(No Model.)

2 Sheets—Sheet 1.

E. S. PALMBLA.

SYRUP DRAWING DEVICE.

No. 579,006. Patented Mar. 16, 1897.

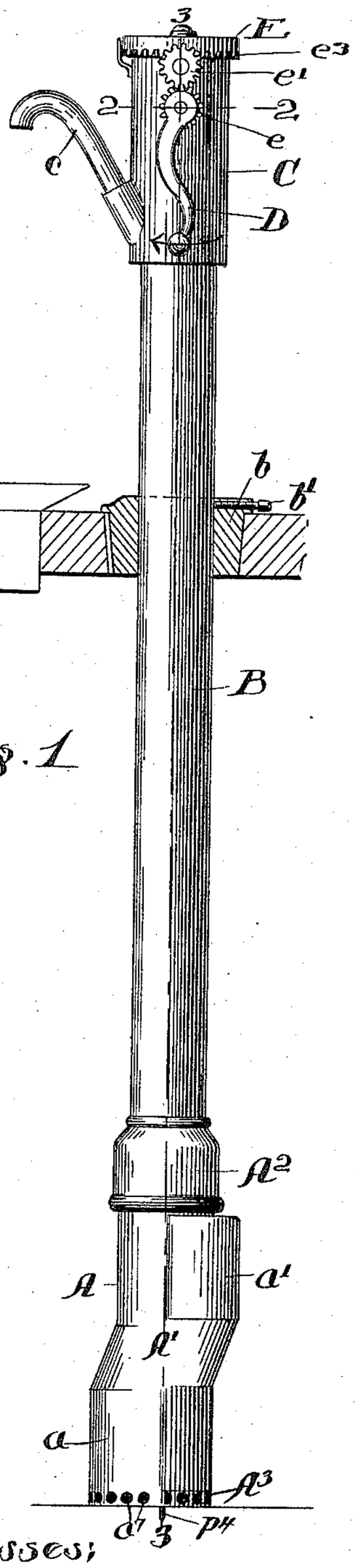

Fig. 1

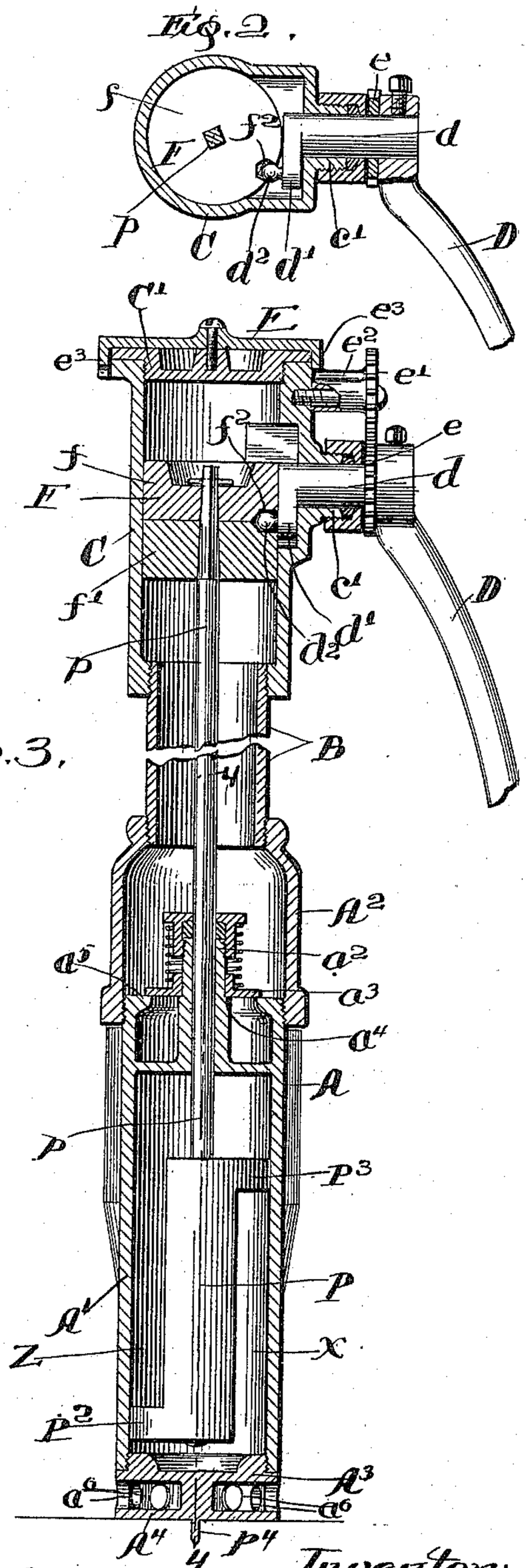

Fig. 3.

Witnesses;
Chas. A. Shervey.
M. L. Sheahan.

Inventor;
Edward S. Palmbla
