No. 705,645. Patented July 29, 1902.

M. J. CASWELL.

SPRAYING APPARATUS.

(Application filed Aug. 5, 1901.)

(No Model.)

2 Sheets—Sheet 1.

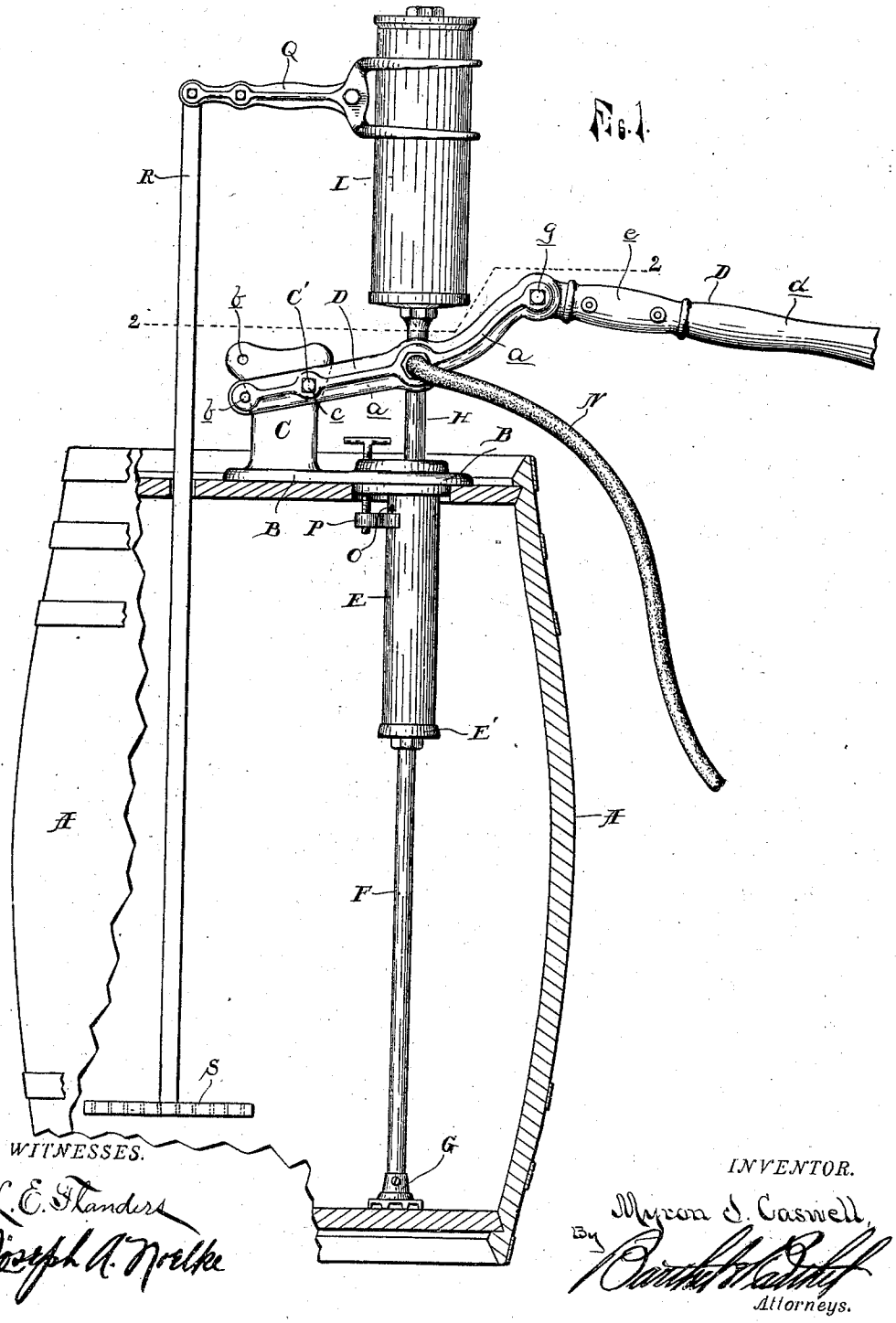


Fig. 1.

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Fig. 2.

