

No. 640,488.

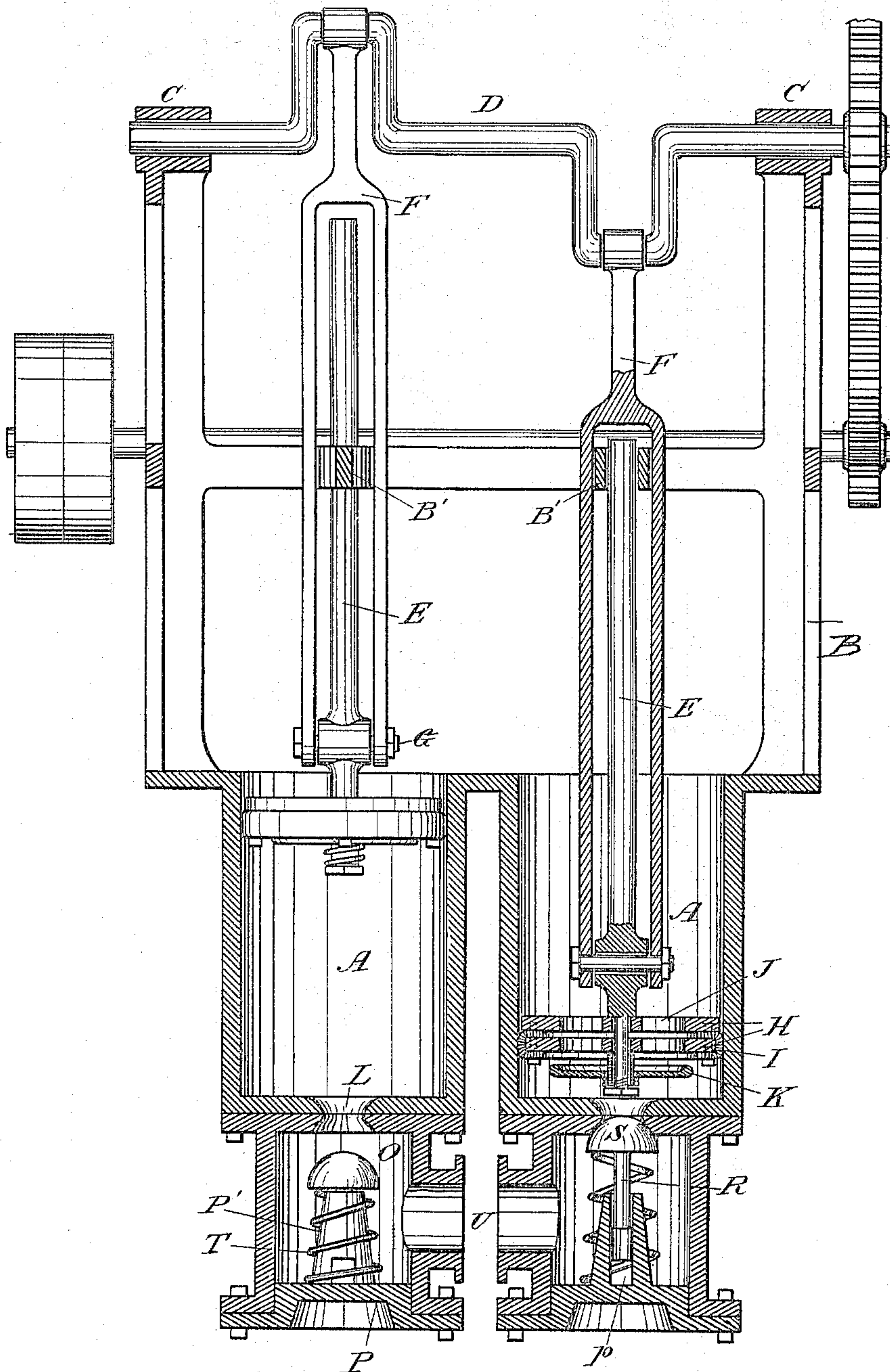
Patented Jan. 2, 1900.

J. S. PHILPOTT.

MUST PUMP.

(Application filed July 24, 1899.)

(No Model.)



Witnesses,  
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# UNITED STATES PATENT OFFICE.

JAMES S. PHILPOTT, OF WINDSOR, CALIFORNIA, ASSIGNOR OF ONE-HALF  
TO GEORGE A. NALLEY, OF SAME PLACE.

## MUST-PUMP.

SPECIFICATION forming part of Letters Patent No. 640,488, dated January 2, 1900.

Application filed July 24, 1899. Serial No. 724,948. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES S. PHILPOTT, a citizen of the United States, residing at Windsor, county of Sonoma, State of California, have invented an Improvement in Must-Pumps; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to improvements in that class of pumps which are designed to move the express juice of the grape, called "must."

