No. 872,482. PATENTED DEC. 3, 1907.

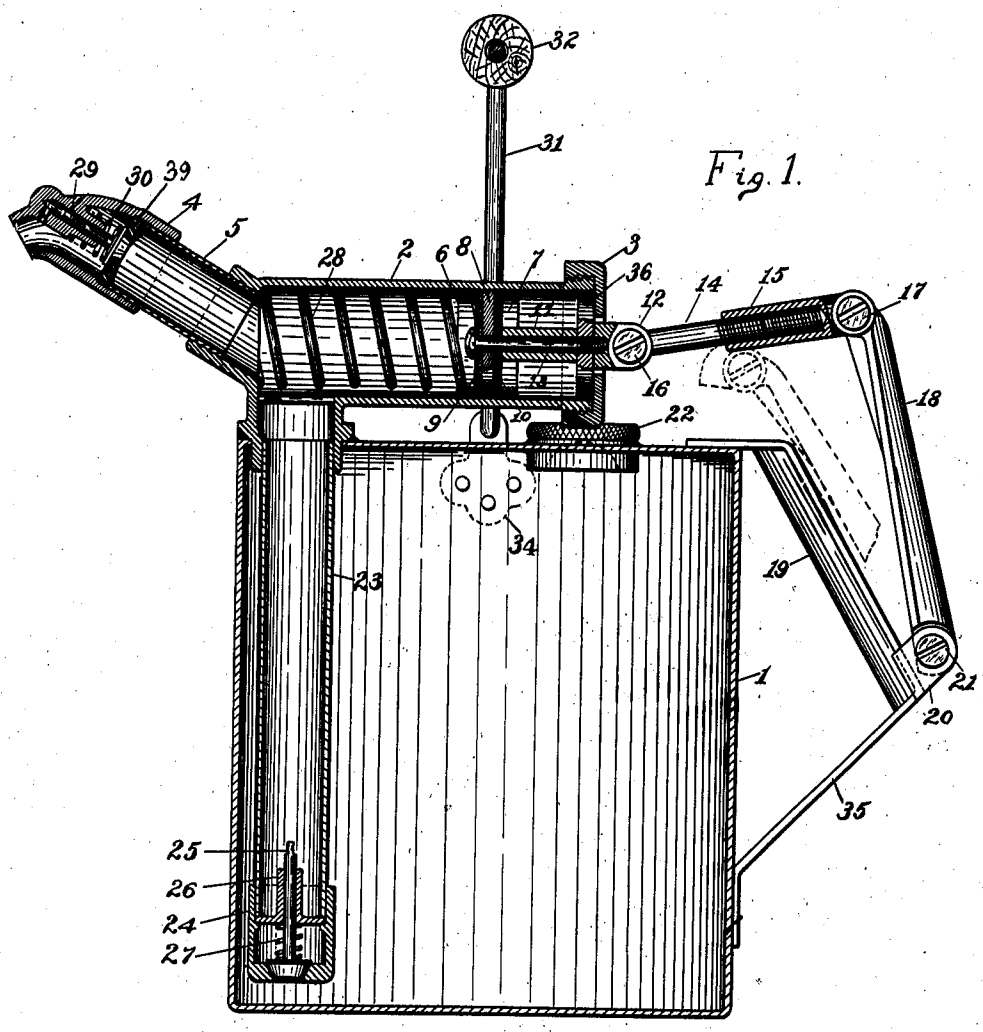
C. P. TOLMAN.

GRADUATED MEASURING CAN.

APPLICATION FILED JAN. 19, 1906.

2 SHEETS—SHEET 1.

Fig. 1.



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GRADUATED MEASURING CAN.

APPLICATION FILED JAN. 19, 1906.

2 SHEETS—SHEET 2.

Fig. 2.

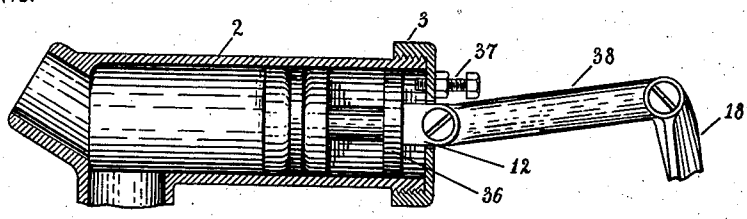


Fig. 3.

