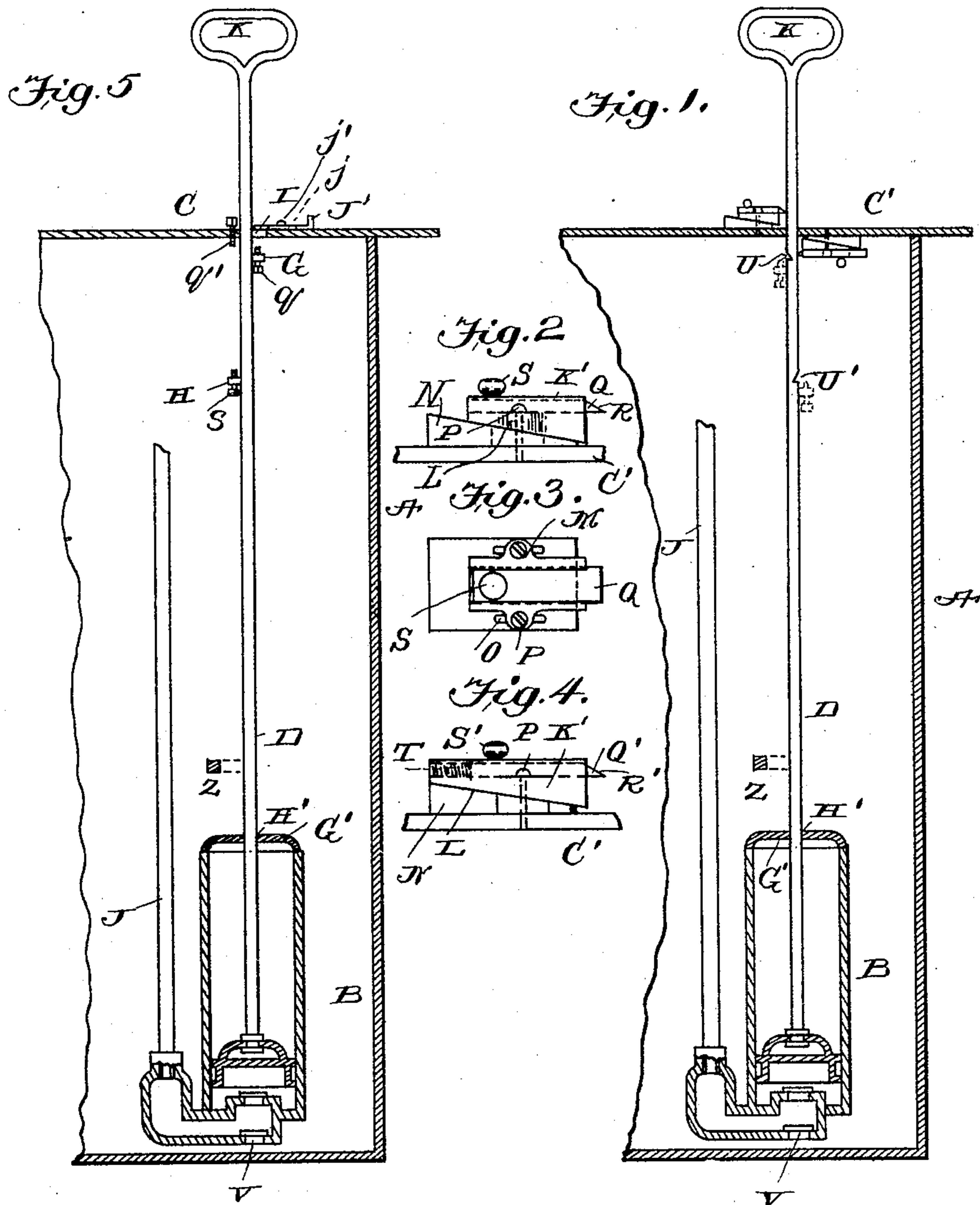


(No Model.)

S. F. & A. BOWSER.  
MEASURING PUMP.

No. 480,552.

Patented Aug. 9, 1892.



WITNESSES.

John Demie  
H. E. Squire.

INVENTORS:  
Sylvanus F. Bowser and  
Augustus Bowser

By their Attorneys,  
Collamer & Co.

# UNITED STATES PATENT OFFICE.

SYLVANUS F. BOWSER AND AUGUSTUS BOWSER, OF FORT WAYNE,  
INDIANA.

## MEASURING-PUMP.

SPECIFICATION forming part of Letters Patent No. 480,552, dated August 9, 1892.

Application filed May 2, 1892. Serial No. 431,418. (No model.)

*To all whom it may concern:*

Be it known that we, SYLVANUS F. BOWSER and AUGUSTUS BOWSER, citizens of the United States, residing at Fort Wayne, in the county of Allen and State of Indiana, have invented certain new and useful Improvements in Measuring-Pumps, (Case D;) and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to measuring-instruments, and more especially to that class known as "measuring-pumps;" and the object of the same is to effect certain improvements in the contacting stops and slides by which the nicety of adjustment of the gaging mechanism is controlled. This object is attained by the mechanism illustrated in the accompanying drawings, and hereinafter more fully described and claimed.

