

(No Model.)

2 Sheets—Sheet 1.

A. S. & A. H. DE CLERCQ.
SPRAYING PUMP.

No. 551,157.

Patented Dec. 10, 1895.

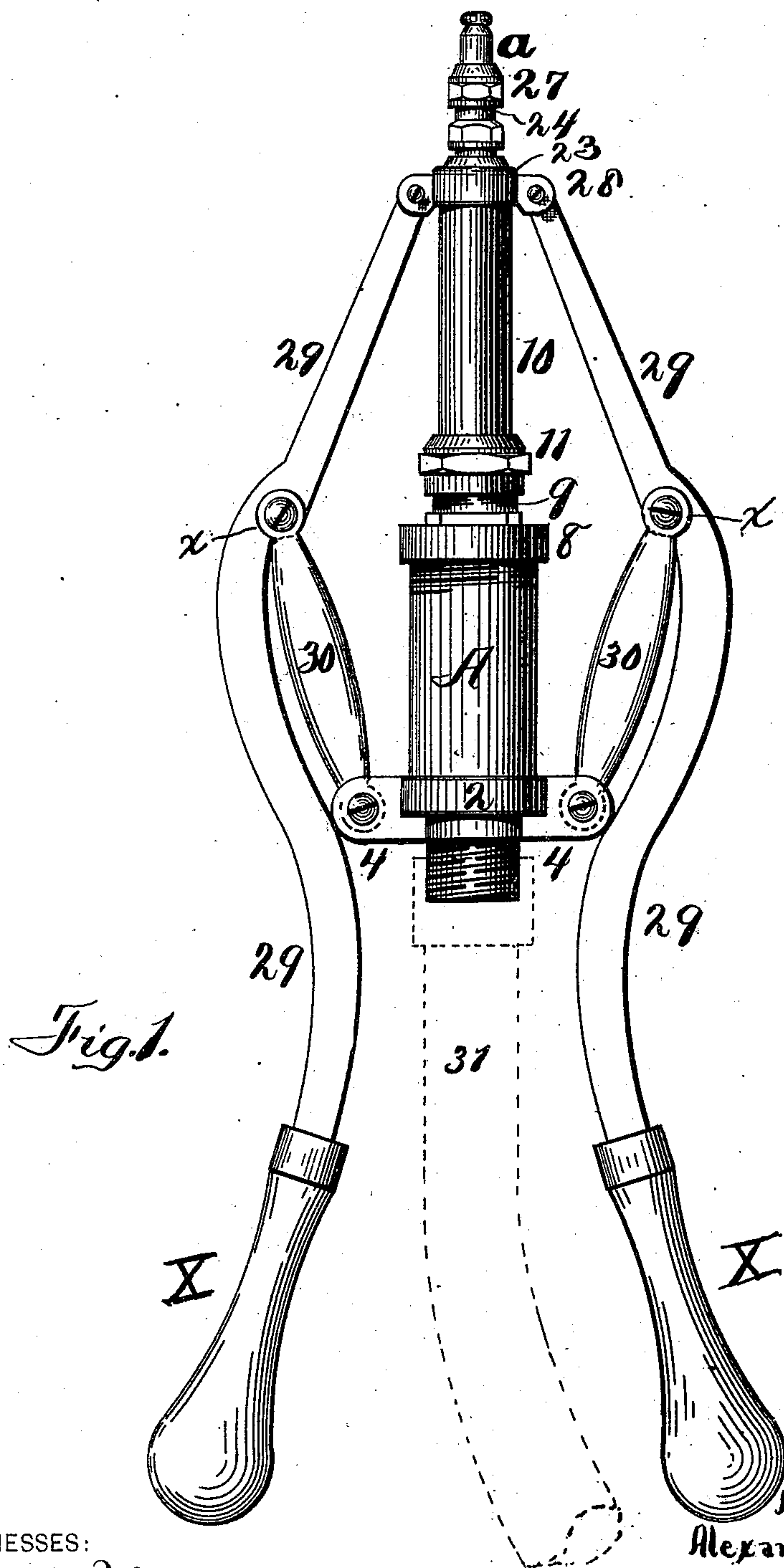


Fig. 1.

