H. S. MUNSON.

SPRAYER.

APPLICATION FILED JULY 31, 1913.

1,105,993.

Patented Aug. 4, 1914.

2 SHEETS—SHEET 1.

Fig. 1.

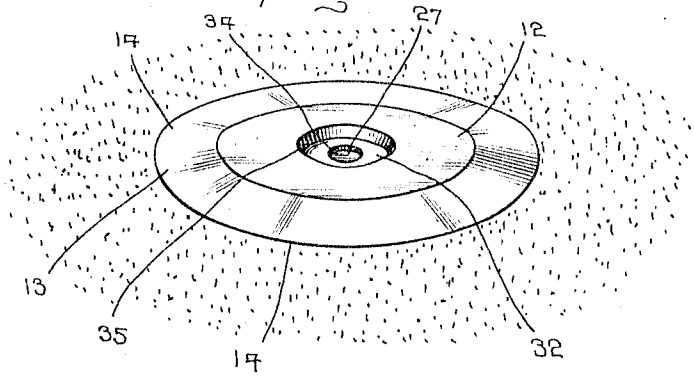


Fig. 2.

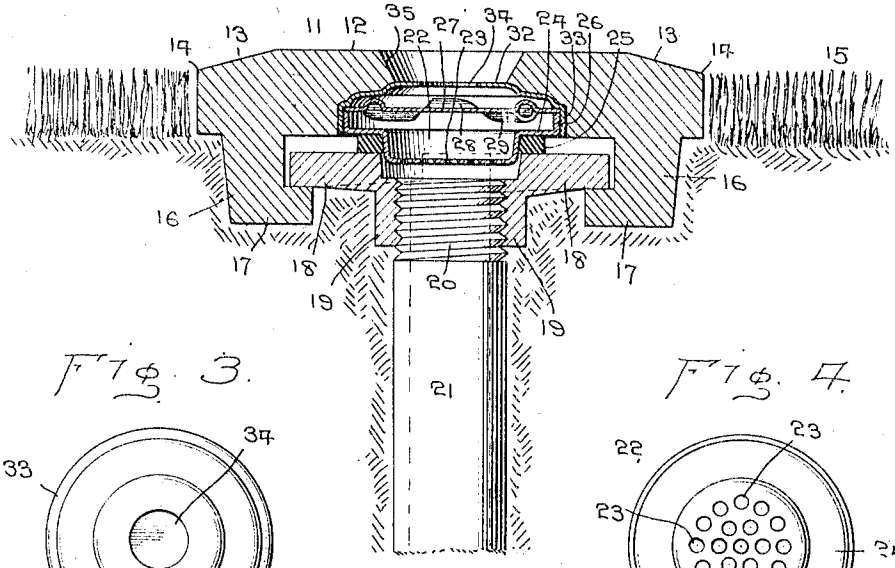
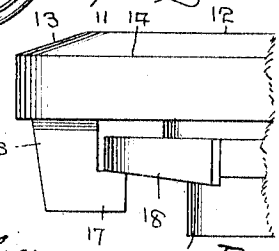


Fig. 3.

Fig. 4.

Fig. 2a.



WITNESSES

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2 SHEETS—SHEET 2.

Fig. 10.

