

June 19, 1928.

J. S. JOHNSON

1,674,515

SPRAYER

Filed April 12, 1927

2 Sheets-Sheet 1

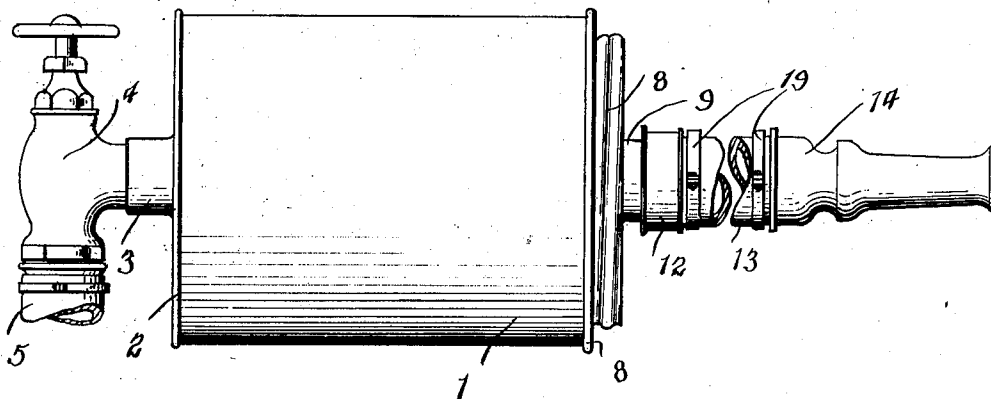


Fig 1.

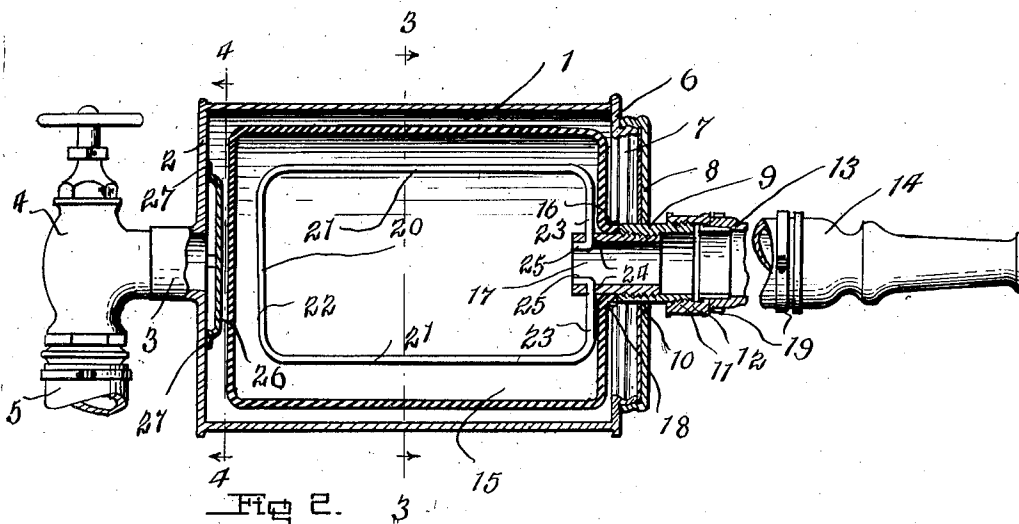


Fig 2.

Inventor

J. S. Johnson

By

Lacey, Lacey, Attorneys

June 19, 1928.

1,674,515

J. S. JOHNSON

SPRAYER

Filed April 12, 1927

2 Sheets-Sheet 2

Fig. 3.

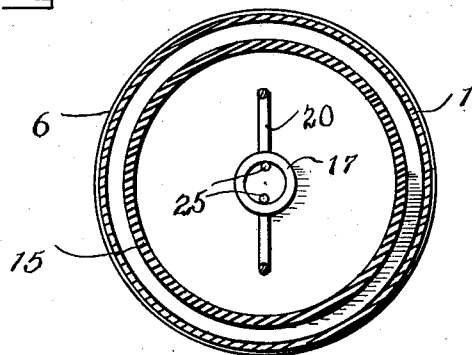


Fig. 4

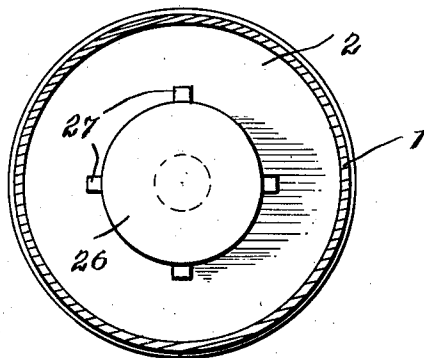
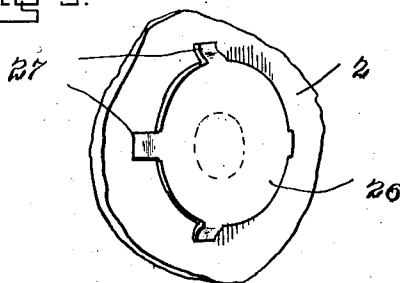


Fig. 5.



