No. 869,469. PATENTED OCT. 29, 1907

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MEASURING PUMP.

APPLICATION FILED NOV. 3, 1904.

Fig. 1.

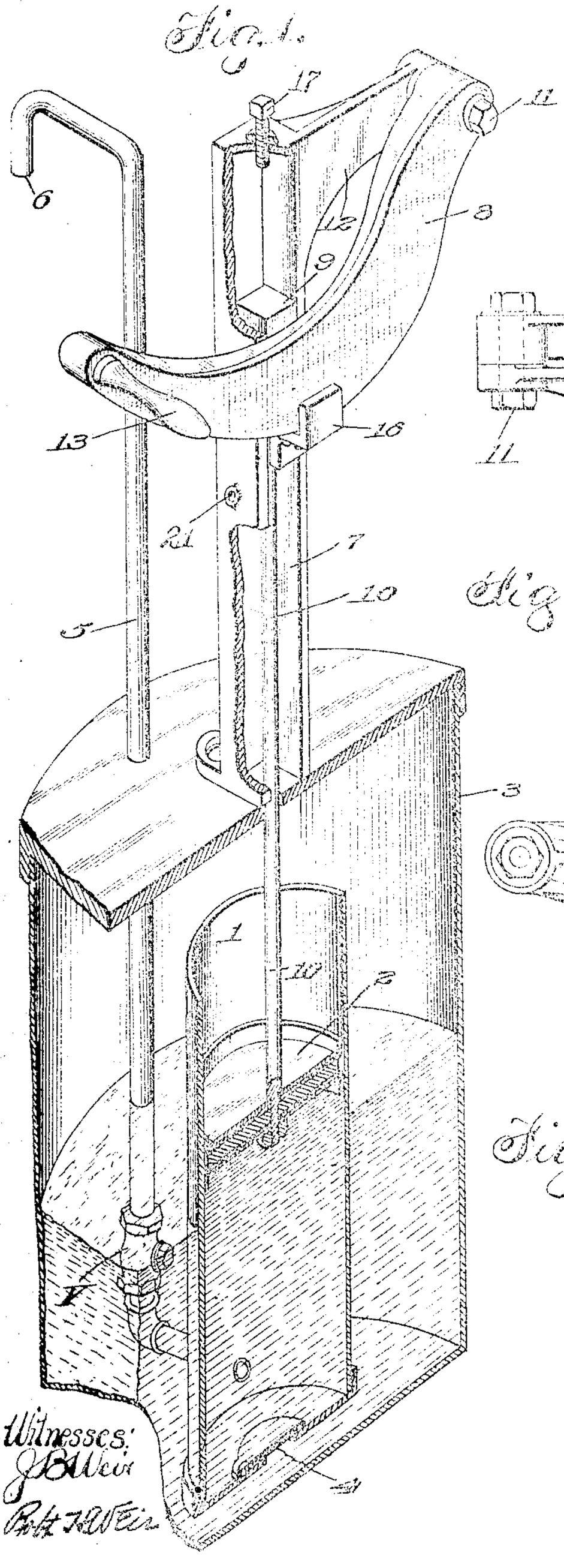

Fig. 2.

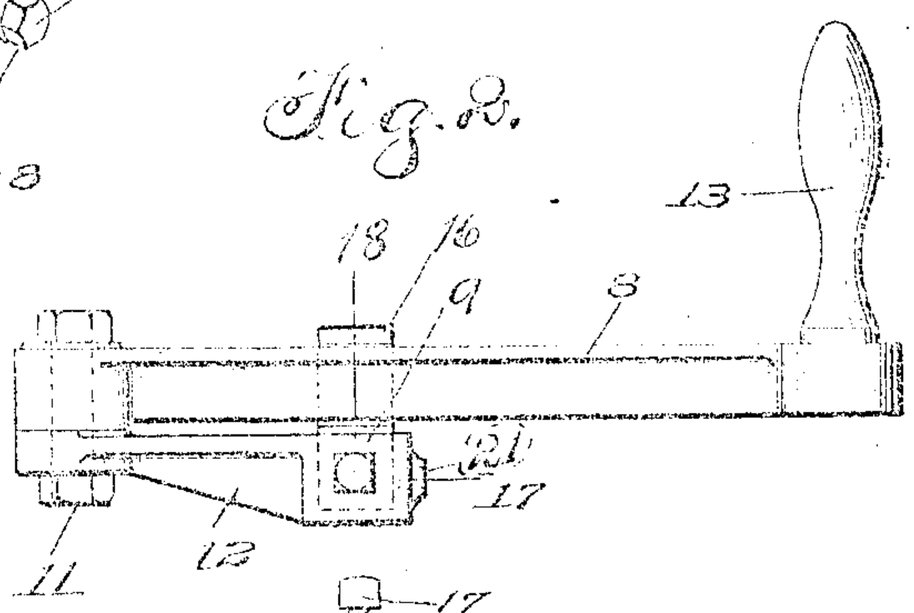

Fig. 4.