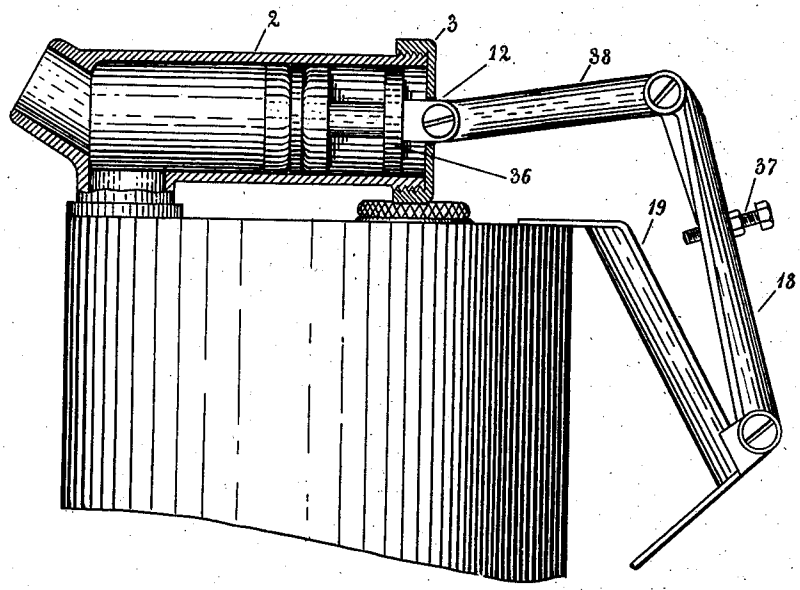
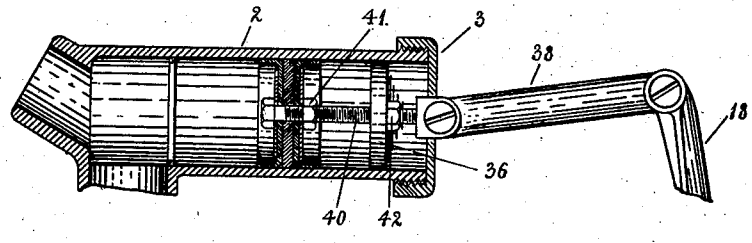


Fig. 4.



Witnesses
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UNITED STATES PATENT OFFICE.

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GRADUATED MEASURING-CAN.

No. 872,482. Specification of Letters Patent. Patented Dec. 3, 1907.

Application filed January 19, 1906. Serial No. 296,780.

To all whom it may concern:

Be it known that I, CHARLES P. TOLMAN, a citizen of the United States, residing at New York city, in the State of New York, have invented a new and useful Graduated Measuring-Can, of which the following is a specification.

My invention relates to improvements in cans, particularly to oil cans, from which a predetermined quantity of oil may be delivered or supplied to any desired point. In lubricating car journals it is generally desirable to deliver to each journal the same quantity of lubricant in order to provide uniform lubrication throughout. It is also desirable to have a can from which lubricant cannot flow by gravity until the point to which it is to be delivered shall be in communication with the reservoir, thereby preventing waste of fluid and insuring the delivery of the desired amount of fluid to the desired point. Another desirable feature in a can is means for enabling the operator to rapidly handle heavy or slow flowing fluids to be discharged therefrom. It is also convenient or necessary at times to deliver a fluid to a large number of places in equal quantities, as in the use of a liquid fertilizer or the like, where it is desirable to deliver the same quantity of liquid to a large number of places.

My invention has for its object the provision of means for delivering from a suitable reservoir to any desired point oil or other fluid in predetermined equal quantities so as to make effective, among others, the various desirable features above set forth, and to overcome the many defects now existing in cans for similar uses, and my invention consists in the novel construction, arrangement and combination of devices and parts as hereinafter more fully described and set forth.

In the drawings Figure 1 shows a vertical cross-section of the device; Figs. 2, 3 and 4 modifications of the means for adjusting the stroke of the piston for discharging the fluid.

Similar numerals of reference indicate similar parts throughout the drawings.

Referring to the drawings a reservoir 1 of any suitable structure is preferably provided with a handle 32 and bail 31, so that it may be portable. A stationary handle 19 suitably attached to the reservoir obviously serves to enable the operator to tilt or invert the device. The reservoir 1 is also provided with a pump barrel or cylinder 2, preferably mounted on the top, said barrel having in communication with it a suction pipe 23, and an outlet or discharge pipe 5 which carries any form of discharge nozzle 4. Said suction pipe 23 is provided with a suction valve which may be located at any convenient place in said pipe, but preferably at its lower extremity. Said suction valve consists of a valve 25, a casing 24 attached to the pipe 23 and in which is provided the seat for valve 25. A guide 26, preferably provided in the suction pipe 23, carries the stem of the valve 25, and a spring 27 tends to hold said valve on its said seat. Within the discharge pipe 5 or nozzle 4 is located a discharge valve 29 having its stem preferably guided by a shoulder on the interior of the inclosing case and having a seat 39 and a suitable spring 30 which tends to hold said valve on said seat.

