

H. E. BRANDT.
 SPRAYING DEVICE.
 APPLICATION FILED NOV. 21, 1910.

1,016,204.

Patented Jan. 30, 1912.

Fig. 1

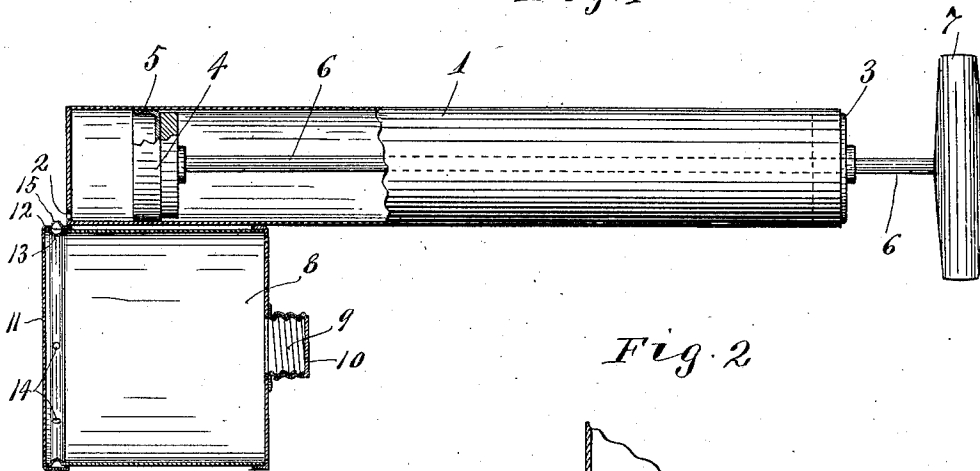


Fig. 2

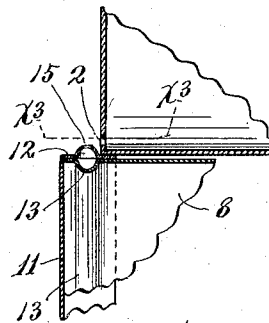


Fig. 3

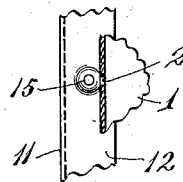


Fig. 4

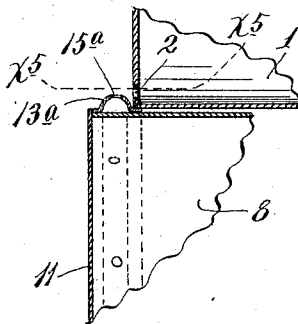
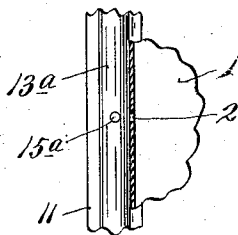


Fig. 5



Witnesses.
 a H. Opsahl
 Harry Opsahl.

Inventor.
 Henry E. Brandt
 By his Attorneys
 William H. Merchant

UNITED STATES PATENT OFFICE.

HENRY E. BRANDT, OF MINNEAPOLIS, MINNESOTA.

SPRAYING DEVICE.

1,016,204.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, HENRY E. BRANDT, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Spraying Devices; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has for its object to provide an extremely simple and highly efficient spraying device adapted to be carried in one hand and operated by the other and, to such ends, the invention consists of the novel devices, construction and arrangement of parts hereinafter described and defined in the claims.

Particularly, this invention relates to small spraying devices employing a cylinder and piston pump and with a liquid containing tank attached directly to the pump cylinder. In devices of this kind, as hitherto constructed, it has been customary to provide the liquid tank with a small diametrically extended discharge tube, the upper end of which terminates close to a small air discharge passage in the delivery end of the pump cylinder. This small liquid delivery tube must be accurately set in the tank with its end projecting just at the right place in front of the air passage, so that the proper setting of the tube has required considerable time and care, in spite of which frequently, because of inaccuracy, devices thus constructed do not operate properly. My invention provides a much cheaper and much better arrangement as a substitute for the tube and which may be properly and accurately adjusted with but very little care.

In the accompanying drawings which illustrate the invention, like characters indicate like parts throughout the several views.

Referring to the drawings, Figure 1 is a view partly in side elevation and partly in vertical section, showing the improved sprayer; Fig. 2 is a fragmentary vertical section taken on the same line as the section of Fig. 1, but showing the parts on a larger scale; Fig. 3 is a horizontal section taken on the line $x^3 x^3$ of Fig. 2, some parts being broken away; Fig. 4 is a view corresponding to Fig. 2, but illustrating a slightly modified construction; and Fig. 5 is a horizontal sec-

tion taken on the line $x^5 x^5$ of Fig. 4, some parts being broken away.

The numeral 1 indicates the pump cylinder provided in the head at its delivery end, near the bottom thereof, with a small air discharge passage 2. In the other end of the cylinder 1 is a guide plug 3 of suitable construction. Working within the cylinder is a piston 4, preferably provided with the usual self-seating flexible packing 5, and having a stem 6 that works through the guide plug 3 and is provided with the customary hand piece 7.

