

No. 734,465.

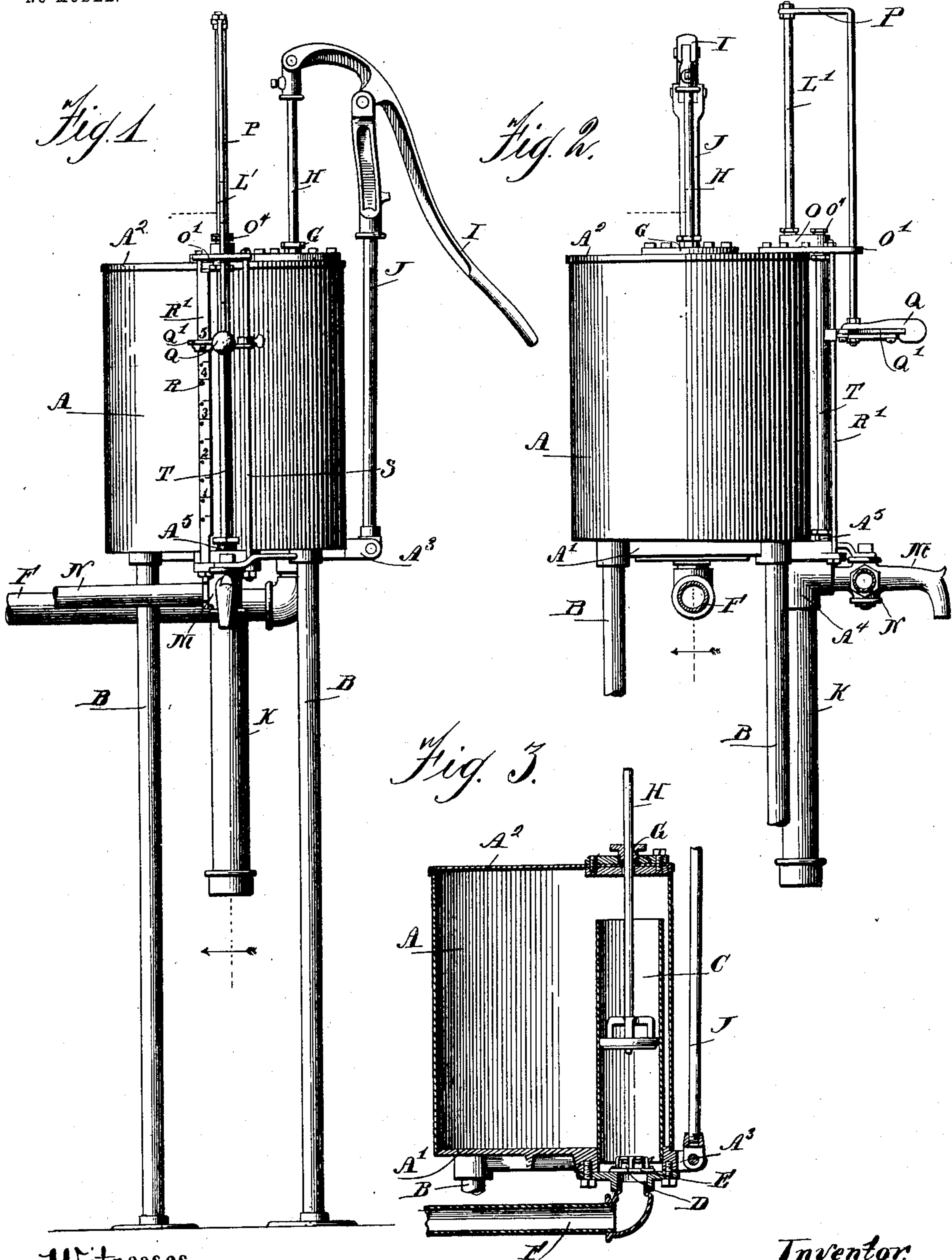
PATENTED JULY 21, 1903.

R. A. KUNZMANN.  
MEASURING PUMP.

APPLICATION FILED JAN. 13, 1903.