Operative within the barrel 2 is a piston consisting of guides 8 and 36, packing 6 and 7 to insure tightness in both directions, and packing followers 9 and 10, said guides 36 being held a suitable distance from the piston proper by distance piece 11, all said parts being held together by bolt 13, the bolt being securely screwed into guide 36 and into lug 12. A spring 28 of suitable strength is preferably provided within the barrel 2 which acts between the piston head and the end of the barrel and tends always to maintain the piston in the position shown in Fig. 1, with the guide 36 abutting against barrel head 3, or it restores the piston to this position in the barrel after the same has been displaced as hereinafter described. Pivoted to lug 12 by a pivot 16 is a connecting link 14, the other end of said link being provided with threads or otherwise adjustably attached to link 15 at one end thereof. The other end of said link 15 is pivotally attached by pivot 17 to a movable or supplementary handle 18, said handle being pivotally attached by pivot 21 to support 20 provided on stationary handle 19. A suitable means 22 is provided in the reservoir for filling the same.

It is evident that by the pressure of the hand on movable or supplementary handle

18 said handle can be forced into the dotted position shown in Fig. 1. This movement of the handle is transmitted to the piston through the connecting links 14 and 15 and the various pivots, and the piston thereby caused to move in barrel or cylinder 2 against the pressure of spring 28. Liquid having been put into the reservoir through inlet 22, and the pump cavities being full of liquid, the movement of the piston augments the pressure in said cavities and more securely holds suction valve 25 on its seat and simultaneously raises discharge valve 29 in its seat against the pressure of spring 30, permitting escape of the fluid from the nozzle. As soon as the piston has reached the end of its discharge stroke, the augmented pressure in the pump cavities is released and discharge valve 29 is seated by spring 30 cutting off all further discharge of fluid by gravity. When manual pressure is removed, spring 28 forces the piston back to the position shown in Fig. 1, and the vacuum created in the pump cavities by the return of the piston to its normal position, causes suction valve 25 to raise on its seat against the force of spring 27 and permits the inlet of fluid from the reservoir to fill the said cavities.

It is further evident that the abutment of movable handle 18 against stationary handle 19, limits the stroke of the piston in the discharge of fluid from the cavities, and that the abutment of guide 36 against head 3 of the cylinder 2 limits the stroke of the piston in the intake of fluid. The length of connecting links 14 and 15 between pivots 16 and 17, therefore, determines the length of stroke of the piston, and by adjustment of the stroke the quantity of fluid discharged from the pump cavities upon each discharge stroke becomes fixed. It is evident that if it is desired to change the quantitiy of fluid to be delivered from the device, it is only necessary to remove either pivot 16 or pivot 17 and vary the effective length of the connecting rod by screwing or unscrewing one link in the other. Link 14 may be marked in graduations indicating the quantity of fluid which will be delivered when the links are adjusted at any one of such graduations.

It is obvious that the apparatus may be tilted to any angle without the escape of any fluid through the nozzle by gravity unless the piston is forced against the pressure of the spring 28, since discharge valve 29 tends to always cut off all exit of fluid until it is lifted from its seat by the excess pressure due to the motion of the piston.

If it is desired to use the device for the discharge of a liquid fertilizer or disinfectant or for other similar uses, it is only necessary to attach to the nozzle 4 any suitable spraying device for distributing the liquid where desired.

It is essential in cans of this type to prevent the exposure of the contents to air. This is particularly true of oil since the latter oxidizes when so exposed. For this reason it is desirable to place the discharge valve as near the outer end of the discharge cavity as possible, so that when this valve is closed no oil will remain in the discharge cavity beyond the valve to become oxidized by exposure to the air. I show this preferable situation of the discharge valve in the drawings.

Another means for adjusting the length of stroke of the piston and thereby predetermining the quantity of fluid to be delivered is shown in Fig. 2 in which the rod 38 pivotally connecting lug 12 with movable handle 18 is made in one piece instead of in two links as in Fig. 1, and a stop 37 is inserted through a suitable opening in head 3 of the cylinder and made adjustable therein so as to limit the length of stroke of the piston in the suction or intake direction to any desired extent to determine the quantity of fluid to be delivered.

