

(No Model.)

3 Sheets—Sheet 1.

J. H. POTTER.  
SPRAYING MACHINE.

No. 576,225.

Patented Feb. 2, 1897.

Fig. 2.

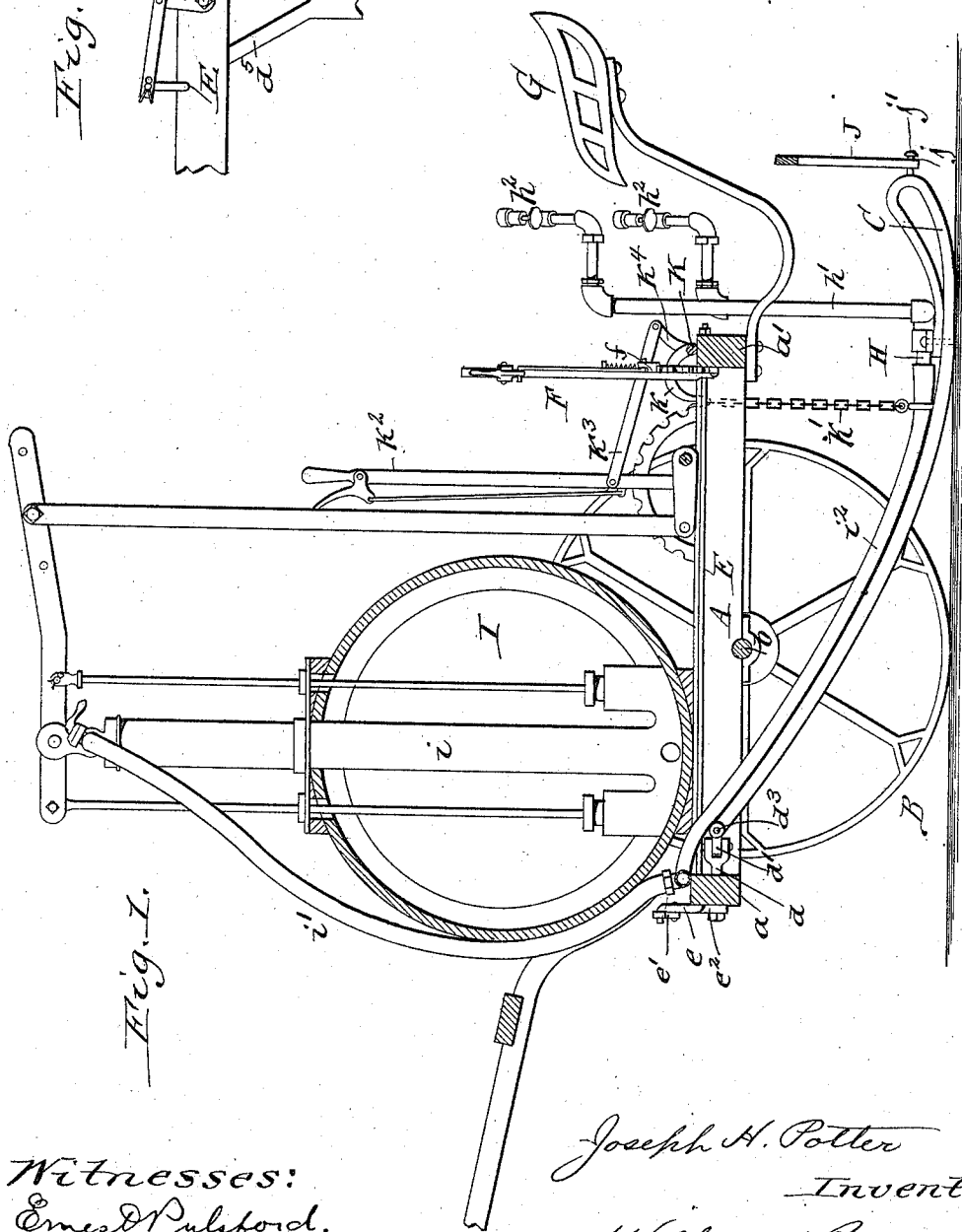
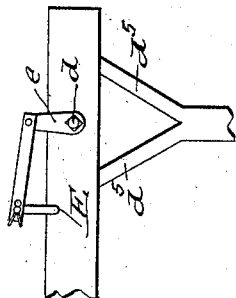


Fig. 1.