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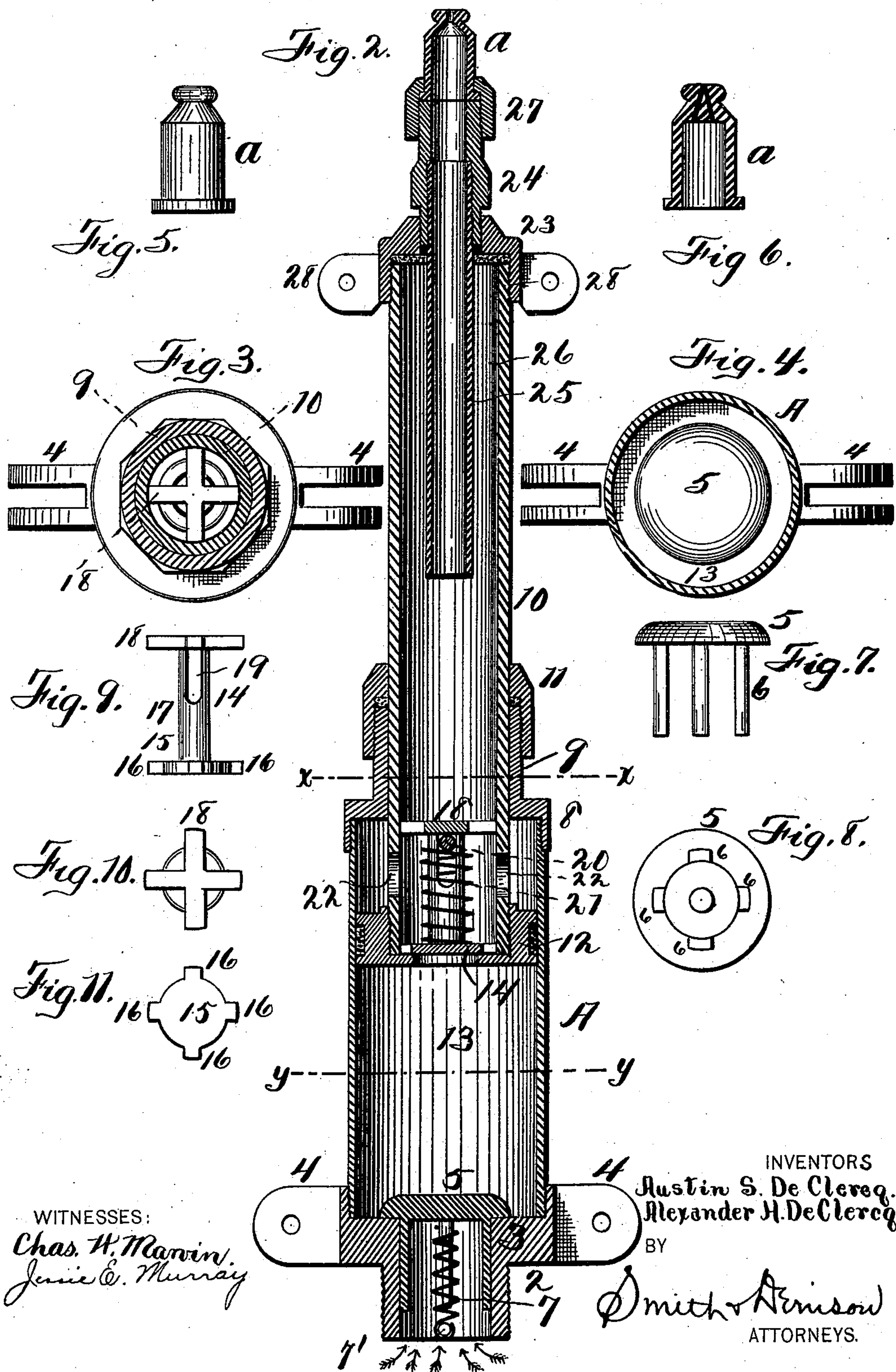
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UNITED STATES PATENT OFFICE.