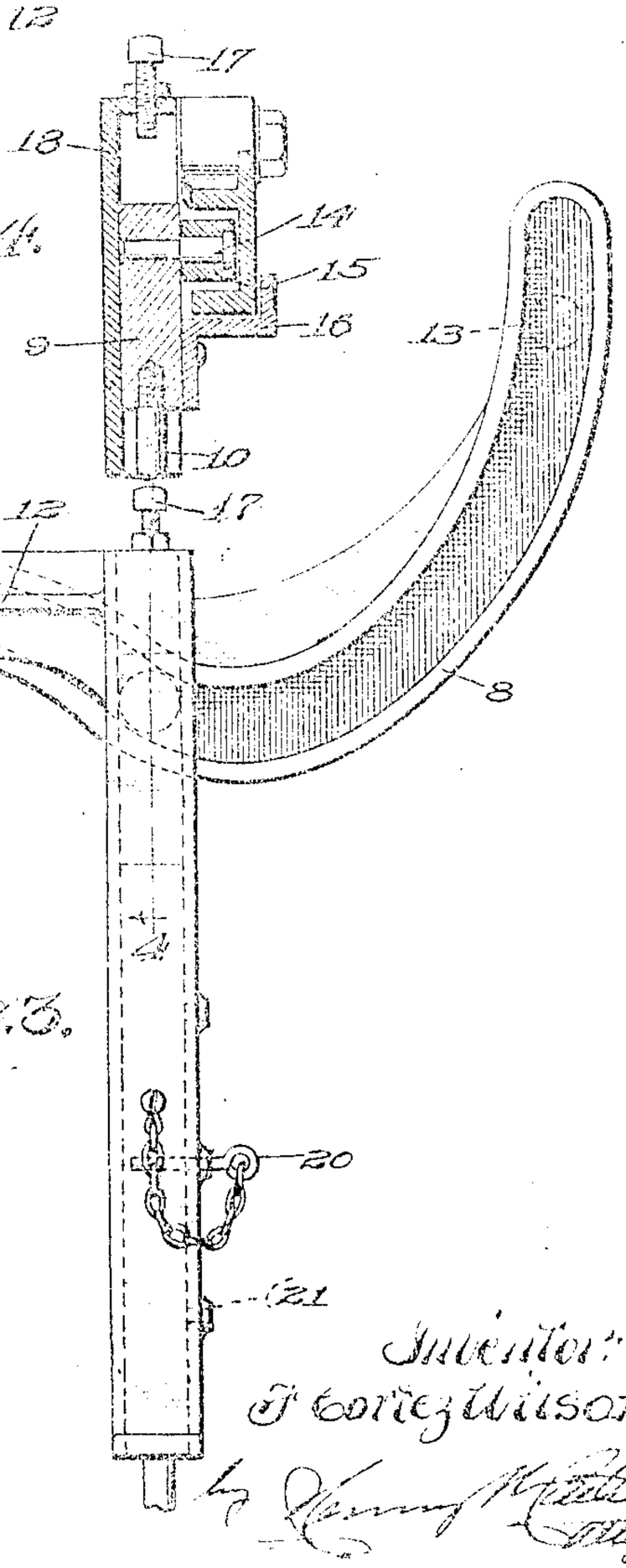

Fig. 3.

Witnesses:
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UNITED STATES PATENT OFFICE.

F CORTEZ WILSON, OF CHICAGO, ILLINOIS; CATHERINE ELIZABETH WILSON EXECUTRIX OF SAID F CORTEZ WILSON, DECEASED.

MEASURING-PUMP.

No. 869,469. Specification of Letters Patent. Patented Oct. 29, 1907.

Application filed November 3, 1904. Serial No. 231,208.

To all whom it may concern:

Be it known that I, F CORTEZ WILSON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Measuring-Pumps, of which the following is a specification.

This invention relates to improvements in pumps, and is more particularly designed for use in the vending of petroleum oils, although not necessarily restricted thereto. The object of the invention is to provide an improved device of the character referred to, and it consists in the matters hereinafter set forth and particularly pointed out in the appended claims when considered in connection with the accompanying drawings, in which,—

Figure 1 is a sectional perspective view of a measuring pump or liquid delivery apparatus constructed in accordance with my improvements. Fig. 2 is a top plan view of the upper works or pump head which particularly forms the subject matter of this improvement. Fig. 3 is a rear elevation thereof. Fig. 4 is a sectional elevation taken on line 4—4 of Fig. 3.

A pump or pumping apparatus provided with my improvement will include a pump cylinder 1, herein shown as open at its upper end and as provided with a solid single acting plunger 2. The lifting of this plunger serves to draw oil into the cylinder from any suitable source of supply, such as the surrounding tank 3, through a valve 4, and when depressed it forces the oil, thus previously admitted, out of the cylinder through an outlet pipe 5, leading to any convenient point of discharge 6. As thus far described, the apparatus is already in common use, the tank 3 being frequently placed in the basement of the store, while the discharge pipe 5 leads up through the floor to the salesroom above.