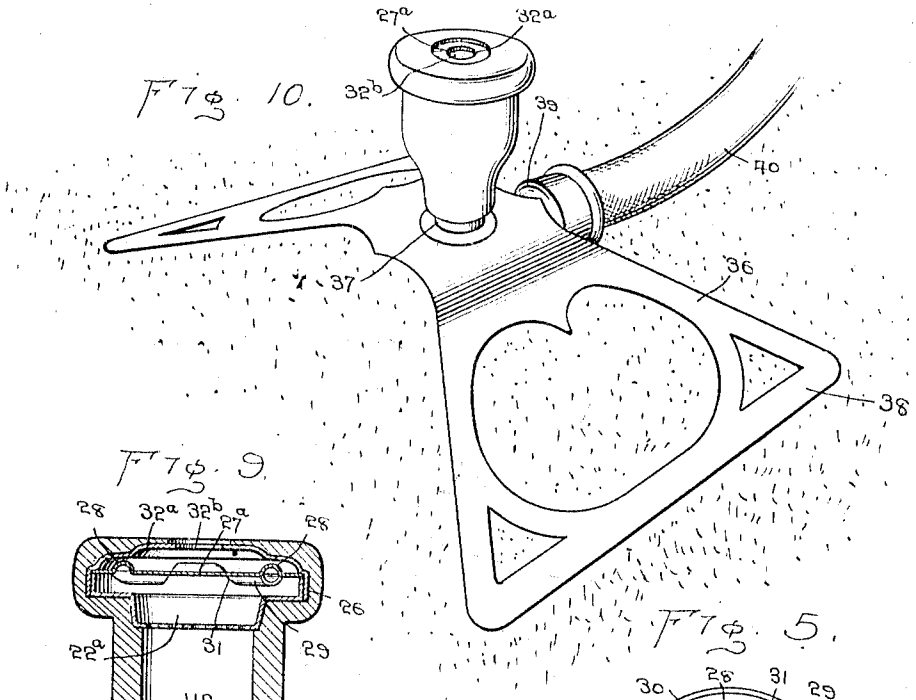


Fig. 9.

Fig. 5.

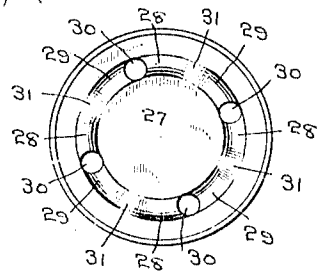
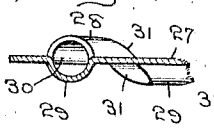


Fig. 6.

Fig. 7.



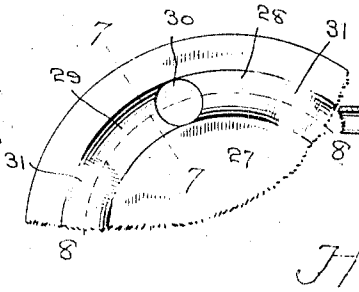
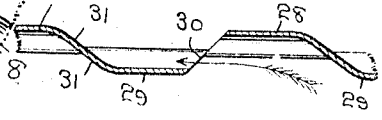


Fig. 8.



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UNITED STATES PATENT OFFICE.

HOMER S. MUNSON, OF REDLANDS, CALIFORNIA.

SPRAYER.

1,105,993. Specification of Letters Patent. Patented Aug. 4, 1914.

Application filed July 31, 1913. Serial No. 782,251.

To all whom it may concern:

Be it known that I, HOMER S. MUNSON, a citizen of the United States, residing at Redlands, in the county of San Bernardino and State of California, have invented certain new and useful Improvements in Sprayers; 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.

This invention is in the nature of a sprayer generally adaptable to all the purposes for which such devices are used but especially adapted for use with underground piping systems of lawn irrigation.

The object of the invention is to provide a sprayer of improved construction which will cause water to be sprayed evenly over the entire area from the center of the sprayer to the circumference of that part of the ground reached by the water.

A further object in constructing such an improved sprayer is to economize in the cost of production by the simplification thereof and to provide a construction which will be proof against breakage or disarrangement of parts with ordinary usage.

With these objects in view, the invention consists in the improved construction, arrangement and combination of the parts of a device of the character specified, which will be hereinafter fully described, and afterward specifically claimed.

In order that the construction and operation thereof may be readily comprehended, I will now proceed to fully describe my invention in connection with the accompanying drawings, which illustrate an approved embodiment thereof, and in which drawings,

Figure 1 represents in perspective, a sprayer in position on a lawn. Fig. 2, a view in vertical central section, the supply pipe being shown in elevation. Fig. 2ª, a fragmentary detail view in side elevation, Fig. 3, a top plan view of the cap or upper inverted inclosing cap, Fig. 4, a bottom plan view of the inner perforated cup, Fig. 5, a top plan view of the water rotating or nozzle plate, Fig. 6, an enlarged fragmentary detail view of part of the same, Fig. 7, a detail sectional view on the plane indicated by the broken line 7—7 of Fig. 6, Fig. 8, a detail sectional view on the curved line indicated by the broken line 8—8 of Fig. 6, the section being flattened, Fig. 9, a central vertical sectional view of the sprayer illustrated in Fig. 10, and, Fig. 10, a perspective view of a sprayer upon a bridge or support to adapt my invention for use with hose.