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Fig. 4.

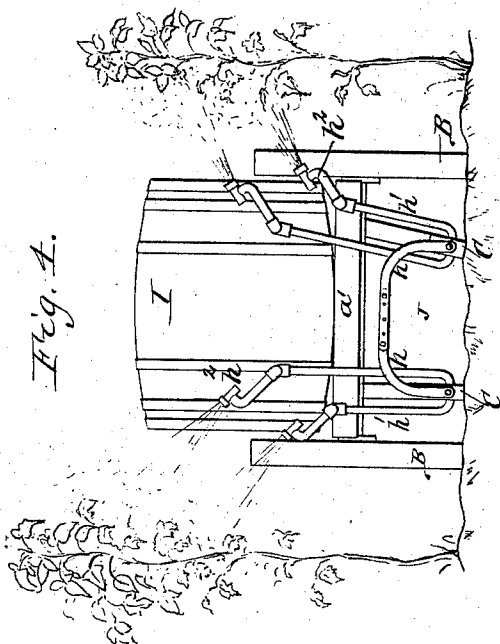


Fig. 5.

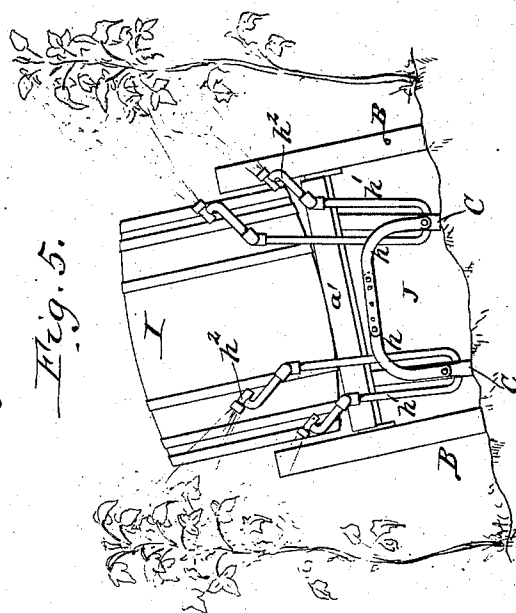
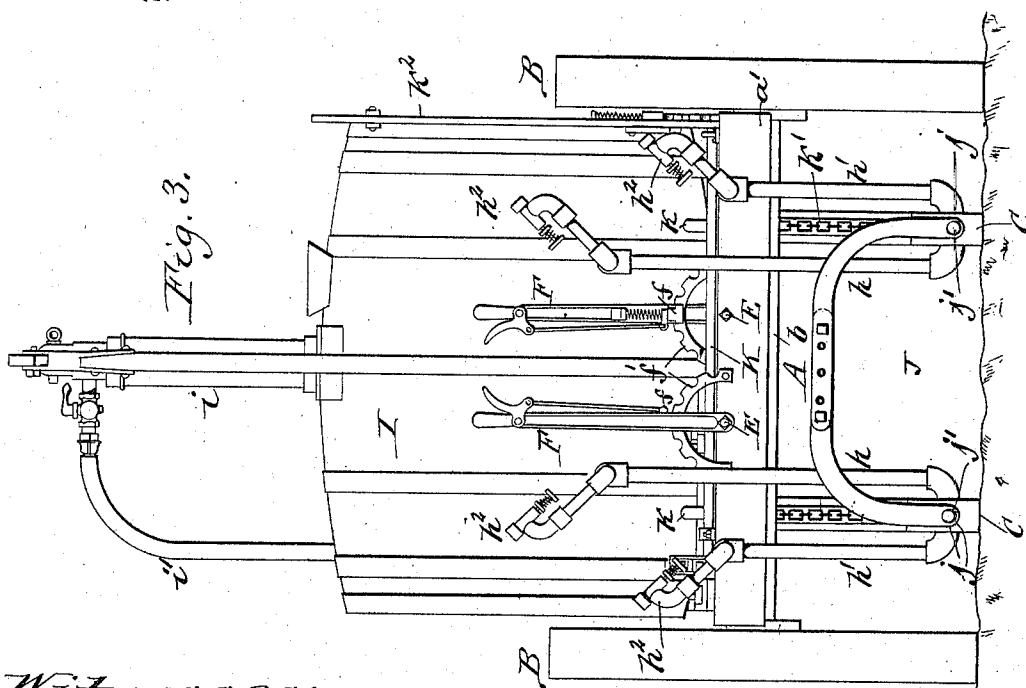


