

No. 699,292.

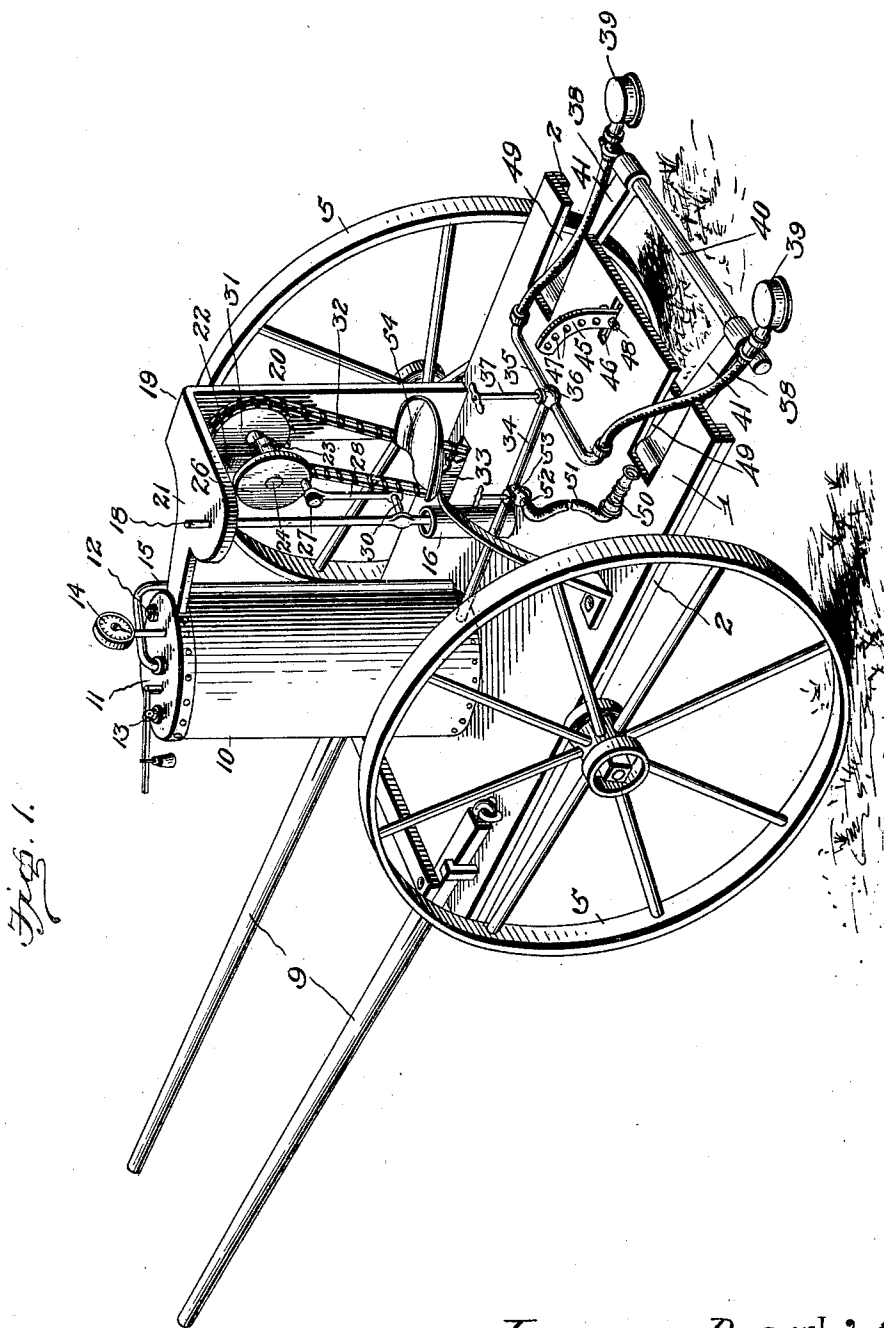
Patented May 6, 1902.

L. DOERR.
SPRAYING MACHINE.

(Application filed Aug. 21, 1901.)