AUSTIN S. DE CLERCQ AND ALEXANDER H. DE CLERCQ, OF CAZENOVIA,
NEW YORK.

SPRAYING-PUMP.

SPECIFICATION forming part of Letters Patent No. 551,157, dated December 10, 1895.

Application filed June 10, 1895. Serial No. 552,275. (No model.)

To all whom it may concern:

Be it known that we, AUSTIN S. DE CLERCQ and ALEXANDER H. DE CLERCQ, of Cazenovia, in the county of Madison, in the State of New York, have invented new and useful Improvements in Spraying-Pumps, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

The object of our invention is to provide an improved apparatus for spraying vines, trees, bushes, &c. Heretofore pumps for this purpose have usually been attached to a tub, bucket, or other reservoir, and have been worked with one hand while the operator held the spraying-nozzle with the other hand. It has heretofore been proposed to apply the pumping apparatus to the end of the hose or pipe through which water is conveyed from the reservoir to the spraying device, but this pumping apparatus has been crude and inconvenient in operation.

According to our invention, we provide a spraying-pump consisting of two principal members—viz., a cylinder and a piston—both provided with suitable valve mechanism, and both of which reciprocate relatively to each other. We employ hand-levers which we attach to the two members of the pump in such manner that by moving the levers toward and from each other the piston will be reciprocated in the cylinder or relatively thereto, and discharge the liquid through the spraying-nozzle. Preferably we employ toggle-levers and arrange the handles on opposite sides of the apparatus, so that by moving the hands toward and from each other a reciprocation of the piston at right angles to the movement of the hands will be effected. We are thus enabled not only to operate the pump to produce the spray, but also at the same time to support the pump by the operating-handles and to direct the spray, the movement of the hands being equal, preventing a vibration or wobbling of the spraying end of the apparatus, thus enabling us to keep the spray or stream pointed in the same direction toward any given point until designedly moved to another point.

In the accompanying drawings, Figure 1 shows an elevation of pumping apparatus

embodying our improvements. The remaining figures are on an enlarged scale. Fig. 2 shows a longitudinal section through the pumping apparatus. Fig. 3 shows a transverse section on the line $x x$ of Fig. 2. Fig. 4 shows a transverse section on the line $y y$ of Fig. 2. Fig. 5 is an elevation, and Fig. 6 a section, of the nozzle. Fig. 7 shows an elevation of one of the valves employed. Fig. 8 shows a bottom plan view thereof. Fig. 9 shows an elevation of the piston-valve. Fig. 10 shows a top view, and Fig. 11 a bottom view, of the piston-valve.

The cylinder A is provided with an end piece 2, having a valve-seat 3. The end piece is provided with a central opening, and is screw-threaded to receive a hose or pipe 31, as illustrated in dotted lines in Fig. 1. A valve 5, having guides 6, (shown in detail in Figs. 7 and 8,) is mounted on the valve-seat 3, and is normally held closed by a spring 7, attached to a cross-pin 7'. The opposite end of the cylinder A is provided with an end piece or cap 8, formed with an outwardly-projecting sleeve 9, having an annular screw-cap 11, between which and the sleeve 9 may be interposed any suitable packing. A hollow piston-rod 10 extends through the cap 11 and the end of the cylinder, and is adapted to reciprocate therein. It is provided in its sides near its inner end with openings 22, by which communication is effected between the upper end of the cylinder and the hollow piston. The inner end of the piston is perforated but is closed at times by the valve 14, which is provided at its opposite ends with plates 16 and 18, connected by a valve-stem 17. A rod 20 extends through a slot 19 in the valve-stem, and limits the movement of the valve, while a spring 21, encircling the valve-stem, normally closes the valve, as shown in Fig. 2. The hollow piston carries a piston-head 12, which is provided with suitable packing, and fits smoothly the bore of the cylinder A.