Fig. 3.



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(No Model.)

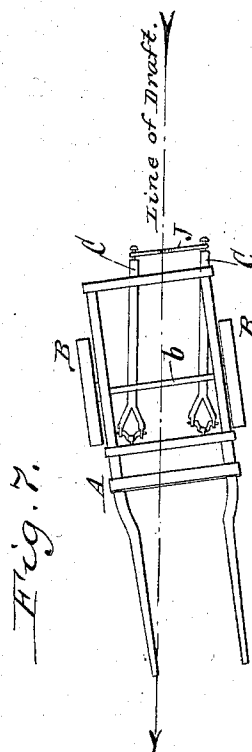
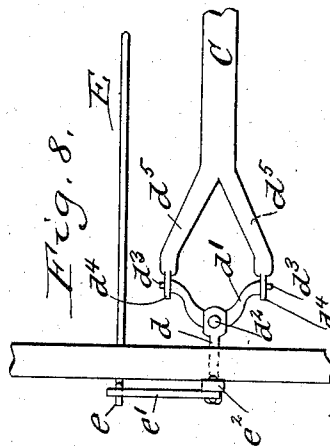
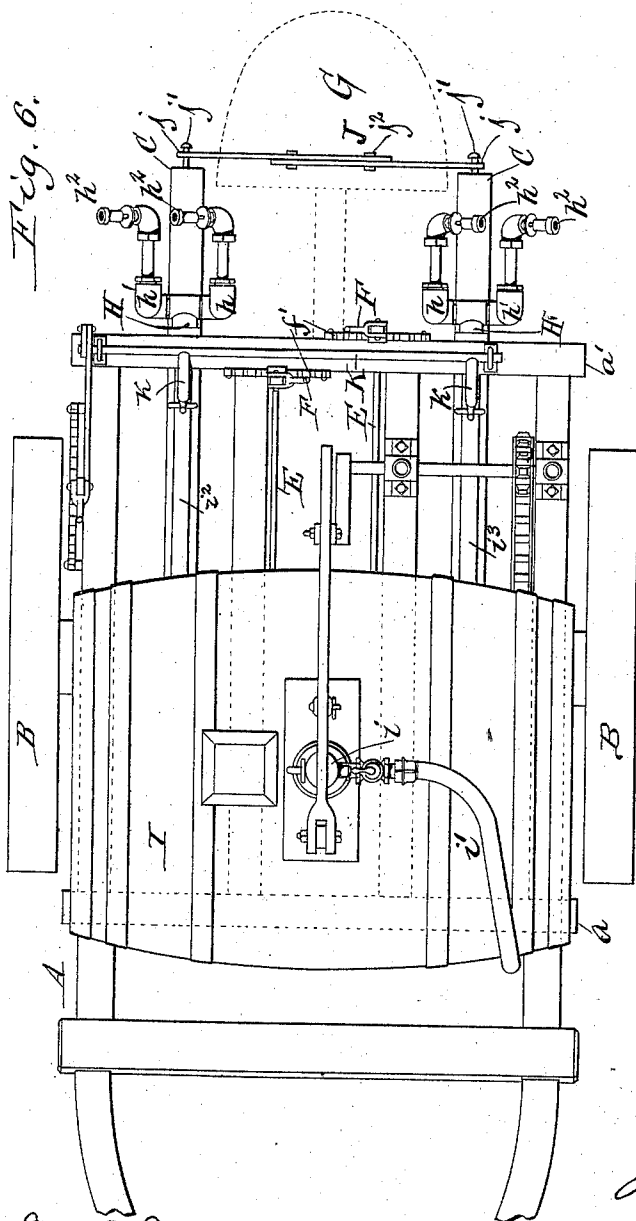
J. H. POTTER.  
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Fig. 6.