It consists in details of construction, which will be more fully explained by reference to the accompanying drawing, in which the figure is a sectional elevation showing a pair of pumps.

A A are two cylinders (here shown as vertically disposed) having a frame B fixed thereto, and upon the top of this frame are journal-boxes C, in which the crank-shaft D is turnable. Pistons are fitted to the cylinders A, and the piston-rods E are guided by passing through openings in the transverse bar B' of the frame. The upper ends of the connecting-rods F are attached to the cranks of the crank-shaft D, and the lower ends are forked, so as to extend down upon each side of the piston-rods E and connect with them close to the piston by pins or bolts G, which pass through the two parts of the forked connecting-rod and through an enlargement made in that part of the piston-rod just above the piston.

The piston itself is composed of disks H, having an annular leather disk or packing I, one edge of which is clamped between the disks and the other, extending around the lower disk, is bolted thereto, so that the piston thus formed will work tight in the pump-cylinder and prevent leakage around the periphery. Through the disk H are made the holes J around the central stem of the piston-rod which passes through the piston. This stem extends below the piston, and slidable upon it is a valve K of sufficient diameter to cover the circle of ports J. When the piston is raised, the liquid entering the cylinder from above passes through the ports J, forcing the valve K open and allowing the must to pass into the lower part of the cylinder, and when the piston is moved downwardly the valve K closes

the ports J, and the must below the piston is then forced through the discharge, as will be hereinafter described. The edges of the valve K are made rounded and in such a manner that where they sit against the bottom of the piston H they will serve to cut any soft pulp or material which may lodge between the valve and the face as it passes through the openings in the piston, and the valve will thus be allowed to close to prevent leakage at this point. The discharge takes place vertically through a port L in the bottom of the cylinder and into a chamber O, which is bolted directly to the bottom of the cylinder and in line therewith.

The bottom P of the valve-chamber is bolted directly to a flange around the bottom of the valve-chamber, and is thus removable whenever it is desired to obtain access to the interior.

P' is a conical extension from the inner portion of the head P, projecting up into the valve-chamber O, as shown, and having a central hole, which forms a guide for the stem R of the valve S. This valve is semi-globular in shape and seats when closed against the bottom of the opening L, which is made divergent above and below, as shown, to assist in the free passage of the must. A spring T surrounds the stem R and the guide-cone P' and normally presses upwardly against the valve S, so as to cause it to close whenever pressure from above is relieved. The two valves K and S thus act in a manner usual to pumps.

The discharge-passage U is at the side of the cylinder, and where two of these cylinders are operated in unison the cranks upon the shaft D are placed opposite each other, so that the pump-pistons are reciprocated alternately and both discharge through the passages U into a common delivery-pipe, which leads to the receiver. By thus placing the discharge-pipe upon the side of the valve-chamber O the bottom of the valve-chamber and the valve can be at any time removed without disturbing any of the other parts.

In order to prevent the guide-opening in P' from becoming clogged or choked with liquid, which would prevent the free movement of the valve-stem R, I have shown holes p made



in the bottom of the guide-sleeve P', so that any liquid which may be in the guide-opening will freely discharge through these passages, and thus allow the valve to move without obstruction.

Where must-pumps are made with the ports in the sides of the cylinder, anything falling into the cylinder is very apt to get into the ports and cause obstruction; but by the arrangement here shown anything of this sort—such as nails, wrenches, or other substances—would simply fall upon the piston and ride thereon without interference and can be removed at leisure.

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

1. In a "must-pump," open-topped cylinders, pistons movable in the cylinders and connected with a crank-shaft, from which they are reciprocated, ports through said pistons surrounding the center, a spring-pressed valve closable from below over said ports, a valve-chamber bolted to the bottom of the cylinder, a passage through the bottom of the cylinder into said chamber, a spring-pressed upwardly-closing semiglobular valve closable against the passage, said valve having a guide-stem from below and a conical vertically-perforated projection from the lower head of the valve-chamber within which said

stem is slidable, and by which the valve-closing spring is maintained in position.

2. In a "must-pump," open-topped cylinders, pistons reciprocating therein, and mechanism intermediate between the pistons, and crank-shafts by which they are actuated, ports made through the pistons and a spring-pressed guided valve closable from below over said ports, a removable valve-chamber situated in line below the bottom of each cylinder, with a passage from the cylinder into the top of the valve-chamber, a removable lower head to the valve-chamber having an upwardly-projecting cone with a central opening therein, a semiglobular valve by which the passage between the cylinder and the valve-chamber is closed, said valve having a downwardly-projecting stem slidable and guided in the hole in the cone-openings connecting with the bottom of said guide-hole, a spring surrounding the cone and acting to normally close the valve against its seat, and side discharge-openings from the valve-chambers.

In witness whereof I have hereunto set my hand.

JAMES S. PHILPOTT.

Witnesses:

A. H. PARKER,  
J. F. PHILPOTT.