(No Model.)

J. H. WELCH.

SELF MEASURING OIL PUMP.

No. 536,674. Patented Apr. 2, 1895.

Fig. 1.

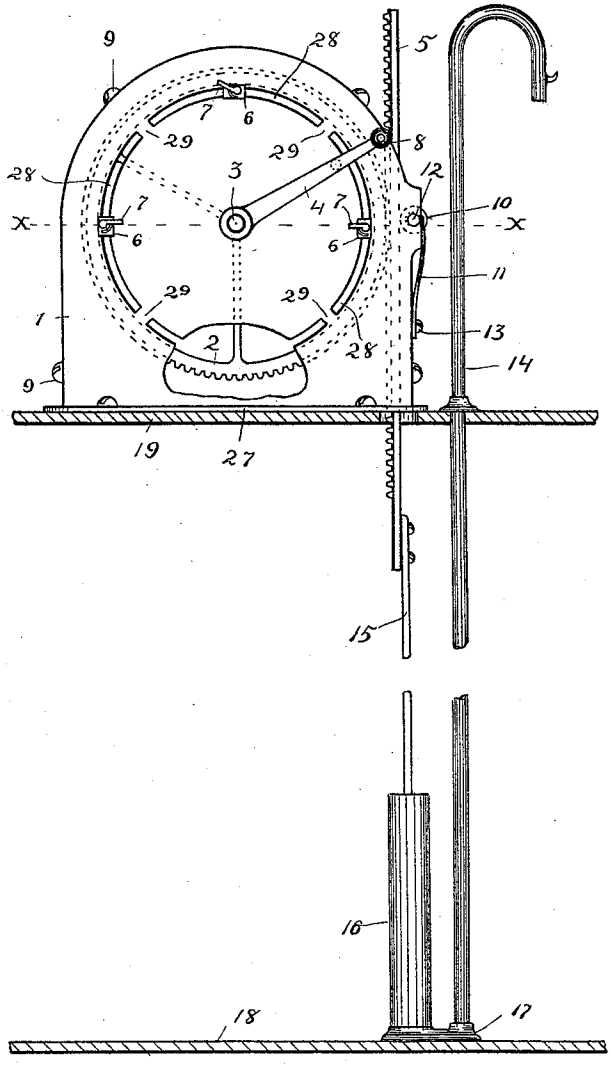


Fig. 2.

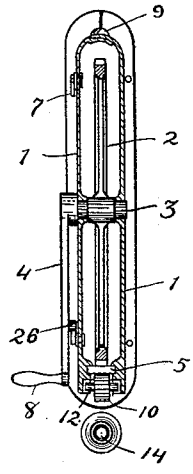


Fig. 3.

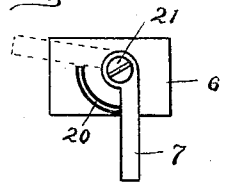
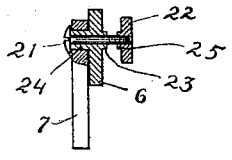


Fig. 4.



WITNESSES:

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UNITED STATES PATENT OFFICE.

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SELF-MEASURING OIL-PUMP.

SPECIFICATION forming part of Letters Patent No. 536,674, dated April 2, 1895.

Application filed February 4, 1895. Serial No. 537,214. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. WELCH, a citizen of the United States, residing at Fort Wayne, in the county of Allen, in the State of Indiana, have invented certain new and useful Improvements in Self-Measuring Oil-Pumps; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to improved means for automatically measuring and delivering liquids by the retailer, and is specially designed and adapted for use in connection with retailers' oil tanks.

The object of my invention is to provide an improved self-measuring oil pump of simple and economical construction arranged to secure an economy of space, adapted to conveniently measure and deliver, with absolute accuracy, the oil or other liquid from the containing tank to the customer's vessel or can, by a simple stroke of the operating handle or crank which actuates the pump piston by means of a vertically movable rack-bar adapted for an operative engagement with an actuating gear-wheel rotatably mounted in a containing case or sheath.