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Witnesses.

# UNITED STATES PATENT OFFICE.

JOSEPH H. POTTER, OF BATAVIA, NEW YORK.

## SPRAYING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 576,225, dated February 2, 1897.

Application filed July 31, 1896. Serial No. 601,158. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH H. POTTER, a citizen of the United States, residing at Batavia, in the county of Genesee and State of New York, have invented a new and useful Improvement in Spraying-Machines, of which the following is a specification.

This invention relates to spraying-machines which are particularly designed for delivering a spray of liquid poison or other protecting liquid against vines.

My invention has the object to produce a simple and reliable spraying-machine of this character which permits of readily spraying vines of varying height while the machine is in operation and which permits of retaining the spraying devices midway between the rows of vines when spraying on the side of a hill.

In the accompanying drawings, consisting of three sheets, Figure 1 is a vertical longitudinal section of my improved spraying-machine. Fig. 2 is a fragmentary front elevation thereof. Fig. 3 is a rear elevation thereof, showing the machine standing on level ground and the sprayers on opposite sides of the machine arranged in like positions. Fig. 4 is a fragmentary rear elevation of the machine, on a reduced scale, showing the sprayers on opposite sides of the machine arranged to spray both high and low vines at the same time on level ground. Fig. 5 is a similar view showing the position of the sprayers when the machine is used for spraying vines on the side of a hill. Fig. 6 is a top plan view of the spraying-machine on the same scale as Fig. 1 and showing the position of the parts when the machine is working on level ground. Fig. 7 is a fragmentary top plan view of the spraying-machine, on a reduced scale, showing the position of the parts when the machine is used on a hillside. Fig. 8 is a fragmentary top plan view showing the swiveling connection between the draft-frame and the sprayer-supporting shoe.

Like letters of reference refer to like parts in the several figures.

A represents the main supporting or draft frame of the cart upon which the spraying devices are supported, and B B are the supporting-wheels secured to opposite ends of the axle *b*, which is journaled in bearings

arranged on the frame between the front and rear cross-bars *a a'* thereof.

C C represent two shoes or supports on which the spraying devices are mounted and which are arranged lengthwise side by side underneath the draft-frame and on opposite sides of the center of the machine. Each of these shoes consists of a curved bar, which is dragged over the ground with its lower rear portion and is pivotally connected with its front portion to the draft-frame in front of the axle by a swiveling connection, which permits the shoe to rise and fall and also to swing laterally independent of the draft-frame. This swiveling connection consists, preferably, of a horizontal swivel-rod *d*, journaled lengthwise in the front bar of the draft-frame, a rocking bar *d'*, pivoted with its central portion by a vertical pivot *d<sup>2</sup>* to the rear end of the horizontal swivel-rod and provided at its ends with horizontal pivot-pins *d<sup>3</sup>*, which pass through eyes *d<sup>4</sup>* on the arms *d<sup>5</sup>* of the bifurcated front end of the shoe. As the supporting-shoe rises and falls in passing over the uneven surface of the ground the shoe swings vertically on the pins of the rocking bar. When the cart turns or the shoe is deflected laterally, the latter, together with the rock-bar, turns on the vertical pivot of the rocking bar and by turning the swivel-rod in its bearing the shoe can be tilted transversely in a vertical plane for shifting the position of the spraying devices mounted on the shoe.