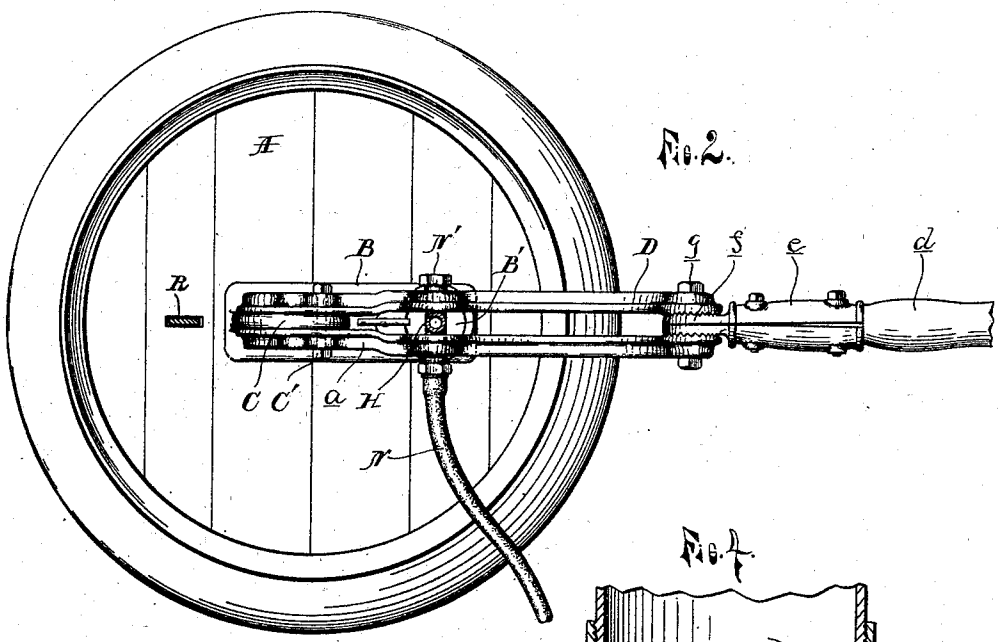


Fig. 4.

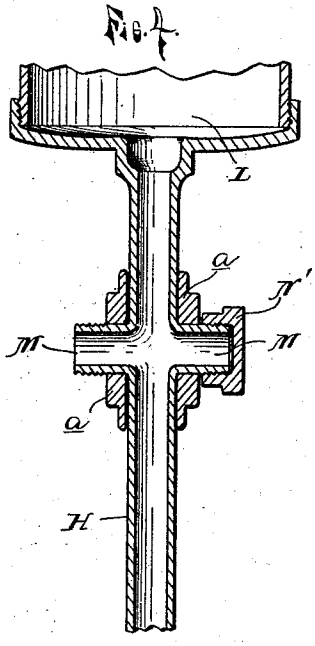
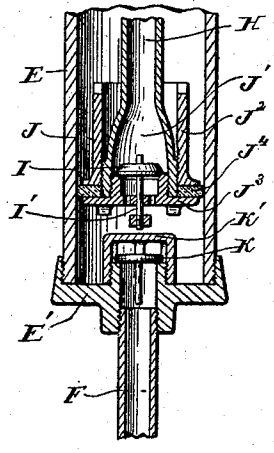


Fig. 3.



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UNITED STATES PATENT-OFFICE.

MYRON J. CASWELL, OF SANDUSKY, OHIO, ASSIGNOR TO LATHAM & COMPANY, OF SANDUSKY, OHIO, A FIRM.

SPRAYING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 705,645, dated July 29, 1902.

Application filed August 5, 1901. Serial No. 70,885. (No model.)

To all whom it may concern:

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

My invention relates to improvements in spraying apparatus for spraying trees, vines, &c., with a liquid for the purpose of removing insects or other injurious life; and its object is to provide a pump adapted to be attached to the head of a barrel or other receptacle for the liquid with a cylinder extending into the barrel and having an upper open end to catch the drip, a tubular plunger-rod extending into the cylinder and provided with a piston-head in which is a valve to admit the liquid into the plunger-rod, and an air-chamber in the upper end of said plunger-rod to insure a steady flow, and to provide said pump with certain other new and useful features whereby a device which is cheap, durable, simple in construction, and efficient in its operation is secured, all as hereinafter more fully described, and particularly pointed out in the claims, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of a device embodying my invention attached to a barrel, which is partially shown in section. Fig. 2 is a sectional view of the same on the line 2 2 of Fig. 1. Fig. 3 is an enlarged sectional detail of the lower end of the pump cylinder and piston. Fig. 4 is an enlarged sectional detail of the upper end of the tubular plunger-rod.

