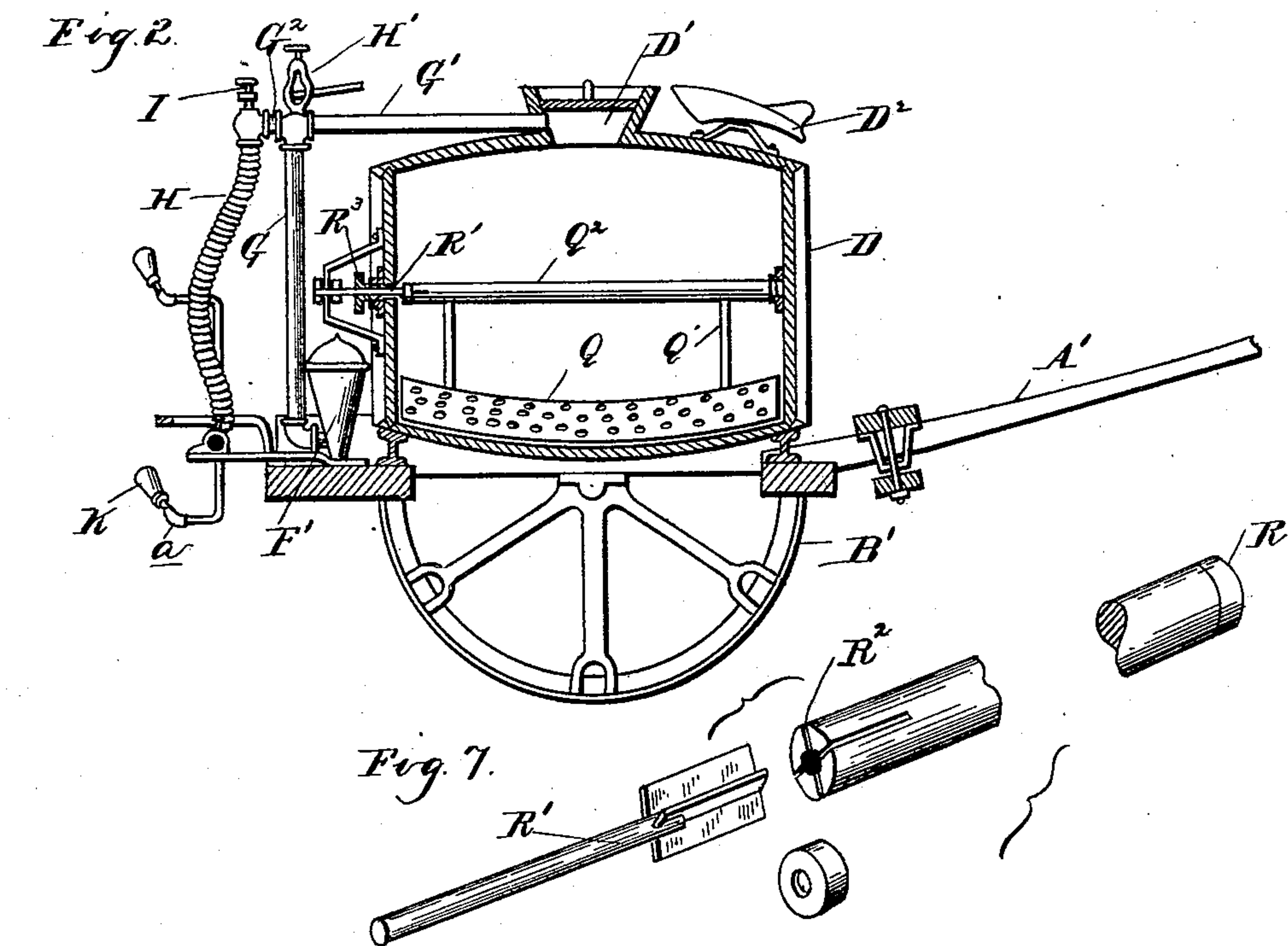


2 Sheets—Sheet 1.

No. 459,573.

Patented Sept. 15, 1891.