The part of the apparatus which more particularly forms the subject matter of the present improvement is the pump head which is manipulated by the vendor to operate the pump and cause a discharge of the oil through the outlet pipe 5. This pump head consists principally of a standard 7, an operating arm 8, and a cross head 9 which slides vertically along the standard 7 and is connected with the upper end of the plunger rod 10 of the pump. The operating arm 8 is pivotally secured at 11 to a lateral bracket 12 on the standard 7, extends thence in a curved sweep across the face of the standard, and is fitted near its free end with a handle 13, by which it may be oscillated. And the cross head 9 is provided with an outwardly projecting lug or stud 14 which slidingly engages the operating arm in such manner as to cause the cross head 9, and consequently the connected plunger 2, to reciprocate up and down as the operating arm 8 is oscillated.

As herein shown both the standard 7 and the operating arm 8 are channel-shaped in cross section, and the cross head 9 is merely a block which fits and slides within the channel or groove of the standard, while the stud or log 14 of the cross head projects into the channel or groove of the operating arm 8 and is there provided with an antifriction roller 15. This roller travels inwardly along the under side of the groove or channel in the operating arm when the arm is swung up to lift the plunger, and then returns outwardly along the upper side of said groove or channel when the arm is swung down to depress the plunger again. A clip 16, secured to the cross head just below the stud 14, loosely embraces the arm 8 and serves to prevent the latter from springing off and becoming disengaged from said roller, even though a looseness sufficient to otherwise permit this action should occur at the pivot 11.

In order that the resistance of the load may be as evenly distributed as possible during the entire sweep of the operating arm 8, the groove or channel in the latter is curved in such manner as to equalize the power required to move the arm throughout the entire arc in which the arm swings. And this results in a curve which gradually grows sharper from the outer end of the arm inwardly until a reversal in direction occurs as the pivotal point of the arm is approached, as the drawing shows.

The operation of the device, constructed as thus described, will be readily understood. The operating or cam arm 8 will first be swung up to raise the inlet valve 4. Then the arm will be swung down to depress the plunger and force the oil out through the discharge pipe 5. This pipe itself will always remain filled with oil after the operation of the pump is once fairly begun, and the entire body of oil driven out by the plunger will consequently be discharged at the spout, a check valve V being provided to prevent the oil forced out by the plunger from running back again, or from leaking back past the plunger during periods of idleness.

The exact quantity of oil discharged in each full stroke will be determined by the extent of the plunger movement, and this is shown as limited by stops provided at the top and bottom of the standard 7, and at intermediate points between. As herein shown the stop at the bottom of the standard is formed by the floor or support to which the standard is secured, while the stop at the top of the standard is an adjustable set screw 17 which blocks the upper end of the groove or channel in the standard. The height of the standard between the stops will be so proportioned that the full stroke of the piston will deliver a precise quantity of oil to the discharge spout, one gallon, for example, although this quantity may vary with different sizes of machines. Exact nicety in this measurement may be

secured by adjusting the set screw 17. Deliveries of fractional amounts of the full delivery, one-half or one-fourth of a gallon, for example, may be secured with this device by means of shiftable stops consisting, in this instance, of a pin 20 capable of being inserted through any one of a number of holes 21 in the standard 7. By thrusting the pin into one or the other of these holes the movement of the cross head and consequently of the plunger will be checked at the desired point short of the full stroke of the plunger, and the quantity of oil delivered will be reduced to the corresponding fractional amount called for.

I claim as my invention:—

1. An actuating mechanism for pumps, comprising a standard having a vertical channel-guide and a laterally extending bracket on one side of the guide, a channeled curved operating-arm pivoted at one end to the outer end of the bracket and crossing the standard, a cross-head connected with the pump plunger and mounted to slide vertically in the guide of the standard and carrying a roller working in the channel of the operating-arm, a handle attached to the free end of the curved operating-arm on the opposite side of the standard, and a keeper carried by the cross-head and engaging over the curved under-edge of the operating-arm, substantially as described.

2. An actuating mechanism for pumps, comprising a standard, a curved cam arm pivoted to the standard, and a cross head connected with the pump plunger sliding lengthwise of the standard and having sliding engagement with the operating arm, the curve of the cam arm increasing in sharpness from the outer end of the arm toward its pivot, substantially as described.

3. An actuating mechanism for pumps, comprising a standard, a curved cam arm pivoted to the standard, and a cross head connected with the pump plunger sliding lengthwise of the standard and having sliding engagement with the operating arm, the curve of the cam arm increasing in sharpness toward the pivot end of the cam, substantially as described.

4. An actuating mechanism for pumps comprising a standard, a curved cam arm pivoted to the standard, and a cross head connected with the pump plunger and engaging both the standard and cam arm to slide longitudinally thereof, the curve of the cam arm increasing in sharpness from the outer end of the arm toward its pivot and being reversed in direction at an intermediate point, substantially as described.

In testimony, that I claim the foregoing as my invention, I affix my signature in presence of two subscribing witnesses this 6th day of October, A. D. 1904.

F CORTEZ WILSON.

Witnesses:
K. A. COSTELLO,
H. W. WILSON.