(No Model.)

2 Sheets—Sheet 1.



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2 Sheets—Sheet 2.

Fig. 2.

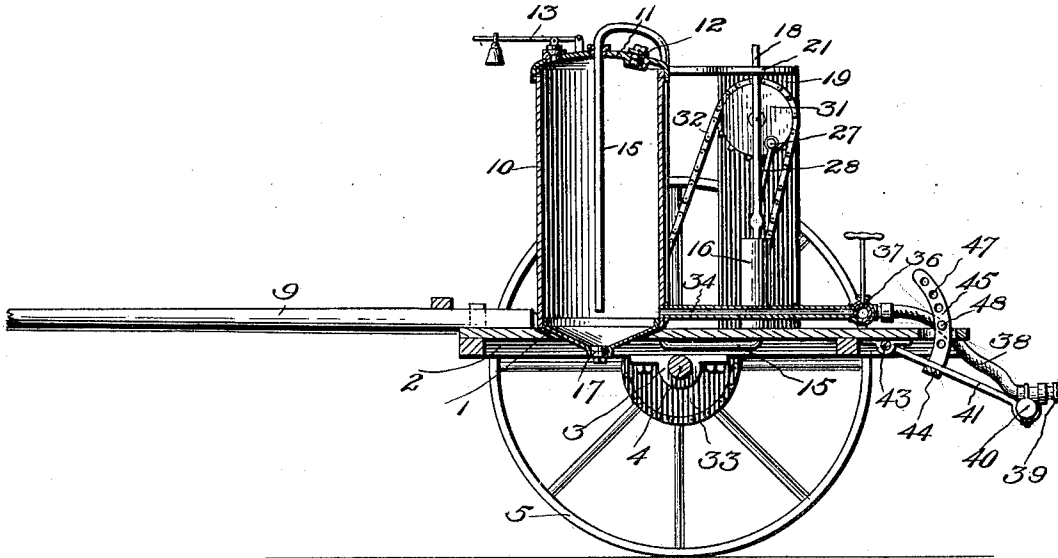
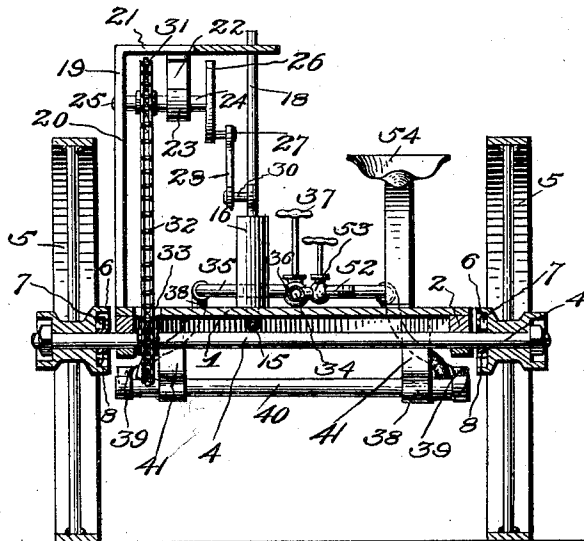


Fig. 3.



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UNITED STATES PATENT OFFICE.

LAWRENCE DOERR, OF EAST JORDAN, MICHIGAN.

SPRAYING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 699,292, dated May 6, 1902.

Application filed August 21, 1901. Serial No. 72,825. (No model.)

To all whom it may concern:

Be it known that I, LAWRENCE DOERR, a citizen of the United States, residing at East Jordan, in the county of Charlevoix and State of Michigan, have invented a new and useful Spraying-Machine, of which the following is a specification.

This invention relates to spraying-machines, and more particularly to that class of machines employed for spraying or distributing poisoned water over plants to kill bugs, insects, and parasites of all descriptions, and has for its object to present a simply-constructed, thoroughly-efficient, and positively-operable machine of the character specified which in use will be effective for spraying poisoned water or other liquid insect-destroyer over a large area.

A further object is to present a spraying-machine which may be employed for distributing poison on the ground or on shrubbery or on trees.