by Miles Brewer Pitner
His attys.

(No Model.)

2 Sheets—Sheet 2.

E. S. PALMBLA.

SYRUP DRAWING DEVICE.

No. 579,006. Patented Mar. 16, 1897.

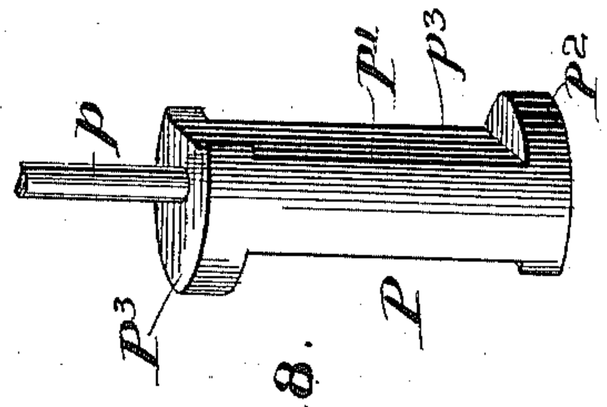

Fig. 8.

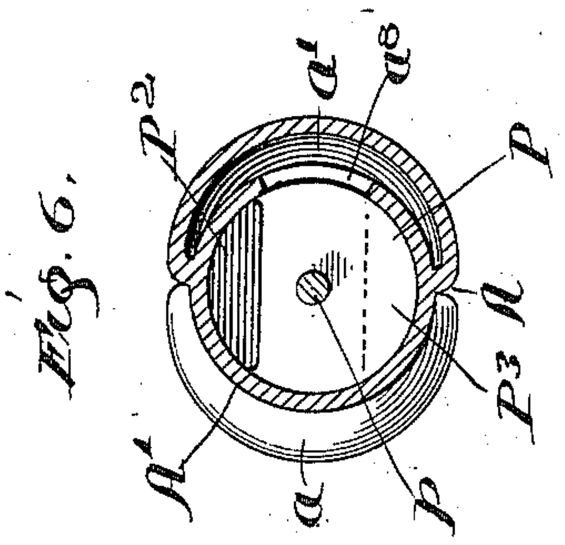

Fig. 6.

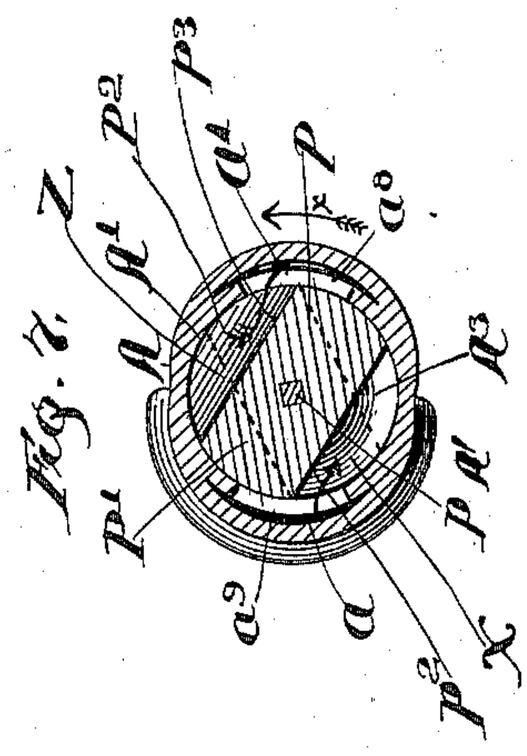

Fig. 7.

