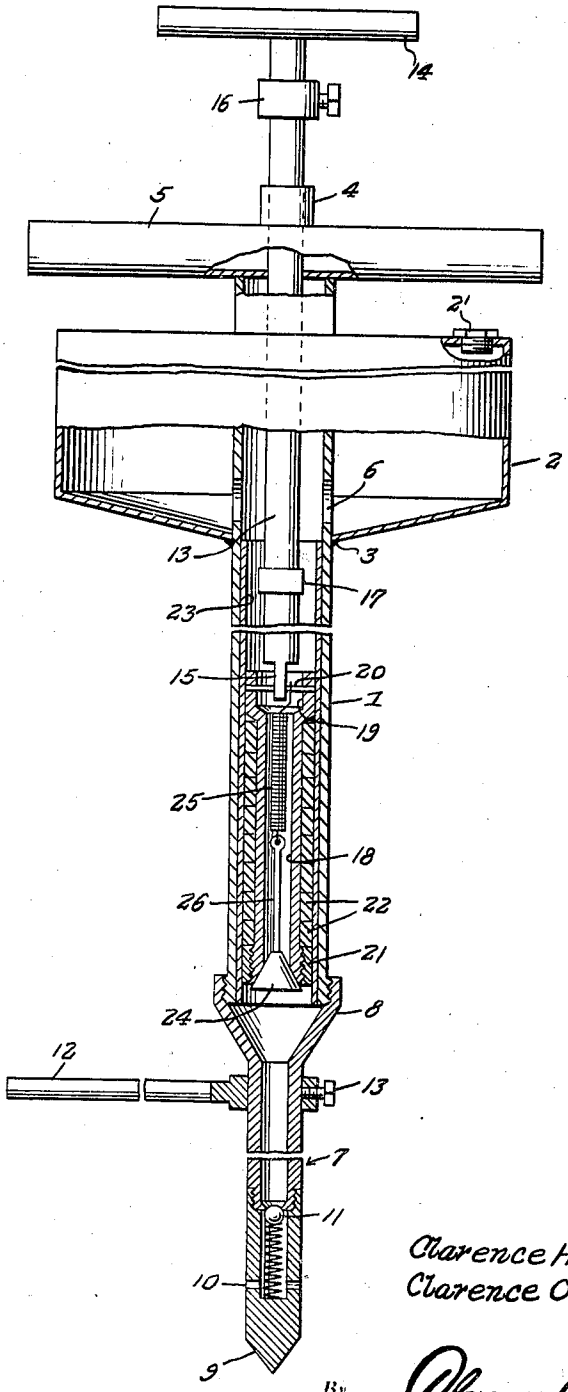
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LIQUID INJECTING DEVICE

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LIQUID INJECTING DEVICE

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2 Claims. (Cl. 221—102)

Our invention relates to liquid injecting devices for forcing various liquids into the soil to eradicate weeds and the like, to destroy animal and insect life, and for other purposes, and is designed as an improvement over the injecting device forming the subject matter of our U. S. Patent No. 2,218,652, dated October 22, 1940.

The principal object of the instant invention is to simplify the structure of our patent, supra, and render the parts thereof more effective, particularly by reducing wear of such parts, and preventing binding thereof.

Other and subordinate objects are also comprehended by our invention, all of which, together with the precise nature of our improvements, will be readily understood when the succeeding description and claims are read with reference to the drawing accompanying and forming part of this specification.

In said drawing:

The figure is a view in vertical longitudinal section, with parts in elevation, of our improved injecting device.