With these and other objects in view, as will appear as the nature of the invention is better understood, the same consists in the novel construction and combination of parts of a spraying-machine, as will be hereinafter fully described and claimed.

In the accompanying drawings, forming a part of the specification, and in which like numerals of reference indicate corresponding parts, there is illustrated one form of embodiment of the invention capable of carrying the same into effect, it being understood that the elements herein exhibited may be varied or changed as to shape, proportion, and exact manner of assemblage without departing from the scope of the invention, and in these drawings—

Figure 1 is a view in perspective of a machine constructed in accordance with the present invention. Fig. 2 is a view in longitudinal section. Fig. 3 is a view in transverse section.

The operating mechanism of the machine is mounted upon a platform 1, which may be constructed of boards or any other suitable material and carries two longitudinally-disposed beams 2, arranged on the under side of and in line with the sides of the platform, and to these beams are secured the bearing-boxes 3 of an axle 4, and associated with the axle

are the supporting-wheels 5, which, as will presently appear, transmit motion to the operating mechanism of the machine. The inner side of each of the wheel-hubs is chambered, as at 6, Fig. 3, to contain pawls 7, that engage with the ratchet-wheels 8, carried by the axle, the pawl-and-ratchet mechanism being provided to permit of the axle being driven only when the machine is being drawn forward, and as this arrangement of mechanism is in common use and is well understood further description is deemed unnecessary. While not shown herein, it is to be understood that suitable mechanism may be provided for throwing the mechanism out of gear when desired. The front portion of the platform has connected with it a pair of shafts 9, between which the horse to draw the machine is hitched in the usual manner.

Mounted upon the platform is a cylinder or tank 10, the upper end of which is closed by a cap 11, provided with an orifice normally sealed by a screw-plug 12, the orifice being provided to permit the poisoned water being supplied to the tank. The cap also supports a safety-valve 13 and a pressure-gage 14, by which the working pressure of the cylinder may be at all times determined and governed. Opening into the center of the top of the cylinder and extending downward nearly to the bottom thereof is one member of a pipe 15, the other member of which passes downward through the platform and thence upward into the cylinder 16 of an air-compressor, the object for having the pipe 15 extend to a point near the bottom of the tank being to cause the air under the operation of the machine to keep the poison-charged water in a state of constant agitation, thereby preventing the deposit of any poison in the bottom of the cylinder, and to cause an even diffusion of the same throughout the water. The bottom of the cylinder is funnel-shaped and is provided with a removable plug 17 at its center by which to permit access to the bottom of the tank for the purpose of removing any accumulated matter or to permit flushing of the tank when required, the shape of the bottom operating to effect ready discharge of any accumulated matter when the plug 17 is removed.

The cylinder 16 has working within it a pis-

ton (not shown) carried by the lower end of a piston-rod 18, the upper end of which projects upward through a bearing formed in the standard 19, the lower end of the standard being suitably secured to the platform 1 and the upper portion to the tank 10. The standard 19 comprises a vertical portion 20 and a horizontal portion 21, and in the latter portion is provided the bearing of the piston-rod 18. Depending from the horizontal portion 21 is a hanger 22, having its lower portion provided with a bearing 23, in which works the intermediate portion of a shaft 24, one end of which is journaled at 25 in the vertical portion of the standard, and the other end carries a disk 26, to which is secured a wrist-pin 27, engaged by the upper end of the pitman-rod 28, the lower end of which engages a wrist-pin 30, carried by the piston-rod adjacent to the cylinder 16.