Like letters refer to like parts in all of the figures.

As shown in the drawings, A is a barrel to hold the liquid, and B a casting secured to the head of the barrel and provided with the stand C, to which is pivoted the pump-handle D. In the casting B is an opening B′, into which is screwed the cylinder E, the upper end of said cylinder being open and the lower end closed by a cap E′, into which cap is screwed the pipe F, leading to the bottom of the barrel. On the lower end of the pipe F is secured a casting G, provided with a strainer and having downwardly-projecting lugs to engage the bottom of the barrel. A tubular plunger-rod H extends into the upper open end of the cylinder E and is provided at its lower end with a piston-head J, consisting of the enlarged end J′ of the rod, which is externally screw-threaded to engage the sleeve J^2 and internally screw-threaded to engage the cap J^3, said sleeve and cap being provided with flanges to engage and hold the packing-ring J^4. Within the enlarged end J′ of said rod is a valve I, provided with a stem I′, extending through the cap J^3, the upwardly-extended flanges of said cap furnishing a seat for said valve, and a nut on the lower end of said stem limits the movement of said valve. In the cap J^3, around the said stem, are openings to admit the water to said valve. A valve-seat is formed on the cap E′, and a valve K provided to close the upper end of the opening to the pipe F, said valve K being limited in its movement by the apertured cap K′.

On the upper end of the plunger-rod H is secured the cylindrical air-chamber L, which is provided to insure a steady flow of the liquid, and said plunger-rod near its upper end is provided with a T or branches M, leading in opposite directions, for the attachment of a hose N, the branch not in use being closed by a cap N′.

The casting *a*, which forms a part of the handle D, is made in halves to embrace the stand C and plunger-rod H and is pivoted to the latter by being provided with openings adapted to receive the branch pipes M and to the former by a pivot-pin C′, adapted to engage the openings *b* or *c* in said stand and corresponding openings in the end of the casting *a*. The handle is thus provided with two points of attachment to the stand, said pin being inserted in the opening *c*, as shown, when the stroke of the handle is short. The opening *b* is nearer the top of the stand C and farther from the rod H than the opening *c*, and when the stroke is long the pin C′ should be moved to that opening, so that the rod will travel more nearly in alinement with the axis of the cylinder E than it would if but one pivot were provided, making the

length of lever between the pivot and point of attachment to the rod fixed and the same for all lengths of stroke. The stand C is also extended longitudinally between the sides of the handle portion *a* to form a guide for the handle and prevent the rod H from being moved laterally out of the axis of the cylinder E. The grip portion *d* of the handle is adjustably attached to the portion *a* by providing the same with a casting *e*, having a divided socket to receive the handle, the parts of said casting being held by bolts passing through the same, and on said casting is a serrated head *f*, extending between the sides of the portion *a*, which sides are also serrated to interlock with the serrated portion of the head, and a bolt *g*, passing through the sides and head, forms the pivot and binds the parts together.

If there is any leakage around the hose when it is attached to the branch M, the liquid thus escaping will fall into the upper open end of the cylinder E, and to allow such accumulation to flow back into the barrel I provide openings O near the top of the cylinder; but at times it may be desirable to incline the barrel or lay it on its side, in which case the liquid would escape from this opening, and so to prevent this I provide a cap P, faced with leather or other suitable material, to cover said openings, said cap being held and adjusted thereover by a thumb-screw journaled in the casting B and screw-threaded at its lower end to engage a screw-threaded opening in said cap.

Q is a bracket secured to the chamber L, to the outer end of which bracket is attached a rod R, extending through the head of the barrel and provided at its lower end with a blade S to agitate the liquid.