Witnesses
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M. B. O'Dogherty

Inventor
Myron J. Caswell
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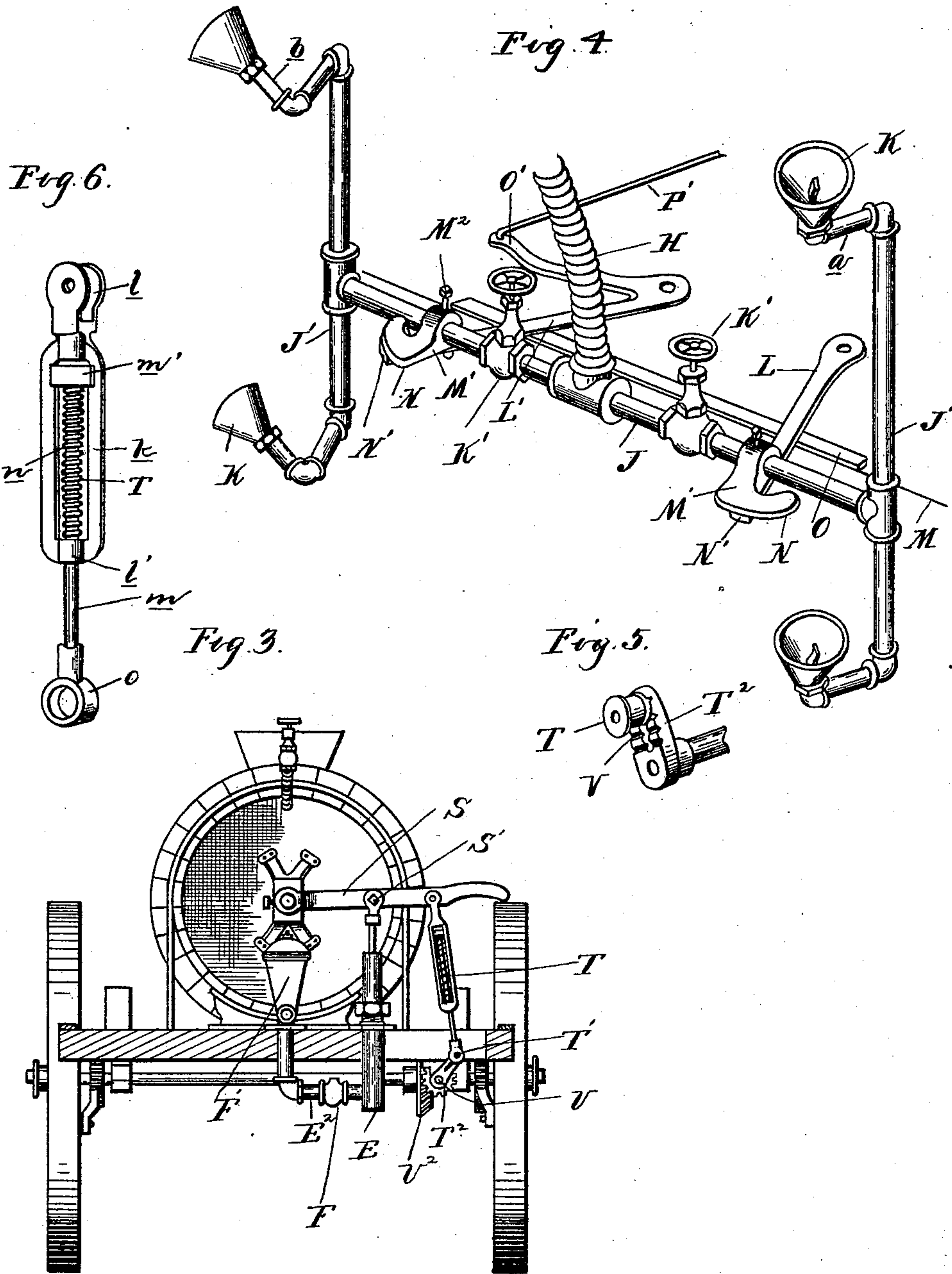
(No Model.)

2 Sheets—Sheet 2.

M. J. CASWELL.
SPRAYING DEVICE FOR VINES, SHRUBS, &c.

No. 459,573.

Patented Sept. 15, 1891.



Inventor

Myron J. Caswell

By *Wm. S. Wagner* Atty.

Witnesses
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UNITED STATES PATENT OFFICE.

MYRON J. CASWELL, OF SANDUSKY, OHIO.

SPRAYING DEVICE FOR VINES, SHRUBS, &c.

SPECIFICATION forming part of Letters Patent No. 459,573, dated September 15, 1891.

Application filed May 1, 1891. Serial No. 391,281. (No model.)

To all whom it may concern:

Be it known that I, MYRON J. CASWELL, a citizen of the United States, residing at Sandusky, in the county of Erie and State of Ohio, have invented certain new and useful Improvements in Spraying Devices for Vines, Shrubs, &c., of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to new and useful improvements in spraying devices for vines, shrubs, &c., of that class intended to be used especially in vineyards and orchards.