In the said drawings, Figure 1 is a vertical section of a portion of a tank containing a pump, and shows in elevation the adjustable slides which we use and in dotted lines the adjustable stops. Fig. 2 is a side elevation, and Fig. 3 a plan view, of the upper slide of Fig. 1 on a larger scale. Fig. 4 is a side elevation of the lower slide of Fig. 1, inverted and on an enlarged scale. Fig. 5 is a section similar to Fig. 1, showing in full lines the adjustable stops, but illustrating a simpler form of slide.

In United States Letters Patent, No. 372,250, granted to us on October 25, 1887, we showed in Fig. 8 a swinging stop adapted to make contact with collars on a pump-rod, and such stop was adjusted by two nuts, one above and the other below the top of the tank. In a companion application filed by us this day (Case B, Serial No. 431,416) we show a sliding stop on the top of the tank, and in another companion application filed by us this day (Case C, Serial No. 431,417) we show an angle-iron through which passes a set-screw. Patents have heretofore been granted for sliding and spring-actuated stops mounted on the tank-top, and in one instance taking into notches on the pump-rod. The present invention is an improvement over all these de-

vices, in that it employs a stop or lug on the pump-rod, through which the set-screw is preferably passed, and it uses a spring-actuated slide or a manually-actuated slide, which is adjustable longitudinally of the pump-rod, the object being to effect a certain nicety of adjustment of contacting parts, whereby the charge of liquid which is to be delivered from the tank may be accurately regulated in size.

Referring now to the accompanying drawings, the letter A designates the body of a tank wherein is located a force-pump B, communicating through an upwardly-opening valve V with the interior of the tank, and J is the delivery-spout, all these parts being of the construction described in the patent or in the companion applications referred to, or of any other equivalent construction, it being only necessary that a depression of the pump-rod D shall cause a charge of liquid from the tank to be ejected through the delivery-spout. In the present instance the pump-rod is shown as square, as at Z, and it passes through a square hole H' in a cross-bar G', secured to the upper end of the pump-cylinder to prevent its rotation.

K is the handle at the upper end of the pump-rod D by which it is reciprocated.

Coming now to the present invention, the letter G designates a lug or stop secured to or integral with the pump-rod, and *q* is a set-screw taking through this stop and facing upward.

H is a second stop having a similar set-screw *s*, but all arranged by preference at the opposite side of the rod D.

I is a hole in the top C of the tank A, which hole is of sufficient size and so located that the stop G may pass therethrough; but it is obvious that the other stop (or its screw) will strike under said top when the rod D is raised high enough.

J' is a slide having a slot *j* in its body moving over a screw *j'* in the top C, and so located that it may be slid inward to pass its inner end over the set-screw *q* when it is desired to limit the upward movement of the rod D.

*q'* is a second set-screw taking through the top C and in position adapted to contact with the tip of the set-screw *s* in the stop H. Thus



it will be seen that when it is desired to admit one charge to the pump the slide is pushed in and the set-screw  $q$  will strike the inner end of the slide; but when it is desired the pump shall take in two charges, the slide is withdrawn, and then the set-screw  $s$  will strike the second screw  $q'$ , the other stop and its set-screw having passed completely through the hole I.

This much of our invention will, perhaps, be clearer if the companion applications referred to above are read in connection herewith.

This construction is a modification of the preferred form of our invention, and we have described it first by preference. It shows the stops and set-screws which we prefer to use at all times, although notches in the rod  $D'$  may be employed, as seen in full lines in Fig. 1; but the slides which we prefer to use are best illustrated in Figs. 1 to 4, inclusive, and will now be described. A notched pump-rod is perhaps simpler and cheaper, and hence we have shown it in use with the preferred form of slides.

Referring to Figs. 2, 3, and 4,  $K'$  is a casing having a beveled lower face  $L$  and side ears  $M$ , while  $N$  is a wedge having slots  $O$  through which pass screws  $P$ , connecting the ears with the top  $C'$  of the tank. When these screws are loosened, it is obvious that the wedge may be moved beneath the casing, and after the screws are retightened the casing and its contained mechanism will be adjusted with reference to the top of the tank, being either nearer thereto or farther therefrom, as desired. Within the casing of the slide (shown in Figs. 2 and 3) moves a bolt (forming the slide proper)  $Q$ , having a sharp point  $R$ , if the notches be used, and operated by a handle  $S$ ; but in the casing of the slide shown in Fig. 4 the bolt  $Q'$  is forced normally forward by a spring  $T$ , though it has also the sharp point  $R'$  and handle  $S'$ . The latter slide is for use on the under side of the top  $C'$ , as seen in Fig. 1, whereas the other slide is for use outside the tank and where it may be operated manually.

$U$  and  $U'$  are respectively upper and lower notches in the pump-rod  $D$ , preferably located on opposite sides thereof, as are the outer and inner slides. As above stated, the lugs  $G$  and  $H$ , with their set-screws, may be used with these slides, but in some cases it might be preferable to use the notches for the sake of cheapness, though their action is not so positive, as will be clear.

