

(No Model.)

2 Sheets—Sheet 1.

E. S. PALMBLA. SYRUP DRAWING DEVICE.

No. 579,006.

Patented Mar. 16, 1897.

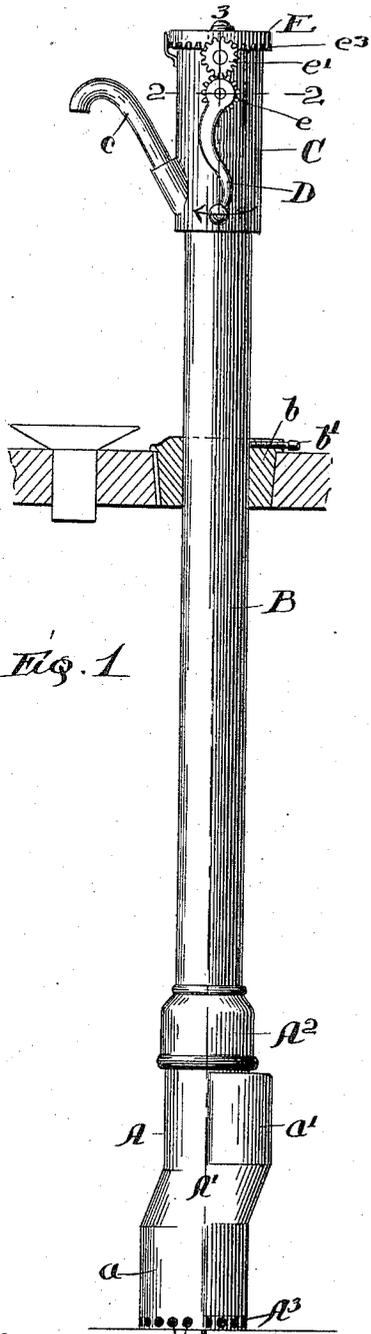


Fig. 1

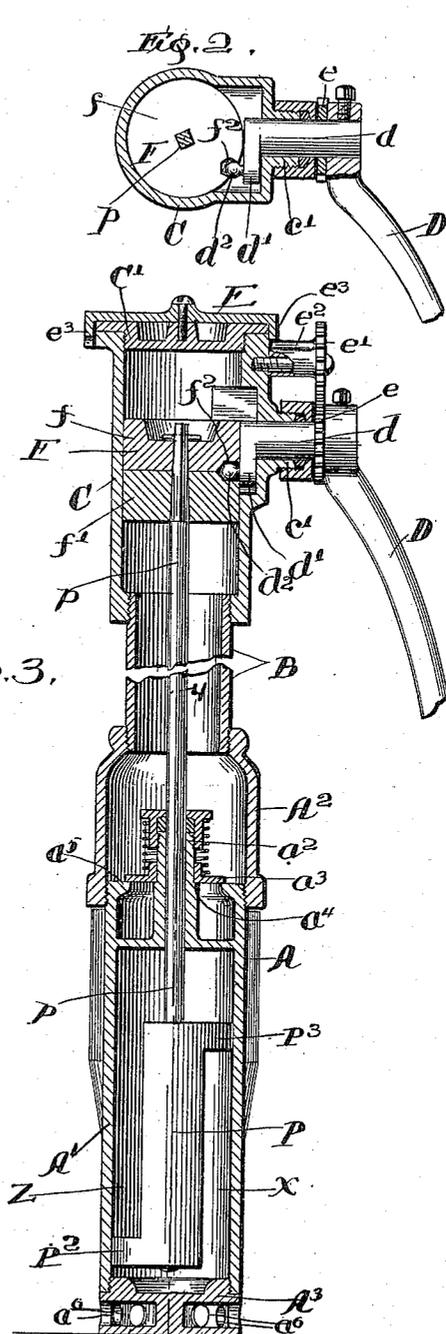


Fig. 3.

Witnesses;
 Chas. O. Sherway,
 M. L. Sheahan.

Inventor;
 Edward S. Palmbela
 by Miles Warner Titus
 His atty.

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, 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 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

5 a' , leading upward and opening into a re-
 ducer 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
 10 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
 15 pump-cylinder. A head A^3 is screwed upon
 the lower end of the cylinder, said head be-
 ing formed with a portion A^4 approximately
 parallel therewith and separated therefrom
 by a number of struts a^6 , thus leaving a se-
 20 ries of perforations between the struts
 through which the syrup, &c., may enter be-
 tween the portion A^4 and the head and thence
 upward through the inlet-port a , said port
 being, however, also provided with a series
 25 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 con-
 sists of a main portion P' and the overhang-
 ing portions P^2 P^3 , arranged on opposite ends
 thereof and diametrically opposite, as shown
 30 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
 35 and highest position, and during its verti-
 cally-reciprocating motion it is oscillated
 about the piston-rod as a center, in order that
 the contents of the barrel may be forced out-
 ward at both strokes of the piston. This is ac-
 40 complished in the operation described below.

In Figs. 1, 3, 4, and 6 the operating-crank
 is in its lowest position, the piston conse-
 quently being in the same position and at the
 same time completely shutting off both ports
 45 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
 50 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
 55 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
 60 the piston caused by the action of the wrist-
 pin d^2 upon the slide-block. When the oper-
 ating-crank reaches a point one hundred
 and eighty degrees from its starting-point,
 the piston is evidently at its upper limit, but
 65 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
 70 piston, the overhanging lip P^3 , and the lower
 segment of the piston; but as the piston be-
 gins its downward stroke it is rotated in the
 direction of the arrow x , Fig. 7, until com-
 75 munication between the portion X of the cyl-
 inder 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 con-
 necting-pipe B and out through the spout c .
 80 During the downward rotation of the operat-
 ing-crank the piston F is rotated in the di-
 rection above referred to until the operating-
 crank passes the point two hundred and sev-
 enty degrees from its starting-point, when
 85 the piston begins to rotate in the opposite di-
 rection 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
 90 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
 95 again begins its upward stroke, it is oscil-
 lated 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
 100 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
 105 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
 110 limit myself, except as particularly pointed
 out in the following claims.

I claim as new and desire to secure by Let-
 ters Patent—

1. In a device for drawing heavy liquids 115
 the combination with a longitudinally-recip-
 rocating 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
 120 suitable discharge-spout, of a pump-cylinder
 located within the barrel, a connecting-pipe
 B, connecting said casing with the pump-cyl-
 inder, said cylinder being provided with suit-
 able inlet and outlet ports, a check-valve lo-
 125 cated at the end of said outlet-port, a piston
 P, comprising the main portion P' , and over-
 hanging lips P^2 , P^3 , said piston being con-
 nected with the slide-block F, and adapted to
 be moved simultaneously therewith whereby
 130 liquid may be drawn in between the over-
 hanging lip and cylinder on one side of the
 piston and the liquid confined on the oppo-
 site 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 P², P³, 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 P², P³, 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.