What I claim as my invention is—

1. In a spraying apparatus, a cylinder, a valve in the bottom of said cylinder, a hollow plunger-rod, a piston-head on the lower end of said rod, a valve to close the lower end of said rod, oppositely-extended branches forming a T at the upper end of said rod and forming a place of attachment for a hose, a divided handle embracing the rod and having openings to receive the branch pipes of the T, and a stand to which said handle is pivoted.

2. In a spraying apparatus, in combination with a receptacle for liquid, a cylinder having an upper open end extending into the receptacle, a pipe secured in the bottom of said cylinder and extending into the bottom of the receptacle, a valve in the bottom of the cylinder, a hollow plunger-rod, a piston-head on the lower end of said rod within said cylinder, a valve to close the lower end of said rod, a branch pipe at the upper end of said rod for the attachment of a hose, a handle mounted on said branch and free to turn thereon, and a stand to which the handle is pivoted.

3. In a spraying apparatus, in combination with a receptacle for liquid, a casting secured to the top of the receptacle and having an opening therein, and a stand provided with openings to receive the pivot-pin of the pump-handle, extending upward therefrom, a cylinder having an upper open end secured within said opening in said casting, a valve in the lower end of said cylinder, a hollow plunger-rod, a piston-head on said rod, a valve within said piston-head to close the lower end of said hollow rod, a T at the upper end of the hollow rod, a divided handle embracing the rod and said stand and pivoted to the former by being provided with openings to receive the branches of the T and to the latter by a pivot-pin adapted to engage the openings in the stand, said openings being arranged one nearer the top of the stand and farther from the plunger-rod than the other whereby the pivotal point of said handle may be changed when the length of the stroke is varied.

4. In a spraying apparatus, in combination with a receptacle for a liquid, a casting secured to the top of said receptacle and provided with an opening, a cylinder having an upper open end secured within said opening and extending into the receptacle and provided with lateral openings near its upper end, a pipe secured to the lower end of the cylinder, a valve to close the upper end of said pipe, a hollow plunger, a piston-head on said plunger, a valve to close the lower end of said plunger, an air-chamber on the upper end of said plunger, branch pipes forming a T near the upper end of the plunger, a hose attached to one of said branches and a cap for the opposite branch, a casting forming a portion of the pump-handle and made in halves to embrace the plunger and stand on which it is fulcrumed and provided with openings to receive the branch pipes of the plunger, a stand for said pump-handle extended longitudinally thereof and provided with bearings for the same, one nearer the top of the stand and farther from the plunger than the other, and a grip portion of the handle adjustably secured to the divided portion of the handle.

5. In a spraying apparatus, in combination with a receptacle for the liquid, a cylinder within said receptacle having an upper open end projecting through the top of the receptacle and an opening in its side within the receptacle, a cap to cover the said opening, means for adjusting and holding said cap over the opening, a hollow plunger, a piston-head on said plunger within the cylinder, and a valve to close the lower end of said plunger.

6. In a spraying apparatus, in combination with a receptacle for liquid; a casting having an opening secured to the top of the receptacle; a cylinder having an upper open end secured in said casting and extending into the receptacle and provided with lateral openings near its upper end; a cap to cover said openings; a thumb-screw journaled in said casting and engaging a screw-threaded opening in said cap to adjust the same; a pipe se-

cured in the bottom of said cylinder; a strainer-casting on the bottom of said pipe; a valve-seat formed in the bottom of said cylinder above said pipe; a valve on said seat; an apertured cap for said valve; a hollow plunger having an enlarged lower end and externally screw-threaded to engage a sleeve and internally screw-threaded to engage a cap having a central opening and openings around the same for the passage of the liquid; flanges on said sleeve and cap; a packing-ring engaged and held by said flanges; a valve-seat formed on said cap; a valve engaging the seat and provided with a stem to engage the central opening in the cap; a T near the upper end of said hollow plunger; hose attached to said T; a stand provided with pivots for the pump-handle; a pump-handle consisting of two parts, a grip portion provided with a head and a divided portion to embrace the stand, the plunger and the head of the grip portion; a pivot-pin to engage the openings in the stand; a bolt to secure the head between the parts of the divided handle portion; and an air-chamber on the upper end of the plunger.

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

MYRON J. CASWELL.

Witnesses:
JOHN H. IMMEL,
J. H. WAGENET.