Inventor

J. S. Johnson

By *Lacey & Lacey,* Attorneys

Patented June 19, 1928.

1,674,515

UNITED STATES PATENT OFFICE.

JOE S. JOHNSON, OF EL CENTRO, CALIFORNIA.

SPRAYER.

Application filed April 12, 1927. Serial No. 183,179.

This invention relates to sprayers and more particularly to a sprayer adapted to be actuated by fluid pressure and by means of which plants may be sprayed to destroy insects which are injurious to them.

One object of the invention is to provide a sprayer including a receptacle to contain fluid under pressure and a companion receptacle to receive liquid to be sprayed upon the plants and adapted to have its walls acted upon by the fluid under pressure whereby the liquid may be forced out of its receptacle and caused to be sprayed upon the plants.

Another object of the invention is to connect the liquid container with a head for the fluid container whereby the liquid container may be supported in the fluid container and easily withdrawn therefrom when the head of the fluid container is removed.

Another object of the invention is to provide the head of the fluid container with a sleeve serving as means for supporting the liquid container and also as means for engagement by the coupling of a hose through which the liquid is to be forced to a spraying nozzle.

Another object of the invention is to prevent excessive crumpling of the liquid container when empty.

Another object of the invention is to prevent danger of the liquid container closing an inlet for the fluid container.

Another object of the invention is to provide a sprayer of the type specified which may be easily taken apart and after being thoroughly cleaned reassembled.

The invention is illustrated in the accompanying drawings, wherein

Figure 1 is a view showing the improved sprayer in side elevation;

Fig. 2 is a longitudinal sectional view through the sprayer;

Fig. 3 is a transverse sectional view taken through the sprayer on the line 3—3 of Fig. 2;

Fig. 4 is a transverse sectional view through the sprayer taken on the line 4—4 of Fig. 2, and

Fig. 5 is a fragmentary perspective view showing the guard for the inlet of the fluid container.

The body portion or container 1 of the sprayer is preferably formed of metal although other materials might be found suitable and at one end is provided with a head 2 having a neck 3 projecting therefrom

and internally threaded for engagement with the outlet neck of a control valve 4. The valve 4 is of a conventional construction and adapted to have a hose 5 connected with its inlet end so that water or other fluid under pressure may be fed into the body portion or fluid container 1. At its other end the container is provided with a head 6 from which extends a large neck or collar 7 threaded so that a cap 8 may be screwed thereon. When the cap is removed, easy access may be had to the interior of the container through the opening enclosed by the neck or collar 7. A sleeve 9 extends through the center of the cap 8 and has one end portion projecting inwardly and internally threaded, as shown at 10, and its other end portion projecting outwardly and externally threaded, as shown at 11, for engagement by the coupling 12 of a hose 13. The hose 13 may be of any length desired and at its outer end carries a nozzle 14 from which liquid may pass in a spray and be directed upon the plants.

Within the fluid container 1 is disposed a liquid container 15 which may be referred to as a bag if so desired and is formed of flexible material, such as rubber, rubberized fabric or the like, so that the bag or receptacle 15 may be collapsed by the action of the water or other fluid under pressure in the receptacle 1 and liquid placed in the bag forced out of it. A neck 16 extends from one end of the bag 15 and fits about a nipple 17 where it is secured by a clamp 18 which is of a conventional construction and similar to the clamps 19 employed at the ends of the hose 13. The nipple 17 projects into and out of the bag and has its outer end portion externally threaded so that it may be screwed into the internally threaded inner end portion of the sleeve 9. It is desired to prevent the bag from crumpling into a very compact mass within the fluid container 1 and in order to do so there has been provided a support 20 formed of wire bent intermediate its length to provide arms 21 extending from a bridge 22 and having their end portions 23 bent to extend toward each other. The end portions 23 of the support are passed through openings 24 formed in the nipple 17 and have their extreme ends bent, as shown at 25, to prevent the arms from slipping out of the openings in the nipple. It is preferred to have the support formed of resilient wire so that the arms will have a tendency to spring away from each other and thereby retain the

support in proper engagement with the nipple. By referring to Fig. 2 it will be seen that the support will very effectively serve to prevent the bag from crumpling into a compact mass in the forward end portion of the container 1 where it is liable to have portions of its walls stick together. A guard plate 26 is provided to prevent danger of the bag closing the inner end of the inlet neck 3 and this guard plate is provided with short arms 27 extending from its marginal edge portions and secured against the inner face of the head 2. By this arrangement the guard not only serves to prevent the bag from closing the inlet but also causes the water or other fluid passing inwardly through the neck to be directed toward the sides of the container instead of striking the bag in a solid stream.