The shaft 24 has mounted on it between the vertical portion of the standard and the hanger 22 a sprocket-wheel 31, around which passes a sprocket-chain 32 to and around a sprocket-wheel 33, carried by the axle 4, by which arrangement of the mechanism it will be seen that as the machine is drawn over the ground positive motion is imparted to the piston-rod, thereby forcing air through the pipe 15 into the bottom of the tank. So long as the machine is moved in a forward direction air will be forced into the tank, and should the pressure become excessive this will be relieved by the opening of the safety-valve 13. Should the safety-valve fail to work, the pressure-gage 14 will notify the operator when the pressure has reached the danger limit, whereupon the safety-valve may be manually operated to relieve the excess of pressure. While not shown herein, it is to be understood that the piston-head will be provided with a suitable form of downwardly-opening valve which will permit passage of air to the cylinder on the upstroke of the piston and projection of air into the tank on the downstroke. It is also to be understood that a suitable back-pressure valve may be associated with the pipe 15 to prevent escape of air from the tank on the upstroke of the piston.

Tapped into the tank, near the bottom thereof, is a pipe 34, which extends backward to a point near the rear of the platform and has connected with its free end a branch pipe 35, the coupling 36 between the branch pipe and the feed-pipe 34 constituting a valve carrying a stem 37, by which passage of liquid through the branch pipe may be controlled. The ends of the branch pipe have each connected with them a flexible length of pipe 38, such as hose-pipe, and each of the flexible sections of pipe carries a downward-discharging nozzle 39 of any preferred type.

The flexible pipes are suitably secured to a cross-bar 40, and to this bar is connected two arms 41, having their rear ends hinged to independent cross-rods 43, one of which is

shown in Fig. 2. The arms are connected intermediate of their ends by a cross-plate 44, carrying at its center an upward-projecting curved plate 45, that works in a slot 46 in the platform, the plate 45 being provided with a plurality of openings 47 to be engaged by a pin 48, thereby to hold the arms 41 at the desired angle of adjustment. In order that the arms may be moved upward to a plane parallel with or above the platform, the latter is provided at its rear end with two recesses 49, (clearly shown in Fig. 1,) and in these recesses the arms 41 will work. By adjusting the arms to or from the ground the nozzles 39 may be caused to discharge downward at a sharp angle, outward in a straight line, or upward at any desired angle, this being effected by removing the pin 48 and bringing it into engagement with any desired opening 47.

In addition to the nozzles 39, which are provided for distributing poison-charged water on the ground or on low shrubbery, there is provided another nozzle 50 of the ordinary adjustable type employed on garden-hose, said nozzle being carried by a flexible-section pipe 51, connected with a branch pipe 52, coupled to the feed-pipe 34, the branch pipe 52 being provided with a valve 53 to control passage of liquid therethrough without interfering with the passage of liquid through the pipe 34. The function of the nozzle 50 is to spray tall shrubbery or trees, this being effected by moving the nozzle around with the hands. As will be apparent under the operation of the machine, there will always be pressure within the tank, so that should the machine be stopped to permit the operator spraying a tree with the poison-charged water the stored pressure will be sufficient for expelling the water under the desired head. When the nozzle 50 is employed, the valve 36 of the feed-pipe is closed, thereby to prevent unnecessary waste of the liquid.

The platform is provided with a spring-supported seat 54 to be occupied by the driver, this seat being arranged on one side of the platform, thereby to permit the driver to guide the horse in the proper direction.

It will be seen from the foregoing description that while the device of this invention is of exceedingly simple construction it combines in a compact and thoroughly operable manner all of the elements requisite for producing the results desired and, further, that the parts are so simple of construction as not to be liable to damage in use.

Having thus fully described the invention, what I claim as new, and desire to secure by Letters Patent, is—

In a spraying-machine, the combination with a supporting-axle carrying a sprocket-wheel, of a platform carrying a closed cylinder, an air-pump having a pipe connected therewith and extending to a point near the bottom of the cylinder, a standard secured to the platform and to the cylinder, and constituting a bearing for the piston-rod of the

air-pump, a shaft supported by the standard
and carrying a sprocket-wheel and a disk, a
pitman-rod connecting the disk and the pis-
ton-rod, and a sprocket-chain engaging the
5 latter sprocket-wheel and the sprocket-wheel
of the supporting-axle.

In testimony that I claim the foregoing as

my own I have hereto affixed my signature in
the presence of two witnesses.

LAWRENCE DOERR.

Witnesses:

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GEO. G. GLENN.