15 The invention consists in the peculiar construction of a tank supported upon wheels adapted to form a receptacle for the liquid, a pump actuated from the axle, and spraying-nozzles supported on a tubular frame and adapted to be adjusted to either side of the machine, whereby in the event of the rows 20 being irregular or of the machine taking an irregular course the spraying devices may be moved to discharge the same amount of liquid upon the vines upon both sides.

25 The invention further consists in the peculiar construction, arrangement, and combination of the various parts, all as more fully hereinafter described.

30 In the drawings, Figure 1 is a plan view of my improved machine. Fig. 2 is a vertical centrallongitudinal section thereof. Fig. 3 is a rear elevation thereof. Fig. 4 is a detached perspective view of the oscillating distributing-frame and nozzles. Fig. 5 is a detached perspective view of the drive-crank. Fig. 6 35 is a detached perspective view of the elastic pitman. Fig. 7 is a detached perspective view of the rock-shaft for the stirrer within the tank.

40 A is the frame. A' are the shafts.

45 B is the axle, journaled across the frame and supported upon the wheels B'. These wheels are loosely journaled upon the axle and impart motion thereto by means of the spring-pawls C engaging with the ratchet-wheels C', which are fixed upon the shaft beside the wheels, all so arranged that when a forward motion is imparted to the machine the rotation of the wheels will impart a rotation to the axle, but when either or both 50 wheels are turned in a reverse direction the axle will not be turned thereby.

D is a tank, preferably in the shape of a barrel, having the filling-aperture D' at the top and a driver's seat D² secured at the front 55 edge thereof.

E is the pump for discharging the liquid from the tank through the spraying-nozzles.

E' is the suction-pipe of said pump, leading to the bottom of the tank, and E'' is the discharge-pipe, each being provided with suitable check-valves F. 60

The discharge-pipe is provided with the usual air-chamber F', from which rises the stand-pipe G, provided at the top with a T, 65 having connection on one side by means of the pipe G' to the tank and on the other side by the connection G² to the discharge-nozzles through the flexible connecting-pipe H, preferably of hose. The connection G' is normally 70 closed by means of a spring-valve H', but is open when too great pressure is had in the standard G.

I is a valve controlling the exit-pipe to the sprinklers. The hose H connects at its lower 75 end centrally with the horizontal pipe-section J, which at each end is provided with the vertical pipes J', the whole forming a tubular frame for supporting the nozzles K and distributing the liquid thereto. 80

K' are valves arranged on each side of the hose H, so that the spraying devices on either side may be shut off at will. This distributing-frame is supported upon the arms L and L', which are pivotally secured at their inner ends upon the cross-bar M, secured at the rear of the frame. At their outer ends they are pivotally secured to the brackets M', which are adjustably secured upon the horizontal pipe J by means of the set-screws M². 85 These brackets are provided with the extensions N' of the arms L and L', and are adapted to give a wide bearing for said arms to prevent any possibility of tipping by the distributing-frames. The arms L and L' rest centrally 95 upon the bar O, which serves as a support therefor, preventing undue wear upon the cross-bar M and reducing the friction of the parts in oscillating the distributing-frame. These arms L L' extend laterally as well as rearwardly, or diverge from their pivotal points. 100

O' is an actuating-arm secured to the arm L' and adapted to be moved by a vertical

lever P, extending at the side of the driver's seat, the connection between the two being made by the rod P'. This distributing-frame with the spraying-nozzles can be adjusted to either side by means of this lever. By arranging the arms L L' in the manner described I obtain the greatest amount of end movement, together with a change in the annular relation between the spraying-nozzles and the vines which are to be sprayed, as shown by the dotted lines in Fig. 1.

The spraying-nozzles K are connected by the rearward-extending offset *a* and the connecting-pipe *b* to the vertical pipes J', as previously described, and are turned with the mouth extending upwardly and slightly rearwardly. It is evident, however, that by simply turning the connecting-pipes in the fitting that any desired position of the nozzles to the vines may be obtained. These nozzles may be of any suitable construction.

Q is a perforated stirrer-blade suspended by the hanger Q' on the rock-shaft Q² within the tank. This shaft I make of wood, as the material ordinarily employed in spraying grapevines destroys iron or other ordinary castings. R is a ferrule secured at one end of this wooden shaft.