When the sprayer is in use, the coupling 12 of the hose is released and the liquid which it is desired to spray upon the plants is poured into the bag through the sleeve 9 and nipple 17 after which the coupling is again connected with the sleeve. It will, of course, be obvious that, if desired, the cap 3 could be unscrewed and detached from the nipple 17 so that the liquid could be poured directly into the nipple. When the liquid is poured into the bag, the operator opens the valve 4 so that water may pass from the hose into the container 1 and accumulate therein about the bag. The valve 4 will, of course, be opened according to the pressure desired and the pressure of the water in the container 1 will tend to collapse the bag and force the liquid through the hose 13 until the bag has been emptied of liquid. This liquid passes from the nozzle of the hose in a spray and, therefore, rosebushes, vines or trees may be very easily sprayed to protect them from insects or the like. It will be obvious that, if desired, the valve 4 could be engaged with the sleeve 9 and the hose 13 connected with the neck 3 so that the liquid to be sprayed could be poured into the container 1 and the fluid under pressure fed into the bag to expand it and force the liquid out of the container 1. In either case, the apparatus would include companion receptacles or compartments, one having flexible walls adapted to be acted upon by fluid under pressure so that liquid in the other compartment or receptacle would be forced out of it. While it has been stated that the device is used to spray plants, it will be understood that it may also be used to spray medicines, disinfectants and the like upon animals, chickens and other fowls or buildings in order to kill or drive vermin away. It may also be used to spray paints or any other fluid desired.

Having thus described the invention, I claim:

1. A sprayer comprising a hollow body to receive fluid under pressure and having a

head at one end provided with an inlet, a cap for closing the other end of said body removably secured and provided with an outlet, a collapsible container in said body to receive liquid to be sprayed and having an outlet nipple communicating with the outlet of said cap, and means to limit collapsing of the container carried by said nipple and disposed within the container.

2. A sprayer comprising a hollow body having a head at one end provided with an inlet for fluid under pressure, a removable cap for the other end of said body formed with an opening, a sleeve secured in the opening of said cap and projecting inwardly and outwardly therefrom, a receptacle for liquid to be sprayed disposed within said body and having a neck removably connected with the inner end portion of said sleeve, said receptacle being formed of pliable water-proof material whereby pressure of fluid forced into said body may compress the receptacle to force liquid from the same through said sleeve, means to limit collapsing of said receptacle and a spraying nozzle connected with the outer end portion of said sleeve.

3. A sprayer comprising a hollow body having a head at one end provided with an opening, a neck projecting outwardly from said head about the opening and adapted to be connected with a source of fluid under pressure, a removable cap for the other end of said body formed with an opening, a sleeve secured in the opening of said cap and projecting inwardly and outwardly therefrom, a receptacle for liquid to be sprayed disposed within said body and having a neck at one end, a nipple secured in the neck of said receptacle and projecting therefrom and releasably engaged with the inner end portion of said sleeve, said receptacle being formed of pliable water-proof material whereby pressure of fluid in the body may compress the receptacle to force liquid from the same through said sleeve, means carried by said nipple within said receptacle to limit collapsing of the walls of the receptacle, and a spraying nozzle connected with the outer end portion of said sleeve.

4. A sprayer comprising a hollow body having a head at one end provided with an opening, a neck projecting outwardly from said head about the opening and adapted to be connected with a source of fluid under pressure, a removable cap for the other end of said body formed with an opening, a sleeve secured in the opening of said cap and projecting inwardly and outwardly therefrom, a receptacle for liquid to be sprayed disposed within said body and having a neck at one end, a nipple secured in the neck of said receptacle and projecting therefrom and releasably engaged with the inner end portion of said sleeve, said recep-

tacle being formed of pliable water-proof material whereby pressure of fluid in the body may compress the receptacle to force liquid from the same through said sleeve, a
5 U-shaped support to limit collapsing of said receptacle disposed longitudinally in the receptacle and having the end portions of its arms bent to extend towards each other and passed through openings in said nipple and clinched therein, a hose connected with the 10 outer end of said sleeve, and a nozzle at the outer end of said hose.

In testimony whereof I affix my signature.

JOE S. JOHNSON. [L. S.]