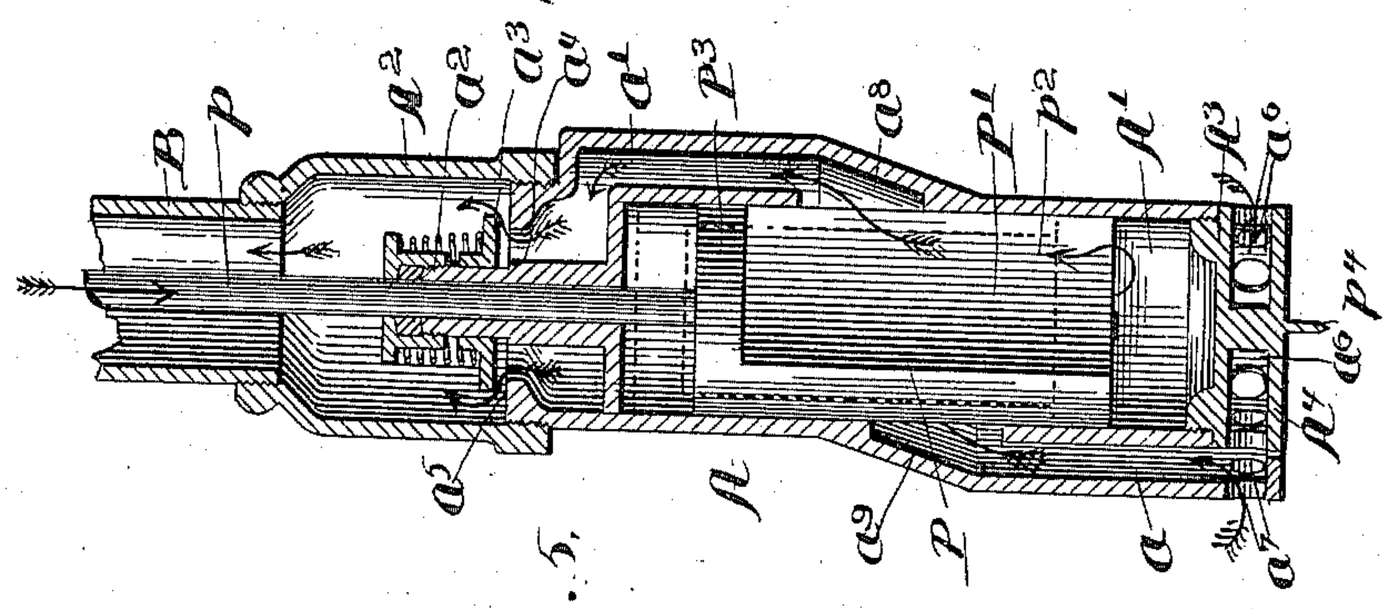

Fig. 5.

