A. WHITTAKER.

SPRAYING APPARATUS.

APPLICATION FILED JUNE 16, 1917.

1,297,622. Patented Mar. 18, 1919.

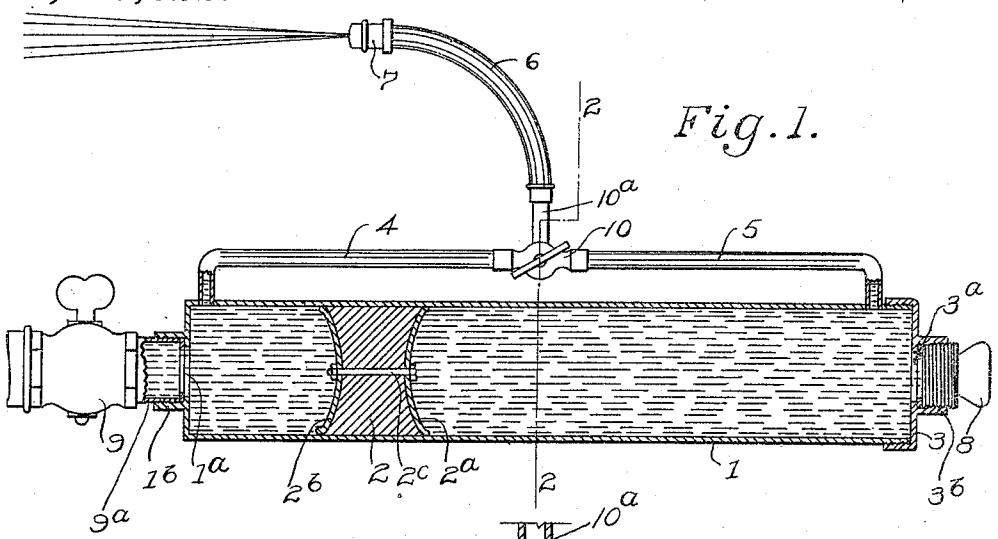


Fig. 1.

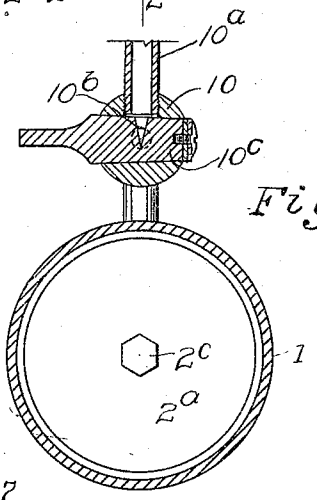


Fig. 2.

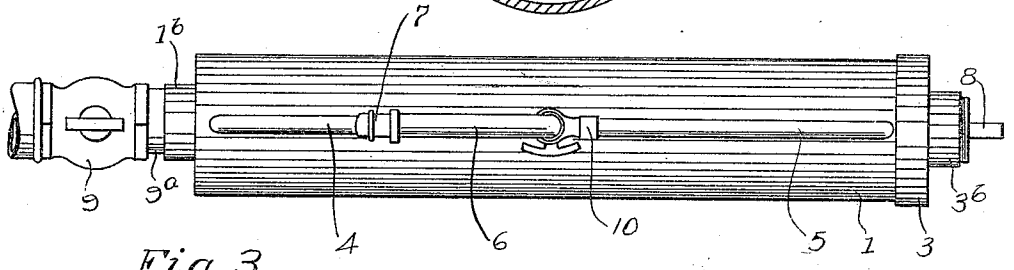


Fig. 3.

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UNITED STATES PATENT OFFICE.

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SPRAYING APPARATUS.

1,297,622. Specification of Letters Patent. Patented Mar. 18, 1919.

Application filed June 16, 1917. Serial No. 175,189.

To all whom it may concern:

Be it known that I, ARTHUR WHITTAKER, a citizen of the United States, residing at San Diego, in the county of San Diego and State of California, have invented certain new and useful Improvements in Spraying Apparatus, of which the following is a specification.

My invention relates to a spraying apparatus for spraying chemicals either pure or diluted with water on trees, vines, vegetables, poultry roosts and the like, and the objects of my invention are; first, to provide a spraying apparatus of this class which is operated by water pressure from the ordinary water main, water pipe or hose; second, to provide an apparatus of this class in which the proportions of chemical and water may be regulated so that the proper proportions may be used for different purposes as desired; third, to provide an apparatus of this class which is made ready for receiving the chemical by reversing the ends of the apparatus and securing it to the ordinary water hose; fourth, to provide an apparatus of this class which may be used for spraying either with a pure chemical or with a small or varying quantity of water mixed therewith, and; fifth, to provide an apparatus of this class which is simple and economical of construction, durable, easy to operate and will not readily deteriorate or get out of order.

With these and other objects in view as will appear hereinafter, my invention consists of the certain novel features of construction, combination and arrangement of parts, as will be hereinafter described in detail and particularly set forth in the appended claims, reference being had to the accompanying drawings and to the characters of reference thereon which form a part of this specification in which:

Figure 1 is a longitudinal sectional view of my apparatus showing some of the parts and portions in elevation to facilitate the illustration, Fig. 2 is a sectional view through 2—2 of Fig. 1 and Fig. 3 is a top or plan view of my apparatus.