Another means for adjusting the length of stroke of the piston is shown in Fig. 3, in which I place the adjustable stop 37 in the movable handle 18 instead of in the cylinder head 3 as in Fig. 2. In this case the stop, when it abuts handle 19, limits the length of the discharge stroke of the piston, as is the effect of the adjustable links 14 and 15 in Fig. 1, and consequently by adjustment determines the quantity of liquid which shall be discharged.

Another modification of the means for adjusting the length of stroke of the piston is shown in Fig. 4, in which I provide an adjustable connecting device, 40, joining the piston proper and the guide 36, consisting of a bolt 40 suitably attached to the piston proper and threaded into and through guide 36, and provided with a suitable stop 41 to prevent longitudinal motion of the piston proper on the bolt and also with nut 42 with which to adjust the relative position of the piston proper and the guide 36 as desired. Lug 12 may be attached to guide 36 or to bolt 40 in any suitable manner. Connecting rod 38 is similar to that shown in Fig. 2. A stop 43 fixed in the cylinder 2, or which may be adjustably attached thereto, limits the discharge thrust of the piston, or said limit may be determined by the closure of the supplementary handle on the fixed handle as shown in Fig. 3. The quantity of fluid which will flow through the discharge outlet is, therefore, determined by the adjustment of the piston proper in reference to guide 36 which abuts head 3.

I may omit spring 28 which opposes the piston in the cylinder, the only function of said spring being to restore said piston to its normal position, thereby assisting in the rapid handling of the contents of the reservoir by relieving the operator of the neces-

sity of manually returning the piston to said position. It is also apparent that discharge outlet may be constructed and shaped in any manner that convenience of use may require. I do not wish to be confined to the precise construction and arrangement of parts as herein shown since these may be varied without departing from the principles of my invention.

What I claim is:

1. A measuring can comprising a reservoir, and a manually operative pump mechanism consisting of a cylinder, a piston, a suction valve, a discharge valve, a movable handle pivoted on the reservoir and connected to the piston, means for limiting the stroke of the piston in either direction, and a spring opposing the piston to restore the piston to its initial position when the displacing force has been relieved.

2. A measuring can comprising a portable reservoir, a pump consisting of a cylinder, a piston connected to a movable handle pivoted on the reservoir, a suction cavity having a suction valve therein, a discharge cavity having a discharge valve therein, and means for limiting the stroke of the piston in either or both directions.

3. In a measuring can the combination of a reservoir having means for carrying the same, a pump mechanism secured to the reservoir, a handle rigidly attached to the reservoir, a supplementary handle movably mounted on said rigid handle and connected by suitable devices to the piston of the pump mechanism, and means for limiting the stroke of said piston in either direction.

4. In a measuring can the combination with a reservoir and a pump mechanism secured to the reservoir having the piston adjustably operative from a movable handle pivoted on the reservoir, of a discharge outlet comprising an inclosing case, a valve seat in the outer end thereof, a valve, means for directing the motion of said valve, and a spring normally maintaining the valve on said seat, said spring being of sufficient strength to maintain said valve on said seat against the force of gravity when the apparatus is inverted.

5. In a measuring can the combination of a reservoir, a pump mechanism consisting of a cylinder attached to the reservoir, a piston in said cylinder actuated in one direction by manual force on a handle which is pivoted on a handle fixed to the reservoir and in the other direction by a spring, means for adjusting the length of stroke of said piston in either direction, a suction cavity in the reservoir in communication with the cylinder and having a suction valve therein and a discharge cavity in communication with the suction cavity and with the cylinder and having a discharge valve in the outer end thereof.

6. In a measuring can the combination of a reservoir having means for carrying the same, a pump mechanism secured to the reservoir and consisting of a piston cavity and piston, a suction cavity having a suction valve in the lower end thereof, and a discharge cavity having a discharge valve in the outer end thereof, a handle rigidly attached to the reservoir, a supplementary handle pivoted to the rigid handle and connected by suitable devices to the piston, and means for adjustably limiting the stroke of the piston in either direction.

7. A measuring can comprising a reservoir, a pump mechanism secured to the reservoir, a handle rigidly attached to the reservoir, means movably mounted on said rigid handle and connected by suitable devices to the piston of the pump mechanism for operating said piston and means for adjustably limiting the stroke of said piston in either direction.

In witness whereof I hereto affix my name this 12th day of January 1906 in the presence of two subscribing witnesses.

CHARLES P. TOLMAN.

Witnesses:
ELWIN M. HULSE,
R. F. CUMISKEY.