Like reference characters indicate the same parts wherever they occur in a plurality of the figures of the drawings.

Referring specifically to the drawings, 11 indicates the main body which supports my improved sprayer in the earth, the top 12 thereof being preferably circular and slightly above the earth and having its outer portion beveled off as at 13 so that its circumferential edge 14 will be substantially on a level with the surface of the earth, the latter being indicated at 15. This body 11 is provided with diametrically opposite depending lugs 16 near its periphery, the lower ends of which extend inward horizontally forming hooks 17 over which engage radial flanges 18 extending from a sleeve 19 which is interiorly threaded to receive the exterior threads 20 of a water discharge pipe 21 which is located vertically in the earth and has connection (not shown), with the mains or supply pipes of any available water system. The main body 11 is recessed centrally to receive the active elements of my sprayer which comprise a cup 22 shown in detail in Fig. 4, having its bottom perforated at 23, and provided with a peripheral horizontal flange 24, adapted to rest upon the radial arms 18 of the sleeve 19, a packing ring 25 being inserted between said arms and flanges and a vertical annular flange 26 being provided at the outer edge of the horizontal flange 24. Upon this peripheral vertical flange 26 rests what I term my nozzle plate 27, shown in detail in Figs. 5 to 8. This nozzle plate 27 is flat except for certain elevations and depressions formed at a short distance within its periphery, the flat portion at the periphery supporting the plate on the vertical peripheral flange 26 of the cup 22. The depressions and elevations referred to consist of a circular series of raised hollow ribs 28 alternated, in a circular line, with depressed grooves 29, circular holes 30 being punched in the same circular line at the junction of one end of each raised rib 28 with the adjacent end of the depressed groove 29, the opposite ends of the ribs and grooves being merged into each other and forming outwardly extending surfaces 31.

Upon the top of the nozzle plate 27 is

placed an inverted cap 32 having a depending annular vertical flange 33 which incloses the vertical peripheral flange 26 of the inverted cup 22 and also the flat outer edge of the nozzle plate 27, the central portion of the top of this inverted cup being open as at 34. The recess in the main body 11 is flared at the top as at 35, and said flared portion, and in fact, the whole recess in the body is axially concentric with the included parts and the supply pipe 21.

To place my sprayer in position, the supply pipe is brought nearly to the surface of the earth and the sleeve 19 screwed thereupon to the proper height. The other parts described may be placed in position on this sleeve or the other parts may be assembled together before the sleeve is threaded on the pipe 21. In either instance, the packing ring 25 will rest upon the radial arm 18 and the sleeve 19, the flange 24 of the cup 22 will rest upon the packing ring, the flat outer portion of the nozzle plate 27 will rest upon the upright peripheral flange 26 of the cup 22, the cap 32 will inclose the cup 22 and nozzle plate 27 within its depending vertical peripheral flange 33 and the main body 11 can be then placed in position with the lug 16 out of alinement with the radial arms 18 of the sleeve 19. The lower faces of the radial arms 18 are beveled off so as to make said arms wedge-shaped and circular, and after the main body has been dropped into position as aforesaid, with its lug 16 out of alinement with the radial arms 18, said body may be turned upon the general axis of all the described parts which will carry the hooked ends 17 under the radial arms 18 of the sleeve 19 and cause said hooks to travel under the inclined or wedge-shaped under surfaces of said radial arms 18 until the packing ring 25 is properly compressed to form a close water tight joint and to hold all the parts in active position.