Referring to the drawing by numerals, the injecting device with which our improvements are concerned comprises a tubular pump barrel 1 of suitable metal extending axially through and depending from a hopper bottom, substantially cylindrical, closed liquid container 2, axially apertured to fit around the upper portion of the barrel 1 and soldered, as at 3, thereto. The barrel 1 extends slightly above the top 4 of the container 2 and has a reduced upper end 4' forming a bearing sleeve for a purpose presently seen. A pair of oppositely extending tubular hand grips 5 are suitably fixed in said end for carrying and operating the device. A pair of inlet apertures 6 are provided in the barrel 1 on opposite sides thereof adjacent the bottom of the container 1. A filler plug 2' is provided in the top of the container 2. A discharge nozzle 7 of reduced diameter as compared with that of the barrel 1 extends axially from the lower end of the barrel with an upper flaring end 8 threaded onto said end. The nozzle 7 comprises a pointed lower end 9 for thrusting into the ground, a pair of opposed radial discharge apertures 10 therein adjacent said pointed end, and contains a spring pressed ball valve 11 normally closing upwardly under the influence of said spring. A laterally extending stop bar 12 is settable along said nozzle 7 by means of a set screw 12' for limiting the depth of penetration into the ground of said nozzle. The nozzle and parts carried thereby are counterparts of structures shown in our patent, supra, with the exception that in the present instance, the entire nozzle assembly and the bar 12 are detachable and replaceable as a unit. A pump plunger rod 13 slidably extends through the bearing sleeve formed by the end of the barrel 1 and into the axis of the latter, said rod having a transverse handle bar 14 at its upper end, a reduced lower end 15, a set collar 16 thereon adjacent the handle bar 14 for limiting inward movement of said rod by contact with said end 4', and a collar 17 thereon adjacent the end 15 for limiting outward movement of said rod by engagement with the hand grips 5.

Coming now to our improvements, swingably suspended from the lower end 15 of the plunger rod 13 is a pump plunger core 18 of tubular form reduced in diameter as compared with the internal diameter of the barrel 1 and having an enlarged upper head 19 surrounding said end 15 of the rod 13 and pivoted to said end by a cross pin 20. A collar 21 is threaded onto the lower end of the core 18. A series of packing rings 22 forming part of the plunger surround the core 18 between said collar 21 and the head 19. A liner sleeve 23 of polished brass is fitted and suitably fixed in the barrel 1 to extend from the apertures 6 to the lower end of said barrel, and in which the packing rings 22 are slidably fitted.

A conical valve member 24 is suspended from the pin 20 by a coil spring 25 suitably attached at one end to said pin and having its other end depending into said core and suitably attached to a rod-like stem 26 on the valve member 24, the arrangement being such that said valve member 24 is normally seated by the tension of said spring against the lower end of the core 18 for downward opening movement in opposition to said spring.

The use and operation of the described device will be readily understood. The nozzle 7 is thrust into the ground by means of the hand grips 5, the plunger is advanced by means of the handle 14 into the barrel 1 so that liquid from the container 2 may fill the core 18 by way of the apertures 6 and liner sleeve 23. The plunger is then retracted, during which operation the valve member 24, is opened by back pressure of the liquid in a manner which will be clear, and a measured amount of liquid is permitted to discharge into the nozzle 7. The plunger is then again advanced to force the liquid ahead of the same out of the apertures 10, the compression opening the valve 11.

The foregoing will, it is believed, suffice to im-

part a clear understanding of our invention without further explanation.

Manifestly, the invention, as described, is susceptible of modification without departing from the inventive concept, and right is herein reserved to such modifications as fall within the scope of the appended claims.

What we claim is:

1. In a device of the class described, a liquid container, a tubular pump barrel depending from the bottom of the container, a discharge nozzle at the outer end of said barrel having a valve therein opening outwardly under pressure behind the same, a manipulative plunger rod extending through said container into said barrel, a plunger core of tubular form between said nozzle and rod and having an enlarged head end and a nut on its other end, packing rings surrounding said core between said ends thereof, a cross-pin pivotally connecting said head end to said rod, an outwardly opening valve member adapted to seat against said other end of the core, and a member seating coil spring in said core having the opposite ends thereof connected to said pin and to said member, respectively.

2. In a device of the class described, a liquid container, a tubular pump barrel depending from the bottom of the container, a discharge nozzle at the outer end of said barrel having a valve therein opening outwardly under pressure behind the same, a manipulative plunger rod extending through said container into said barrel, a plunger core of tubular form between said nozzle and rod and having an enlarged head end and a nut on its other end, packing rings surrounding said core between said ends thereof, a cross-pin pivotally connecting said head end to said rod, an outwardly opening valve member adapted to seat against said other end of the core, and a member seating coil spring in said core having the opposite ends thereof connected to said pin and to said member, respectively, said barrel having a tubular liner of polished metal fixed therein and in which said packing rings are slidably fitted.

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