The operation of this pump will be easily understood by those familiar with the art. When it is desired to eject one charge from the tank, the outer slide is adjusted so that it will engage the uppermost stop, the rod raised to admit one charge to the pump-cylinder, and then depressed to eject it from the spout  $J$ , which, has of course, first been filled to its mouth. To deliver two charges, the outer slide is retracted and the inner slide (or in Fig. 5 the additional screw  $q'$ ) contacts with

the lowermost stop, the action being the same, except that the rod  $D$  is permitted to rise higher and more liquid is taken into the pump and ejected from the spout. The outer slide may be adjusted by hand, but the other slide, being within the tank, is caused to operate by its spring; but both slides may be outside the tank, if preferred.

The especial advantage of the construction herein described is that the sizes of the charges can be adjusted from time to time with great nicety. Obviously, when the set-screws are used they may be easily set as desired, and the adjustment of the outer and inner slides longitudinally of the rod can be effected, as above described. We have found that it often becomes desirable in devices of this character, to set or adjust the parts so as to remedy inaccuracies in the size of the charges measured, and it is to this end that the present invention is directed.

We do not claim herein anything which is claimed in our previous patent nor in either of the companion applications above referred to; but—

Having thus described our invention, what we claim as new is—

1. The combination, with a pump having a reciprocating pump-rod, a lug on the rod, and a set-screw through the lug, of a contact in the path of said screw, as and for the purpose set forth.

2. The combination, with a pump having a reciprocating pump-rod, a lug on the rod, and a set-screw through the lug, of a contact in the path of the screw, and means, substantially as described, for adjusting said contact longitudinally of the rod, as and for the purpose set forth.

3. The combination, with a tank-top, a pump whose rod reciprocates through said top, a stop at one side of the rod, and a slide on the exterior of the top adapted to engage said stop or not at will, of a lug on the opposite side of said rod, a set-screw therethrough, a contact in the path of this screw, and means, substantially as described, for adjusting said contact longitudinally of the rod, as and for the purpose set forth.

4. The combination, with a reciprocating rod having a stop and a plate through which said rod moves, of a contact carried by said plate, and means, substantially as described, for adjusting said contact longitudinally of the rod, as and for the purpose set forth.

5. The combination, with a reciprocating rod having a stop and a plate through which said rod moves, of a slide carried by the plate, and independent means, substantially as described, for adjusting said slide longitudinally of the rod and for moving it at right angles thereto, as and for the purposes set forth.

6. The combination, with a reciprocating rod having a stop and a plate through which said rod moves, of a casing, a spring-actuated slide therein normally engaging said stop, and



means, substantially as described, for adjusting the casing on the plate longitudinally of the rod, as and for the purpose set forth.

5 7. The combination of a reciprocating rod having a stop and a plate through which said rod moves, with a casing having a beveled lower face, a wedge between the said face and the plate, means, substantially as described, for detachably securing the casing to the plate, 10 and a slide in the casing adapted to engage said stop, as and for the purpose set forth.

15 8. The combination, with a reciprocating rod having a stop and a stationary support, of a casing having a beveled lower face and perforated ears at its sides, a slide moving in the casing at right angles to the rod and adapted to engage said stop, a wedge between the support and said lower face of the casing, said wedge having slots aligning with the per- 20 forations in the ears, and screws through the ears and perforations and into the support, as and for the purpose set forth.

25 9. The combination, with a reciprocating rod having stops on opposite sides at different points, and a plate through which said rod moves, of a casing above said plate, a slide therein adapted to be moved to engage the uppermost stop, a casing below said plate, a spring-actuated slide therein adapted to en- 30 gage the lowermost stop, and means, substantially as described, for adjusting each of said casings longitudinally of the rod, as and for the purpose set forth.

10. In a measuring-pump, the combination, with a tank having a hole in its top, a pump 35 within said tank having a delivery-spout and whose pump-rod passes through said hole, a lug on said rod, and an upwardly-facing set-screw through said lug, of a casing within said tank, a spring-actuated slide in the cas- 40 ing standing normally in the path of said screw, and means, substantially as described, for detachably connecting said casing to the top of the tank and for permitting its adjustment longitudinally of the rod, as and for the 45 purpose set forth.

11. In a measuring-pump, the combination, with a tank having a hole in its top, a pump within said tank having a delivery-spout and whose pump-rod passes through said hole, a 50 lug on said rod, and an unwardly-facing set-screw through said lug, of a casing within the tank having a beveled face, a spring-actuated slide within said casing standing normally in the path of said screw, a wedge be- 55 tween said face and the under side of said top, and screws detachably connecting said casing with the top, all as and for the purposes hereinbefore set forth.

In testimony whereof we affix our signatures 60 in presence of two witnesses.

SYLVANUS F. BOWSER.  
AUGUSTUS BOWSER.

Witnesses:

A. Z. POLHAMUS,  
JOHN N. BROOM.