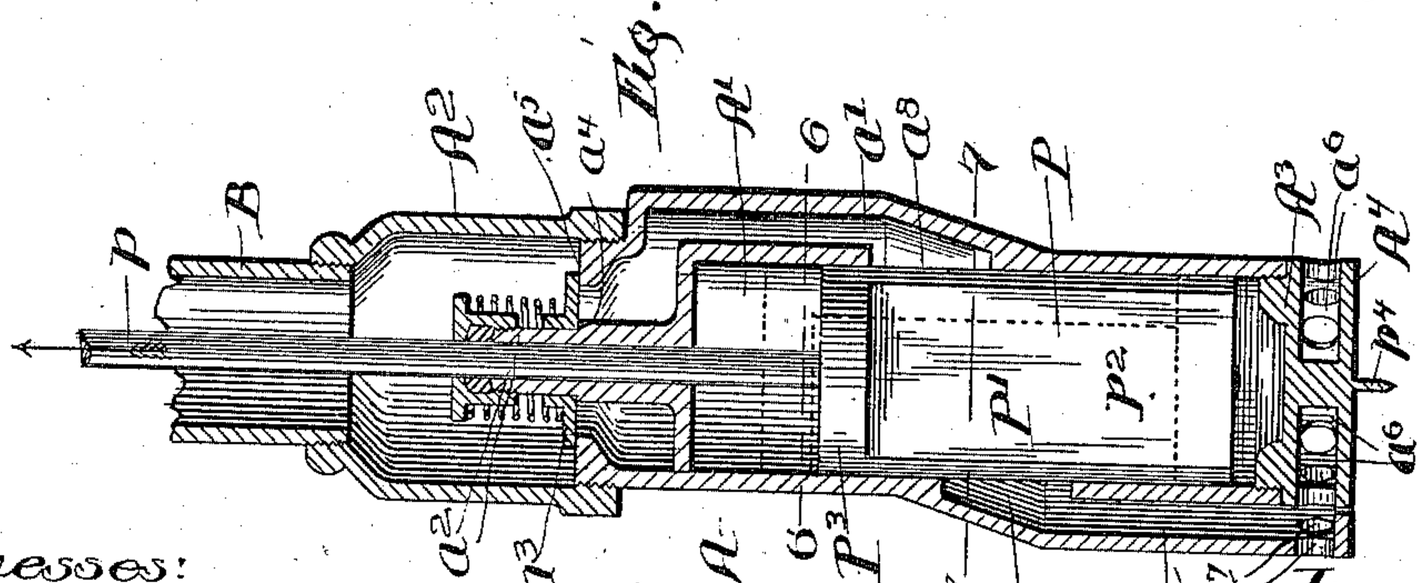

Fig. 4.

Witnesses:
Chas. O. Shervey,
M. L. Sheahan.

Inventor:
Edward S. Palmbla
by Wilkinson & Bitner
his attys.

UNITED STATES PATENT OFFICE.

EDWARD S. PALMBLA, OF CHICAGO, ILLINOIS.

SYRUP-DRAWING DEVICE.

SPECIFICATION forming part of Letters Patent No. 579,006, dated March 16, 1897.

Application filed May 4, 1896. Serial No. 590,081. (No model.)

To all whom it may concern:

Be it known that I, EDWARD S. PALMBLA, a citizen of the United States of America, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Syrup-Drawing Devices, of which the following is a specification.

My invention relates to certain improvements in syrup-drawing devices, its object being to construct a practical device which shall draw heavy liquids, such as syrup, &c., out of a barrel or cask, and at the same time measure the same into quantities as may be desired.

The invention is illustrated in the drawings presented herewith, in which—

Figure 1 is a side view of the device in its preferred form. Fig. 2 is a horizontal section in line 2 2 of Fig. 1, but showing the device upon an enlarged scale and the operating-crank rotated ninety degrees. Fig. 3 is a central vertical section through the line 3 3, Fig. 1, a portion of the connecting-pipe being broken away. Fig. 4 is a section in line 4 4 of Fig. 3, showing the piston in its lowest position. Fig. 5 is a similar view, but showing the piston on its downward stroke. Fig. 6 is a section in line 6 6, Fig. 4. Fig. 7 is a section in line 7 7, Fig. 4; and Fig. 8 is a perspective view of the piston.

Looking at Fig. 1, which shows the complete device in its preferred form, it will be seen to consist of a crank-operating mechanism and discharge-spout located above the barrel, a pump-cylinder within the barrel and resting upon the bottom thereof, and a pipe connecting the spout and cylinder. The fluid is drawn into the pump-cylinder by the rotation of the operating-crank, forced up through the pipe, and discharged through the spout, the amount withdrawn being indicated upon a dial mounted upon the upper portion of the device.

An aperture is made in the top of the barrel large enough to allow the pump-cylinder A to be passed therethrough, and the same is forced down until it strikes the head of the barrel, a retaining-peg p^4 being provided upon the under side of the cylinder, which enters the head of the barrel, thus preventing any lateral motion of the pump-cylinder.