In operation the water passing through the pipe 21 will be strained through the perforated bottom of the cup 22 from whence it will pass upward and will be diverted into a circular course by means of the depressions and elevated ribs in the nozzle plate, the water passing under the elevated ribs and out through the circular opening 30 formed at the junction of adjacent ends of the depressed grooves 29 and raised ribs 28. The water rushing through the openings 30 in a circular path under the raised ribs 28 will be further guided in a circular path in the depressed groove 29 until it strikes the top of the inclined parts 31 which will deflect it upward in a tangenital line through the openings 34 of the inverted cap 32 and also through the flared opening 35 of the main body 11. A plurality of streams of water will thus be thrown outward from the sprayer and will reach all parts of the lawn or other surface within the limit of the force of the streams.

In order to adapt the sprayer as described for use with a hose, I provide a bridge 36 (see Fig. 10), having a threaded thimble 37 projecting from its raised center upon which a main body 11^a may be engaged by its internal thread 11^b, (see Figs. 9 and 10), said main body being provided with a recess 11^c in the upper portion of which is accommodated a cup 22^a, a nozzle plate 27^a and inverted cap 32^a, said part being constructed in the manner hereinbefore described and the cap 32^a being provided with a central opening 32^b for the delivery of water in the manner before described.

The bridge 36 is preferably composed of two substantially triangular parts 38, the outer sides of which form the rests for the whole device, said triangular portions being integral and their point of junction at the center being raised and hollow, a suitable coupling 39 being provided for a hose 40, the hollow of the bridge communicating between the hose and the sleeve 37 as before described, upon which the sprayer is mounted.

It will be observed that all the parts of my improved sprayer are of simple and economical manufacture. The pipe 21 will be ordinary piping, the sleeve 19 with its radial wedge-shaped arms 18 and the main body 11 with its lug 16 will be cast, while the interior parts 22, 27 and 32 may be stamped up, each by a single operation, out of ordinary sheet metal. By simply turning the main body in reverse direction from that hereinbefore described, all the working parts may be removed from the supply pipe after which the pipe may be plugged if desired. Ordinary means may be provided, when desired, to cut off the supply of water from the pipe 21 at sufficient distance below the surface of the earth to prevent freezing, such devices being old and well known and forming no part of my invention.

While I have specifically described the exact construction and arrangement of the component parts of my invention it will be obvious to those skilled in the art to which the invention most nearly appertains, that slight changes and variations may be made therein, within reasonable limitations, without departing from the spirit and scope of the invention.

Having thus fully described my invention what I claim and desire to secure by Letters Patent of the United States is:—

1. A sprayer comprising a suitable supply pipe, and a recessed body having a top opening in axial alinement with the supply pipe, and a nozzle plate secured in the path of the outflowing water, said nozzle plate being provided with a circular row of alternating raised ribs and depressed grooves adjacent to and parallel with its circumference, the

adjacent depressed grooves and raised ribs joining each other in an inclined surface adapted to deflect the water upwardly through the opening in the body.

2. A sprayer comprising a nozzle plate flat throughout its surface with the exception of a circular row of alternating depressed grooves and raised ribs, an opening being provided at the discharge end of each raised rib and at its junction with the adjacent depressed groove, the opposite end of each raised rib and depressed groove being merged into the succeeding opposite construction by means of an inclined surface adapted to deflect the discharging water upwardly.

3. A sprayer comprising a casing having an opening in the top thereof, a second casing removably supported in said first casing and having the bottom thereof perforated, a nozzle plate supported in said second casing and retained by a cup-shaped cap, and means for supplying water to said first casing.

4. The herein described sprayer comprising a casing having an opening in the top portion thereof, a second casing having a cup-shaped perforated bottom portion and an inverted cup-shaped cap removably mounted upon said cup-shaped bottom portion so that said second casing may be cleaned, a nozzle plate removably supported within said second casing between said cap and bottom portion, said cup-shaped cap having an aperture in the top thereof, a removable bottom member for said first casing adapted to have a supply pipe connected thereto and to hold said second casing against the top portion of said first casing when said bottom member is placed into position, and said second casing being adapted to be unitarily removed from said first casing.

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

HOMER S. MUNSON.

Witnesses:
A. E. BROCK,
S. F. COLBECK.