E represents longitudinal rock-shafts whereby the shoes are tilted and which are journaled in bearings in the front and rear cross-bars of the draft-frame. Each of these rock-shafts is provided in front of the front cross-bar with an upwardly-projecting arm *e*, which is connected by a link *e'* with an upwardly-projecting arm *e<sup>2</sup>*, which is secured to the front end of one of the swivel-rods.

F represents upright hand-levers whereby the spraying devices are adjusted and which are secured to the rear ends of the rock-shafts in the vicinity of the operator's seat G, which is mounted on the rear portion of the draft-frame. Each of these hand-levers is provided with a catch *f*, which is adapted to engage with a segment *f'* on the frame for holding the hand-lever and the spraying devices connected therewith in an adjusted position.

The spraying devices are mounted on the rear portion of the shoes adjacent to the seat of the operator, and each of these spraying devices is constructed as follows:

- 5 H represents a main delivery-pipe secured upon the rear portion of the shoe and provided with two upwardly-extending branch pipes  $h$   $h'$ , which are arranged transversely in line. The outer branch pipe  $h'$  is some-  
 10 what shorter than the inner branch pipe  $h$ , and each branch pipe is provided at its upper or delivery end with a laterally or outwardly projecting spray-nozzle  $h^2$ , which is pivotally connected with the branch pipe, so that the  
 15 nozzle can swing transversely and the direction of the spray can be adjusted.

- I represents the reservoir, which is mounted on the frame of the cart and which is filled with a liquid insecticide or other liquid suitable for treating or destroying the particular  
 20 kind of insect or disease with which the vines are afflicted.  $i$  is a force-pump having its inlet connected with the reservoir and its outlet provided with a delivery hose or pipe  $i'$ ,  
 25 which is connected by branches  $i^2$   $i^3$  with the delivery-pipes H of the spraying devices of both shoes.

- When it is desired to lower the direction of the spray for spraying short vines or plants,  
 30 each shoe is tilted so that the branch pipes lean outwardly, and if it is desired to spray high vines or plants each shoe is tilted so that the branch pipes lean inwardly. When  
 35 both rows of vines on opposite sides of the path of the spraying-machine are of normal height on level ground, the branch pipes of the sprayers on both shoes stand vertically,  
 as shown in Fig. 3, or nearly so. If the height of the vines on opposite sides of the  
 40 spraying-machine varies on level ground, either sprayer can be shifted inwardly or outwardly independent of the other sprayer, as shown in Fig. 4, so as to deliver the spray  
 against the vines at the proper point.

- 45 In order to spray vines which stand on the side of a hill and which are the same height from the ground, one of the sprayers must be tilted outwardly for reaching the vines which are uphill and the other sprayer must  
 50 be tilted inwardly for reaching the vines which are downhill, as represented in Fig. 5.

- As the operator is seated adjacent to the spraying devices, he can observe the working of the sprays and the height of the vines and  
 55 can readily shift the nozzles according to the variation in the height of the vines by turning the hand-levers which are within convenient reach.

- When spraying on level ground, the cart and  
 60 the sprayers can be easily kept centrally between the two rows of vines, but when spraying rows of vines on the side of a hill the cart, owing to the weight of the liquid in the reservoir and the machinery, constantly slides  
 65 downhill and moves forward obliquely to the line of draft, as shown in Fig. 7. It has been found in practice that by making the weight