The tank 8, which will contain the liquid to be sprayed, is preferably a cylindrical structure having its axis parallel to the axis of the pump cylinder and having its upper portion soldered or otherwise rigidly secured to the said pump cylinder with its front end projecting slightly beyond the front end of the said cylinder. The rear head of the tank 8 is provided with a threaded filling nipple 9 normally tightly closed by a screw threaded cap 10. The front head 11 of the tank 8 is provided with a cylindrical flange 12 that is telescoped over the end of the cylindrical tank and, at its extreme edge, is secured thereto with a water tight joint, preferably by solder.

The description so far given applies to both forms of the device illustrated.

In the construction illustrated in Figs. 1, 2 and 3, the cylindrical body of the tank 8, in that portion which is surrounded by the flange 12, is formed with an annular inwardly pressed bead affording a water delivery channel 13 which extends from top to bottom of the tank, or, in fact, completely around the tank and is in communication with the bottom of the tank through one or more perforations 14 formed in the said inwardly pressed bead or channel 13. The flange 12, at a point immediately in front of the air discharge passage 3 of the pump cylinder, is bulged slightly outward and upward and provided with a liquid discharge passage 15, which latter is located in line with and just in front of the said air passage 2, so that the air discharged from the pump will be blown immediately across the top of the said liquid delivery passage 15 and thereby draw liquid from the tank and deliver the same in the form of a spray. The best results are produced by the use of the continuous or endless liq-

uid delivery channel 13, because, with this arrangement, the water will be drawn upward from the tank in opposite directions from both sides thereof and delivered to the common discharge passage 15. However, it would be within the scope of my invention to provide the tank with this liquid delivery channel only at one side, or, in other words, to extend the said channel throughout only approximately 180°.

The construction illustrated in Figs. 4 and 5 is like that above described, except that the endless channel for the delivery of the liquid is formed by pressing a bead 13^a outward in the flange 12 of the head 11 and in providing the said bead 13^a at a point just in front of the air delivery passage 2 with the water discharge passage 15^a. As is obvious, the water delivery channel might be formed by coincident beads formed both in the tank and in the surrounding flange of the tank head.

In practice, I have found that this improved spraying device will work much more satisfactorily than a similar spraying device having the usual diametrically extended liquid discharge tube at its lower end, spaced apart from the bottom of the tank. It has been found possible to discharge all, or substantially all of the contents of the tank with the apparatus directed upward, if in the operation it be occasionally inverted to charge the channel 13. In explanation of this operation, it may be stated that the channel 13 fills with liquid when turned downward, and this liquid will be discharged when the delivery end of the device is turned upward and the pump applied.

A spraying device of the kind described will be found useful for spraying various liquids, but is especially adapted for use for spraying germicide or fungus destroying liquids on plants and the like.

The manner of applying the crease or bead to form the liquid conveying channel in the tank materially reduces the cost of the spraying device and, as already indicated, at the same time, gives greatly improved results.

What I claim is:

1. In a spraying device, a liquid containing tank provided with a flanged head secured thereto and having a circumferentially extended liquid discharge channel formed between the body of said tank and the surrounding flange of said head, and the said channel having communication with the interior of the tank at one point and

having a discharge passage located at a distant point.

2. In a spraying device, the combination with a cylinder and piston pump, of a tank secured to the pump cylinder with one end projecting beyond the delivery end of the latter, a head having a flange telescoped with the projecting end of said tank, a liquid delivery channel being formed between the projecting end of said tank and the flange of said head, the said channel having communication with the interior of the said tank and having a discharge passage at its upper portion and the delivery end of said cylinder having an air discharge passage located in the vicinity of the discharge passage of said liquid delivery channel.

3. In a spraying device, the combination with a cylinder and piston pump, of an approximately cylindrical tank secured to the pump cylinder with one end projecting beyond the delivery end of the latter, and a head having a flange telescoped over the projecting end of said tank, an endless liquid delivery channel being formed between the projecting end of said tank and the surrounding flange of said head, the said endless liquid delivery channel having communication with the interior of said tank and provided at its upper portion with a liquid delivery passage, and the said pump cylinder in its delivery end having an air discharge passage located in the vicinity of the discharge passage of said liquid delivery channel.

4. In a spraying device, the combination with a cylinder and piston pump, of an approximately cylindrical tank secured to the cylinder of said pump, the said pump having in its delivery end an air discharge passage, and a flanged head telescoped over the end of said tank, the body of said tank being provided with an inwardly pressed endless groove having communication with the interior of the tank and affording a liquid delivery passage, and the flange of said head having a bulged upper portion with a perforation affording a liquid delivery passage that is located in the vicinity of the air discharge passage of said pump cylinder.

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

HENRY E. BRANDT.

Witnesses:

HARRY D. KILGORE,
FRANK D. MERCHANT.