R' is a winged gudgeon engaging in suitable cross-cuts R² in the end of the shaft Q² and extending through a stuffing-box R³ in the end of the tank. The outer end of this shaft is the lever S, to which is centrally secured the piston-rod S' of the pump, and at the outer end of which is attached the connecting-rod T, which at its lower end is connected to a crank-pin T' upon the crank T², secured at the end of the shaft U, which is provided at its forward end with the beveled pinion U', meshing with the beveled gear U², secured upon the shaft.

The pitman T, I preferably construct as follows: *k* is a yoke-shaped frame having a bifurcated bearing *l* at one end and a guide-bearing *l'* at the lower end. *m* is a rod passing through the guide-bearing *l'* and engaging into the guide-block *m'*. *n* is a spring interposed between the guide-block *m* and bearing *l'*, and *o* is an eye formed at the lower end of the rod. The object of this construction is to prevent danger to the parts in case the fluid-passages should in any way be stopped up and to prevent too great pressure in the pipes, it being evident that in such event the machine might continue to move forward, the crank T² revolving without moving the lever S either up or down, the necessary vertical movement being given by the expansion and contraction of the rod T. This might be extremely useful in case but one-half of the spraying device was used, when but half of the effective power of the pump would be required, and the shortening in the stroke of the pump would be allowed by this elastic pitman. I preferably secure the crank-pin T' to the crank T², so that it may be adjusted to or from the shaft, by forming a rib upon

the pin adapted to engage in notches V upon the crank, as plainly shown in Fig. 5. It is evident that with this construction if the driver approaches too near to the vines upon one side of the row he can move the spraying-nozzles by means of the head-lever, so that they will recede from that side, while the nozzles at the other end approach more nearly to the vines from which the machine is the greatest distance. It will be seen, further, that not only will the nozzle approach more nearly to the more distant vines, but will assume such angle that the spray will be discharged more directly toward that side and at a greater angle toward the side to which the machine approaches. Thus the driver can spray the vines upon both equally at all times, and by means of the spring-pitman or elastic pitman I described I can maintain practically an equal pressure in the discharge-pipes under all circumstances.

What I claim as my invention is—

1. In a spraying device, the combination, with the frame and tank and means for forcing the contents of the tank out, of a supporting-bar on the frame, pivoted levers on the frame, resting on the supporting-bar, a right-angle arm on one of the levers, an actuating-lever connected with said arm, a horizontal distributing-pipe pivotally supported on the outer ends of the pivoted levers, means for the rotary adjustment of the pipe, and vertical pipes on the ends of the horizontal pipes, extending on opposite sides thereof and provided with distributing-nozzles, substantially as described.

2. In a spraying device, the combination, with the frame, tank, and pump, of a horizontal distributing-pipe, a connection between the same and tank, brackets sleeved on said pipe, means for rigidly securing the brackets at adjusted positions on the pipe, horizontal levers pivoted to the frame, having their outer ends pivotally secured to said brackets, means for actuating the levers, and sprayers on the pipe, substantially as described.

3. In a spraying device, the combination, with the tank and liquid-forcing pump, of a horizontally-disposed pipe, a flexible connection between the same and the tank, brackets sleeved on said pipe, adjusting means for securing the brackets on the pipe, lateral extensions on the brackets, horizontal levers pivoted to the frame and extending below the brackets, a pivotal connection between the levers and brackets at a point between the outer and inner ends of the levers, means for actuating the levers, and distributing-nozzles on the pipes, substantially as described.

4. The combination, with the frame, of the oscillating arms L L', the distributing-frame consisting of the horizontal tubular section J, the vertical sections J', extending above and below said horizontal section, and the nozzle at each end of said vertical sections, substantially as described.

5. The combination, with the wheeled

frame, of a tubular distributing-frame, sup-
porting-arms L L', the brackets M', the ex-
tensions N on said brackets, a pivotal con-
nection between said arms and the brackets,
5 and the extensions N' on said arms, substan-
tially as described.

6. In a spraying device, the combination,
with the tank, the wooden shaft Q², having
the cross-cuts R² and the winged gudgeon R',
10 engaging therewith, and means for rocking
said shaft, substantially as described.

7. The combination, with the crank T² and

the lever S, of a connecting-rod T', consisting
of the yoke k, rod m, the spring n, and guide-
block m', guide-bearing l', the eye o, and bi- 15
furcation l, substantially as and for the pur-
pose described.

In testimony whereof I affix my signature in
presence of two witnesses.

MYRON J. CASWELL.

Witnesses:

ARTHUR PHINNEY,
J. D. MCFALL.