Similar characters of reference refer to similar parts throughout the several views of the drawings.

The cylinder 1, plunger 2, cap 3, water conductor 4, chemical conductor 5, hose 6, spray nozzle 7, plug 8, valve 9, and regulating valve 10 constitute the principal parts of my spraying apparatus.

The cylinder 1 is an ordinary metallic cylinder closed at one end except that it is provided with an opening 1^a centrally in the end with an outwardly extending annular flange 1^b which is internally threaded with an ordinary hose connection thread. On the opposite end of said cylinder is screwed the cap 3; this cap is provided centrally with an opening 3^a and said cap is provided with an outwardly extending annular flange 3^b which is internally threaded with an ordinary hose coupling thread thus providing a connection on each end so that the hose may be connected with either end of said cylinder. Mounted in the cylinder is the plunger 2 which is adapted to fit the inner surface of the cylinder and it is provided on opposite sides with packing members 2^a and 2^b the outer edges of which are adapted to rest against the inner surface of the cylinder and when pressure is brought to bear against the same forms a tight joint between said plunger and the inner surface of said cylinder. These packing members are secured to said plunger by means of the bolt 2^c centrally in said plunger. It will be here noted that this plunger is reciprocally mounted in said cylinder. Communicating with one end of said cylinder is the water pipe 4, and communicating with the opposite end of the said cylinder is the chemical pipe 5. The two extending ends of said pipes 4 and 5 connect with a special three-way valve 10, the inner ends of the pipes 4 and 5 communicating with the opposite ends of said valve and mounted at a right angle therto is a short piece of pipe 10^a communicating with said valve. This special valve 10 is the same as the ordinary conventional valve except that the tapered plug 10^c is provided with a V-shaped slot 10^b therein instead of round holes. This V-shaped slot extends to approximately one-half way through said plug so that when the plug is in the proper position a very small proportion of the narrow side may be opened to the opening in the pipe 5 while the portion of said slot communicating with the pipe 4 would be broad, permitting a small quantity of liquid from the pipe 5 to enter the pipe 10^a while a larger quantity of liquid from the pipe 4 would pass through into the pipe 10^a and that the liquid from the pipes 5 and 4 would meet in said

slot and go out mixed, through the pipe 10^a; that by turning the plug a one-half revolution the communication to the pipe 10^a would be closed but the pipes 4 and 5 would communicate with each other through the slot 10^b or communication with either the pipes 4 or 5 may be closed with the pipe 10^a and the other remain open. Secured on the upper end of the pipe 10^a is a short piece of hose 6 and secured on the extended end of said hose 6 is a spray nozzle 7 which spray nozzle may be of any form desired (the construction of said spray nozzle being no part of my present invention). In order to conduct the water to the cylinder 1 there is provided a hose which is of the ordinary or conventional type secured to a valve 9 the opposite side of said valve is provided with an extended externally threaded portion 9^a adapted to fit the internal hose threads in the flange 1^b and the plug 10^c is adapted to close the hole which is not in use on the opposite ends of the cylinder 1.

The operation of the apparatus is, as follows: The valve end 9^a is screwed into the hose connection 3^b, the valve 10 is closed and the valve 9 opened permitting the water pressure to push the plunger 2 to the opposite end of the cylinder after which the valve 9 is closed, the valve end 9^a removed and the water drained from the cylinder after which the chemical is placed in the cylinder through the hose connection 3^b or by removing the cap 3 after which the plug 10 is placed in position and the valve end 9^a screwed into the hose connection 1^b and the apparatus is ready for operation. The proper proportions of water and chemical are regulated by the valve 10. The water is supplied from the water pipe and also the pressure to force the chemical and water out through the conducting pipes 4 and 5.

Though I have shown and described a particular construction, combination and arrangement of parts, I do not wish to be limited to this particular construction, combination and arrangement, but desire to include in the purview of my invention the construction, combination and arrangement substantially as set forth in the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In an apparatus of the class described, a cylinder provided with an outlet orifice at each end, a rodless plunger reciprocally mounted in said cylinder, outlet conducting pipes communicating with said outlet orifices respectively a three-way valve connecting the extended ends of said outlet conducting pipes, a flexible conducting means connected with an outlet to said three-way valve, a spray nozzle secured to the extended end of said conducting means, a conducting means adapted to be secured to said cylinder at either end and a plug adapted to close the other end.

2. In a spraying device the combination of a cylinder provided with outlet orifices at its opposite ends, a plunger reciprocally mounted within said cylinder, a conducting means adapted to be secured to either end of said cylinder for conducting water from a water main to the one end of said cylinder, a plug adapted to close the opposite end of said cylinder and means for regulating the proportionate quantities of liquid passing from said outlet orifices on the respective sides of said plunger in said cylinder.

3. In a spraying device the combination of a cylinder provided with outlet orifices at its opposite ends, a plunger reciprocally mounted within said cylinder, a conducting means adapted to be secured to either end of said cylinder for conducting water from a water main to the one end of said cylinder, a plug adapted to close the opposite end of said cylinder and means for regulating the proportionate quantities of liquid passing from said outlet orifices on the respective sides of said plunger in said cylinder, and a spray nozzle in connection with said regulating means.

In testimony whereof, I have hereunto set my hand at San Diego, California this 11th day of June 1917.

ARTHUR WHITTAKER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."