The connecting-pipe B is provided with a bushing b, fitted to it and of such a diameter as to fit in the aperture surrounding the pipe B, the bushing being preferably provided with approximately vertical ribs to prevent it from slipping in the aperture when the device is operated. A set-screw b' is provided upon the bushing by which the pipe B may be firmly and securely clamped to the bushing, thus securing the entire device in place.

A hollow cylindrically-shaped casting C is screwed to the top of the pipe B, a discharge-spout c being provided through which the syrup, &c., may escape. At the proper place upon the casting is formed a boss c', in which is journaled a crank-shaft d, having upon its outer end an operating-crank D and upon its inner end a crank d', formed with a spherical wrist-pin d^2 near its end, a suitable stuffing-box being formed around the shaft d to prevent any accidental leakage.

Between the operating-crank D and the stuffing-box I have shown a gear-wheel e, meshing with a second gear-wheel e', journaled upon a shaft secured to the casting C, the hub of the gear-wheel e' being provided with a single tooth e^2, adapted to engage with teeth upon an annular flange e^3 of the indicating-disk E, said disk being pivoted upon a head C′, which is screwed or otherwise securely fastened upon the top of the casting C. This forms a very simple device for indicating the amount withdrawn, the number of revolutions of the operating-crank having previously been determined to measure such quantities as pints, quarts, &c.

Within the casting C is a head or slide-block F, formed of two pieces f f', arranged one above the other, a socket f^2 being formed in the peripheries at the meeting edges of the two pieces, as seen in Fig. 3, said socket being adapted to receive the wrist-pin d^2. The block F is provided with a square hole in which is keyed the piston-rod p, which extends downward and into the pump-cylinder, where it is connected with a piston P, the rod being squared at the ends in order that oscillation of the slide-block may be transmitted to the piston.

The pump-cylinder is best seen in Figs. 3 to 7, inclusive, and, as shown, consists in the cylinder proper, A′, inlet-port a, and outlet-port

a', leading upward and opening into a reducer A^2, which is screwed upon the lower end of the connecting-pipe B and connects the same with the cylinder. The upper end of the cylinder A′ is extended considerably to form a packing-box a^2, and a check-valve a^3 is arranged so as to slide upon this portion and adapted to seat itself upon the seat formed by the shoulder a^4 and face a^5 of the pump-cylinder. A head A^3 is screwed upon the lower end of the cylinder, said head being formed with a portion A^4 approximately parallel therewith and separated therefrom by a number of struts a^6, thus leaving a series of perforations between the struts through which the syrup, &c., may enter between the portion A^4 and the head and thence upward through the inlet-port a, said port being, however, also provided with a series of perforations a^7, adapted to allow the syrup to enter directly into the port a. As shown, the ports a a' are arranged directly opposite one another, the mouth a^8 of the outlet-port being slightly above the mouth a^9 of the inlet-port.

The piston is best shown in Fig. 8, and consists of a main portion P′ and the overhanging portions P^2 P^3, arranged on opposite ends thereof and diametrically opposite, as shown in said figure, the ends of said piston being approximately segments of circles. The main portion P′ of the piston is of a thickness to close up the mouths of the ports a a', which is done both when the piston is in its lowest and highest position, and during its vertically-reciprocating motion it is oscillated about the piston-rod as a center, in order that the contents of the barrel may be forced outward at both strokes of the piston. This is accomplished in the operation described below.

In Figs. 1, 3, 4, and 6 the operating-crank is in its lowest position, the piston consequently being in the same position and at the same time completely shutting off both ports a a'. If the operating-crank be rotated in the direction indicated by the arrow in Fig. 1, it will evidently raise the slide-block F through the engagement of the wrist-pin therewith, and at the same time rotate said slide-block to the position shown in Fig. 2, which shows the operating-crank rotated ninety degrees from the starting-point. The piston has now reached the position shown in dotted lines in Fig. 4 and as represented in Fig. 7. This upward movement of the piston evidently draws the syrup in through the port a and into the part of the cylinder proper lettered X, (see Fig. 7,) the port a having been opened through the rotation of the piston caused by the action of the wrist-pin d^2 upon the slide-block. When the operating-crank reaches a point one hundred and eighty degrees from its starting-point, the piston is evidently at its upper limit, but is again in a position to close off both ports. It will thus be seen that during the entire upward stroke of the piston liquid has been drawn into the part X of the cylinder, the liquid being evidently confined between the inner wall of the cylinder, the face p^2 of the piston, the overhanging lip P^3, and the lower segment of the piston; but as the piston begins its downward stroke it is rotated in the direction of the arrow x, Fig. 7, until communication between the portion X of the cylinder and outlet-port a' is made, when the liquid will be forced upward through the port a', lifting the check-valve a^3 into the connecting-pipe B and out through the spout c. During the downward rotation of the operating-crank the piston F is rotated in the direction above referred to until the operating-crank passes the point two hundred and seventy degrees from its starting-point, when the piston begins to rotate in the opposite direction and completely shuts off both ports the instant the operating-crank has completed its rotation.

