with simplicity of construction and arrangement combines an unusual degree of efficiency.

A further object of the invention entails the provision of a container constituting a repository for the chemical, and a tubular member for the passage of the fluid, the means for manually filling the container with chemical being also adapted to automatically discharge the chemical when subjected to the influence of the fluid.

It is a further object of the invention to provide a tubular member and a container having communication with one another, there being regulating means controlling said communication to regulate the amount of chemical to be discharged from the container.

Another object of the invention embraces the provision of means for conveniently filling the container with a chemical and for discharging the chemical in the path of the fluid egressing from the tubular member so as to assure a good mixture of solution of the fluid and chemical.

Another object of the invention constitutes the provision of means at the discharge end of the tubular member for dissipating the energy of the fluid, so that the fluid which flows from the discharge end of the tubular member will be adapted to act on the discharged chemical.

It is a further object of the invention to provide certain details of arrangement and construction of parts tending to increase the usefulness and enhance the desirability of a device of this particular character.

To the accomplishment of the objects stated and others that will become apparent as the description proceeds, the invention comprises the means described in the following specification, particularly pointed out in the claims forming a part thereof, and illustrated in the drawing, in which—

Figure 1 is a sectional elevational view of the device constructed in accordance with the invention;

Fig. 2 is a perspective view of the nozzle secured to the end of the tubular member;

Fig. 3 is a perspective view of a rotary member arranged interiorly of the nozzle and adapted to be placed in rotation under the influence of the flowing water;

Fig. 4 is a perspective view of a ring washer carrying the rotary member;

Fig. 5 is a perspective view of a disk washer, and

Fig. 6 is a cap secured to the nozzle and holding the various parts interiorly of the nozzle in functional position.

Referring to the drawing, 1 indicates a tubular member provided at the upper end with a bead 2 and with a threaded portion 3 at the opposite extremity. A shell 4 is arranged at the upper end of the tube 1 and has an aperture equal to the outside diameter of the tubular member, so that the bead 2 forms an abutment for the casing 4 to secure the latter against removal from the tube in one direction. The casing 4 is provided with interior threads 5, into which a nipple 6 is secured, constituting a coupling for a hose 6′ which may be placed in communication with any suitable fluid under pressure adapted to flow through the tube 1.

To the threaded portion 3 of the tube 1, a nozzle is secured comprising a cylindrical body portion 7 being exteriorly screw threaded at 8 and having a reduced tubular shank portion 9, equipped with interior threads 10 so as to permit detachable connection of the nozzle with the threaded end 3 of the tubular member 1. The body portion 7 of the nozzle receives a counter bored disk 11, whose outer diameter is slightly less than the inside diameter of the nozzle casing 7, and is also formed at diametrically opposite points with two apertures 12, slantingly arranged with respect to a radial vertical plane passing through the upper edge of the aperture. The counter bored disk 11 is maintained on a rubber ring 13, which in turn rests on a disk washer 14, equipped with a restricted aperture 15, which serves for the egress of the fluid.

A cap 16 comprises a cylindrical portion

17, equipped with interior V threads 18, whereby said cap may threadedly engage threads 8 of the nozzle, and integral with said cylinder a beaded portion 19 is provided at the lower edge merging into a flanged portion 20 constituting an abutment for the disk washer 14 so as to maintain the rotary disk 11, the rubber washer 13, and the disk washer 14 within the nozzle 6. A container 21 preferably, although not necessarily, of tubular construction and having a larger diameter than the tubular member 1, is secured to the tubular member by means of a plurality of webs 22.

As indicated in Fig. 1 communication is established between the upper ends of the tubular member 1 and the container 21 by a pipe 23 provided with a pet cock 24, which has a pointer 25 mounted over a graduated scale 26, provided on a web 27, whereby the available opening of the passage 23 is indicated. The container 21 is provided with interior threads 28 at the upper extremity to receive an end plug 29, equipped with a gland 30, and the other extremity of the container 21 is closed up by a plug 31, secured to the threaded portion 32 at the lower extremity of the container. The plug 31 is provided with a depending angular portion 33 so as to facilitate engagement of the plug with a wrench when the former is to be removed or placed in functional position.

Reciprocatingly fitted within the container 21 is a piston 34, whose stem 35 projects through the gland 30 and is equipped at the outer end with a handle portion 36, to facilitate manipulation of the piston. Adjacent to the lower end of the container a pipe 37 has communication therewith. As shown the pipe is disposed to engage the wall of the tubular member 1 and terminates in a coupling 38, which receives another pipe 39 at its other end, and which latter pipe may be arranged either to have its end portion near the aperture 15 of the disk washer 14 or in a position to facilitate its insertion into a receptacle containing a chemical, and be out of interference when it is desired to disassemble the nozzle.

The operation of the device for the purpose of distributing chemical, fertilizer, insecticides and the like is as follows: The pipe 39 is turned from the position shown in Fig. 1 to a diametrically opposite position so as to be insertible into a reservoir containing a certain chemical. Thereupon the handle portion 36 is seized and the piston 34 raised, creating underneath the piston a vacuum whereby the chemical of the reservoir is sucked into the lower portion of the container 21. After the container is filled the pipe 39 is turned into the position shown in Fig. 1 and the valve 24 is set to establish communication between the tubular member 1 and the container 21. If desired, the valve 24 may be opened during the ascending stroke of the piston so as to allow for the escape of the air above the piston. When the liquid is permitted to flow through the tubular member 1 it will act on the rotary disk 11 to place the same in rotation, and the ensuing retardation of the flow will be responsible for the emission of a stream of liquid which will have a comparatively low pressure. A portion of the liquid, in view of the communication established between the tubular containers 1 and 21, will flow into the container 21 and will act on the piston 34 to gradually force the latter into the lowermost position, thus causing the discharge of the chemical previously stored up underneath the piston within the container. The amount of chemical discharged from the container 21 may be regulated in accordance with the position of the valve 24 for which purpose a scale 26 and a pointer 27 are provided.

While the drawing discloses the preferred embodiment of the invention, the same is susceptible of a great many modifications falling within the scope of the invention and it is, therefore, my intention not to limit myself to the structural details as shown, but to avail myself of any changes and alterations falling within the purview of the invention as set forth in the appended claims.

I claim:

1. In a spraying apparatus, in combination, a tubular member having ingress and egress openings for the passage of a fluid, a container secured to said tubular member, a piston reciprocatingly fitted in said container, means for establishing communication between the inlet end of said tubular member and the corresponding end of said container, and a pipe leading to the other end of the container, said pipe being adapted to be placed in and out of coacting position with said tubular member.

2. In a spraying apparatus, in combination, a tubular member having ingress and egress openings for the passage of a fluid, a container secured to said tubular member, a piston reciprocatingly fitted in said container, means for establishing communication between the inlet end of said tubular member and the corresponding end of said container, a pipe leading to the other end of the container, and a second pipe rotatably secured to said first named pipe and adapted to be placed respectively in and out of coacting position with said tubular member.

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

PAUL RASCH.

Witnesses:
DANIEL A. BRENNAN,
JOHN BRUNNER.