My invention comprises an upright two-part laterally and vertically slotted inclosing sheath, provided with a vertically movable rack connected at its lower extremity with the upper end of the pump piston-rod, and has rotatably mounted therein an actuating gear-wheel adapted for an operative engagement with the said vertical rack, and also provided with a series of adjustable limiting stops mounted in the said lateral slots adapted to limit the oscillation of the operating crank handle, whereby the liquid is automatically measured.

The novel feature of my invention is the construction and arrangement of the pump operating mechanism whereby any predetermined quantity can be readily and accurately measured and delivered by a single stroke or oscillation of the operating crank handle.

In the accompanying drawings similar figures of reference indicate corresponding parts throughout the several views.

Figure 1 is a side elevation of my improvement showing the lateral slots in the inclosing sheath with the adjustable limiting stops in position therein, and also showing the general arrangement of the operative mechanism and its connection with the pump. Fig. 2 is a plan of the same showing the manner of mounting the vertical rack and the actuating wheel in the containing sheath, and also showing the engagement of the crank-handle with the limiting stops. Fig. 3 is an enlarged detail of the limiting stop pivotally mounted on its adjustable supporting block. Fig. 4 is a detail of the same in cross-section showing the lateral clamping-plate by which the said block is secured in position.

All parts of my invention are preferably of metal.

The upright inclosing sheath 1 of cast metal is made in two equal parts with a semi-circular top and lateral flanges 27 adapted to form a supporting base which is rigidly fixed upon the top 19 of any proper oil-tank or other suitable support. The top and sides of the said sheath overlap and are secured by proper removable screws 9, Fig. 1. At or near the forward end of the said sheath in suitable vertical guiding slots and grooves is loosely mounted the vertically movable rack-bar 5 adapted to engage the operating wheel 2. In suitable bearings in a lateral slot in the forward end of the sheath directly opposite the point of engagement of the said rack and wheel is loosely mounted the pressing roller 10 provided with the integral journals 12, as seen in Figs. 1 and 2 adapted to bear upon the front face of the said rack-bar to insure an operative engagement with the said wheel, although I do not consider the said roller an essential feature of my invention. When the said roller is employed, I also preferably provide a spring 11, secured at its lower end to the front face of the sheath 1 by the screw 13 and is adapted to press the said roller 10 to its work. The said rack-bar 5 is secured at its lower end to the upper end of the plunger rod 15 carrying a proper piston in the pump cylinder 16 which is rigidly fixed on the base 17 through which it has a proper valved connection with the discharge pipe 14 which

is also firmly mounted on the base 17 as seen in Fig. 1. The said base 17 is designed to rest upon the bottom 18 of the said tank. The said sheath 1 is provided with a central perforation in which is loosely mounted the horizontal transverse shaft 3 on which is rigidly fixed the rotatable gear-wheel 2 adapted for an actuating engagement with the said rack-bar 5. Upon one extended end of the said shaft 3 is rigidly fixed the crank-arm 4 provided with an operating handle 8. The said arm 4 also has an inwardly projecting lug 26 adapted to engage the limiting stops hereinafter described—as seen in Fig. 2. Upon that side of the sheath 1 on which the said crank arm 4 is arranged, are provided a series of slots 28 which are practically quadrants of the same circle but are separated by suitable spaces 29 to give that portion of the sheath proper supporting strength for the said gear-wheel.

The adjustable block 6 of any proper form, preferably rectangular, is laterally perforated to receive the holding screw 21, has upon the outer face a circular lug 24, surrounding the said perforation and is provided upon its inner face with an elongated rectangular lug 23, adapted to fit in a corresponding recess in the adjacent face of the sheath 1, Fig. 4, to prevent the said block from turning. The said block 6 is also provided with any proper integral lug 20 for limiting the throw of the pivoted stop 7. The clamp-plate 22 is centrally perforated and is mounted on the inner screw threaded end of the holding screw 21 and is provided upon its inner face with a rectangular lug 25 to fit a corresponding recess in the adjacent or inner face of the said sheath which prevents the said plate 22 from turning when the said screw 21 is being inserted. Upon the said lug 24 is pivotally mounted the said limiting stop 7 which is secured in position by the head of the said screw 21. The adjustable block 6 thus constructed is mounted in the said slot 28 and is rigidly secured in position by means of the said holding screws 21 and the said clamping plate 22.