During the downward stroke of the piston it not only forces the liquid confined in the portion X of the cylinder out of the barrel, but also draws liquid into the side Z of the cylinder; that is, between the inner wall of the cylinder, the face p^3, the lip P^2, and the upper segment of the piston. When the piston again begins its upward stroke, it is oscillated into the position shown in Fig. 7, thus forcing the liquid confined in the portion Z upward through the port a' and at the same time drawing in liquid on the opposite side of the piston. The check-valve a^3 evidently prevents any of these raised liquids from flowing back into the cylinder.

The device thus described is extremely practical and operates equally as well upon such liquids as syrup in cold weather as well as in warm, the same having a great tendency to become heavy and solid in the cold.

I am aware that modifications of this device are numerous, and I do not therefore desire to limit myself, except as particularly pointed out in the following claims.

I claim as new and desire to secure by Letters Patent—

1. In a device for drawing heavy liquids the combination with a longitudinally-reciprocating and laterally-oscillating slide-block, F, an operating-crank adapted to impart said motion to the slide-block, a casing C, adapted to guide said slide-block and provided with a suitable discharge-spout, of a pump-cylinder located within the barrel, a connecting-pipe B, connecting said casing with the pump-cylinder, said cylinder being provided with suitable inlet and outlet ports, a check-valve located at the end of said outlet-port, a piston P, comprising the main portion P′, and overhanging lips P^2, P^3, said piston being connected with the slide-block F, and adapted to be moved simultaneously therewith whereby liquid may be drawn in between the overhanging lip and cylinder on one side of the piston and the liquid confined on the opposite side of the piston forced through the out-

let-port at each stroke; substantially as described.

2. A syrup-drawing device comprising a casing C, a discharge-spout *c*, upon said casing, a shaft *d*, journaled in said casing, operating-crank D, and crank *d'*, mounted upon said shaft, the wrist-pin d^2, upon the crank *d'*, the slide-block F, reciprocating in said casing and having the socket f^2, adapted for engagement with the wrist-pin d^2, the cylinder A, having the inlet-port, *a*, and outlet-port *a'*, the pipe B, connecting said cylinder with the casing, the piston P, having the overhanging lips P^2, P^3, the piston-rod *p*, connecting said piston with the slide-block F, and the check-valve a^3, in the outlet-port *a'*.

3. A syrup-drawing device comprising a casing C, a discharge-spout *c*, upon said casing, a shaft *d*, journaled in said casing, operating-crank D, and crank *d'*, mounted upon said shaft, the wrist-pin d^2, upon the crank *d'*, the slide-block F, reciprocating in said casing and having the sockets f^2, adapted for engagement with the wrist-pin d^2, the cylinder A, having the inlet-port *a*, and outlet-port *a'*, the pipe B, connecting said cylinder with the casing, the piston P, having the overhanging lips P^2, P^3, the piston-rod *p*, connecting said piston with the slide-block, the check-valve a^3, in the outlet-port, the bottom portion A', struts a^6, connecting said bottom portion with the cylinder-head, and openings a^7, in the bottom of the inlet-port; substantially as described.

In witness whereof I have hereunto set my hand this 28th day of April, A. D. 1896.

EDWARD S. PALMBLA.

Witnesses:
CHAS. O. SHERVEY,
M. L. SHEAHAN.