of the shoes and the spraying devices comparatively light the shoes travel substantially parallel with the line of draft. As the cart  
 70 moves forward obliquely to the line of draft on a hillside, that portion of the frame in front of the axle is carried upward beyond its normal position with reference to the line  
 75 of draft and that portion of the frame in rear of the axle is carried downwardly beyond its normal position with reference to the line of draft. It follows, therefore, that the sprayer-supporting shoes, which are pivotally connected with the frame in front of the axle,  
 80 are also carried upwardly in the same measure with the front part of the frame when the cart travels obliquely on a hillside, whereby the spraying devices are caused to move forwardly substantially midway between the  
 85 two rows of vines, thereby avoiding carrying one of the sprayers too close to the lower row of vines and the other sprayer too far away from the upper row of vines, which otherwise would be the case if the shoes were pivotally  
 90 connected with the draft-frame in rear of the axle. In order to permit the two sprayers to be held apart a certain distance and to prevent the shoes from working toward the center of the machine when the sprayers are  
 95 tilted outwardly, the shoes are adjustably connected by a sectional connecting-bar J, the outer ends of the sections being provided with eyes  $j$ , which receive pivot-pins  $j'$  on the rear ends of the shoes, while the inner ends  
 100 of the sections lap one over the other and are connected by bolts  $j^2$ , passing through openings formed in the sections.

If desired, a lifting contrivance may be employed for lifting the shoes from the ground  
 105 when the machine is not in use, the means for this purpose shown in the drawings consisting of a transverse rock-shaft K, provided with two inner rock-arms  $k$ , which are connected by chains  $k'$  with the shoes, and an  
 110 adjusting hand-lever  $K^2$ , connected by a link  $k^3$  with an outer rock-arm  $k^4$  on the transverse rock-shaft.

My improved spraying-machine is very compact, which permits of spraying vines  
 115 which are arranged close together.

I claim as my invention—

1. In a spraying-machine, the combination with the draft-frame provided with supporting-wheels, of a supporting-shoe adapted to  
 120 trail on the ground and pivotally connected at its front end with the draft-frame in front of the axis of the wheels and a spraying device mounted on the rear portion of the supporting-shoe, substantially as set forth.  
 125

2. In a spraying-machine, the combination with the draft-frame, of a supporting-shoe carrying a spraying device, a transverse rocking bar connected at its ends by horizontal  
 130 pivots with said shoe and a horizontal swivel-rod journaled lengthwise in the draft-frame and connected by a vertical pivot with the central portion of the rocking bar, substantially as set forth.

3. In a spraying-machine, the combination with the draft-frame, of a supporting-shoe carrying a spraying device and pivotally connected with the front portion of the draft-frame, a hand adjusting-lever arranged on the rear portion of the draft-frame and intermediate mechanism connecting said hand-lever with the pivot of the supporting-shoe, substantially as set forth.

4. In a spraying-machine, the combination with the draft-frame, of a supporting-shoe carrying a spraying device and connected at its front portion with a longitudinal swivel-rod which is journaled in the front portion of the draft-frame, a longitudinal rock-shaft journaled in the draft-frame and provided at its front end with an arm which is connected by a link with an arm on said swivel-rod and a hand adjusting-lever connected with the rear end of the rock-shaft, substantially as set forth.

5. In a spraying-machine, the combination with the draft-frame, of a supporting-shoe pivotally connected with the draft-frame and adapted to trail on the ground, an upright supply-pipe mounted on the supporting-shoe and provided at its upper end with a laterally-projecting spray-nozzle and a hand adjusting-lever which is connected with said shoe and whereby the nozzle can be shifted laterally, substantially as set forth.

6. In a spraying-machine, the combination

with the draft-frame, of two supporting-shoes arranged side by side and pivotally connected with the draft-frame, a spraying device mounted on each of said supporting-shoes and a hand adjusting-lever connected with each of said shoes and permitting each spraying device to be adjusted independent of the other spraying device, substantially as set forth.

7. In a spraying-machine, the combination with the draft-frame, of two supporting-shoes connected with the draft-frame and carrying spraying devices and a bar connecting said shoes, substantially as set forth.

8. In a spraying-machine, the combination with the draft-frame, of two supporting-shoes trailing on the ground with their rear portions and pivotally connected with the draft-frame at their front ends, a spraying device mounted on each of said shoes, and a sectional connecting-bar having the outer ends of its sections pivotally connected with the rear portions of the shoes and their inner overlapping ends adjustably connected by a bolt passing through openings in the sections, substantially as set forth.

Witness my hand this 24th day of July, 1896.

JOSEPH H. POTTER.

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