The mode of operation of my improvement thus described will be readily understood and briefly stated is as follows: The parts of the sheath 1 being firmly united by the screws 9 and having the vertical rack-bar mounted in position therein is securely mounted upon the top 19 of the oil tank and the said rack-bar is connected to the top of the piston-rod 15. The adjustable blocks 6, three in number, are mounted as described in the slots 28, two of them being arranged diametrically opposite on the horizontal line X—X and the third being arranged midway the said blocks and at or near the center of the uppermost slot 28, Fig. 1. The relative positions of the said blocks are determined by actual tests to secure the proper measurement. With my present construction, the oscillation of the said crank-arm through half the circle formed by the slots 28 and the spaces 29 will measure one-half a gallon and oscillating the said arm from the forward block 6 and the line X—X to the upper block 6 will measure just one quart. It will be seen that when the pivoted stop 7 is in the position seen in Fig. 3, it will engage the lug 26 on the crank 4 and thus limit its movement in that direction and when the said stop 7 is thrown back as seen in the uppermost one in Fig. 1, the crank 4 can freely pass the same. Therefore to measure a half-gallon, the operator oscillates the said arm 4, by means of the handle 8, from the forward block 6 past the said upper block 6 to the lower block 6 where its further movement is prevented by the stop 7. This rearward movement of the crank 4 charges the said pump and the forward movement of the said crank through the same space measures and delivers with infallable accuracy the desired half-gallon. By placing the limiting lug 7 of the upper block 6 in a vertical position as seen in Fig. 3, the operator can in a like manner accurately measure a single quart. It is obvious that in a similar manner the operator at one stroke of the said crank 4 can measure and deliver either three quarts or a full gallon.

It is apparent that by the use of two vertically movable racks one on each side of the said wheel and two pumps both discharging into the stand pipe, I can both measure and deliver the liquid at each backward and forward oscillation of the said crank arm, though I do not specifically claim such a construction in this application.

It is thus obvious that my improved self measuring oil pump is simple in construction, efficient and reliable in operation and convenient in use.

Having thus described my invention and the manner of operating the same, what I claim, and desire to secure by Letters Patent, is—

1. In a self measuring oil pump, an upright two-part sheath adapted to contain a vertical rack and an actuating gear-wheel and having upon one side thereof the curved slots 28 for the adjustable blocks 6, and arranged as shown, the blocks 6 adjustably mounted in the said slots as described and provided with a pivotally mounted stop 7 and a holding lug 20, for the purpose specified, a vertically movable rack 5 mounted in said sheath as described and connected at its lower end to the pump piston-rod, an actuating gear-wheel 2 rotatably mounted in said sheath rigid on the shaft 3 and adapted for an operative engagement with the said rack and a crank-arm, 4 rigid on the outer end of the said shaft, having a proper operative handle and provided with a lateral lug 26 to engage the said limiting stops 7 all substantially as described.

2. The combination, in a self-measuring oil pump, of the two-part sheath 1, having upon one side thereof the curved slots 28 for the blocks 6, and adapted to contain the vertically movable rack 5 and the gear-wheel 2 in engagement with said rack, the adjustable

blocks 6 mounted in said slots as described having a pivoted limiting stop 7 to engage the operating crank-arm; the vertical rack 5 mounted in said sheath as described and adapted to operate the said plunger by means of the rack 5 and an operating crank-arm or lever having a lateral lug 26 adapted to engage the said stop 7, and a proper pump comprising a cylinder 16, a plunger 15 carrying a suitable piston and the discharge pipe 14 having a valid connection with the said cylinder, all substantially as specified.

3. In a self measuring oil pump, the adjustable block 6 adapted to be removably mounted in a curved slot into the containing sheaths 1 containing a holding screw 21 having a clamping plate 22 upon the inner end thereof for the purpose specified, and provided with a pivotally mounted stop 7 adapted to engage the said lug 26 for the purpose of limiting the oscillation of the operating crank, all substantially as described.

Signed by me, at Fort Wayne, Indiana, this 2d day of February, A. D. 1895.

JOHN H. WELCH.

Witnesses:

CHAS. E. WELCH,

WALTER G. BURNS.