A cap 23 is secured to the outer end of the hollow piston, and between the cap and the end of the piston may be interposed suitable packing, as illustrated. A coupling 24 is secured to the cap 23, and it carries a tube 25, which extends down into the chamber of the hollow piston. A nozzle or spraying de-

vice *a* is secured by a coupling 27 to the end of the coupling 24. The parts are so connected that they may be readily removed and replaced, if desired.

5 The arrangement of the tube 25 in the hollow cylinder enables us to provide an air-chamber which will effect a continuous passage of liquid through the nozzle while the pump is being operated. Lugs 4 are formed
10 on or attached to the end piece 2 of the cylinder A, and similar lugs 28 are formed on or attached to the end piece 23 of the piston. Operating-levers 29 are pivotally connected at their inner ends to the lugs 28, and links
15 30 are pivotally connected to the lugs 4 and to the operating-levers 29 at *x*. The length of the links between the points *x* and the lugs 4 is preferably about equal to the length of the levers 29 between the points *x* and the
20 lugs 28.

The levers are provided with handles X, by which the operator may conveniently support the apparatus and operate the pump. Both hands of the operator are moved toward
25 and from each other transversely to the axis of the pump, so as to cause the piston to reciprocate in the cylinder, or the cylinder on the piston. The movement of the hands being equal, the apparatus is not swayed from
30 one point to another, but is pointed in the same direction during the operation of the pump and until designedly moved toward another point.

The hose 31 may lead to a tub, bucket, or
35 other reservoir of liquid at a distant point, and one operator may perform the whole operation at a long distance from the reservoir, whereas heretofore usually either the operator necessarily stood near the reservoir
40 working the pump with one hand and holding the nozzle with the other, or two operators were necessary, one operating the pump while the other at a distance held the nozzle.

The pumping apparatus in our device is
45 quite similar to apparatus of this class heretofore employed. It primarily consists of two members, the cylinder and the piston, each being provided with suitable valve mechanism. When the piston rises, as viewed
50 in Fig. 2, the valve 5 opens and the water enters the chamber 13 of the cylinder. When the piston descends, the valve 5 closes, while

the valve 14 opens, and the liquid enters the cylinder-chamber above the piston, and thence passes into the hollow piston-rod below the pipe 25, air being compressed in the upper end of the piston-rod at 26. The continued operation of the pump-levers fills the hollow piston-rod, and compresses the air more and more, a continuous stream or spray
60 of liquid being discharged through the nozzle.

We claim as our invention—

1. The combination of the two pump members, each provided with suitable valve mechanism, a nozzle carried by one pump member, a hose coupling carried by the other member, operating levers pivotally connected with one pump member near the nozzle, links connecting the operating levers with the other member of the pump near the hose
70 coupling, and handles on the levers for operating them and also for supporting the pumping apparatus and directing the spray.

2. The combination of two pump members, each provided with suitable valve mechanism, a nozzle carried by one pump member, a hose coupling carried by the other member, operating levers pivotally connected with one pump member on opposite sides of the nozzle, links connecting the operating
80 levers with the other member of the pump on opposite sides of the hose coupling, and handles on the levers for operating them and also for supporting the pumping apparatus and directing the spray.

3. The combination of two pump members, each provided with suitable valve mechanism, a nozzle carried by one pump member, a hose coupling carried by the other member, operating levers pivotally connected to
90 lugs projecting from the opposite sides of the nozzle, links connected to lugs projecting from the opposite end of the pump on opposite sides of the hose coupling, and handles on the levers for operating them and
95 also for supporting the pumping apparatus and directing the spray.

In witness whereof we have hereunto set our hands on this 10th day of May, 1895.

AUSTIN S. DE CLERCQ.

ALEXANDER H. DE CLERCQ.

In presence of—

G. R. PATTERSON,

S. B. ALLEN.