NO MODEL.

3 SHEETS—SHEET 1.



Witnesses.  
J. D. Groat.  
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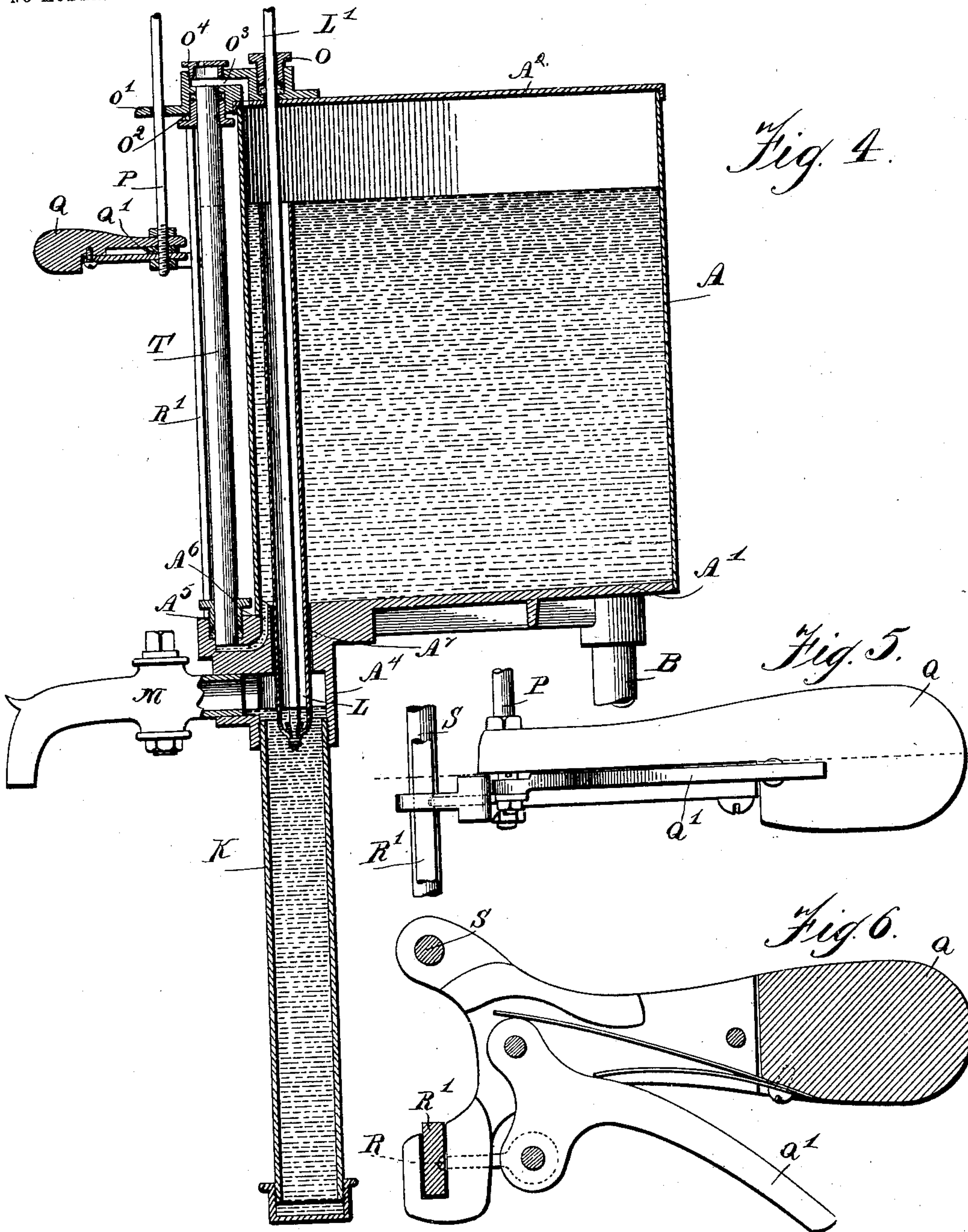
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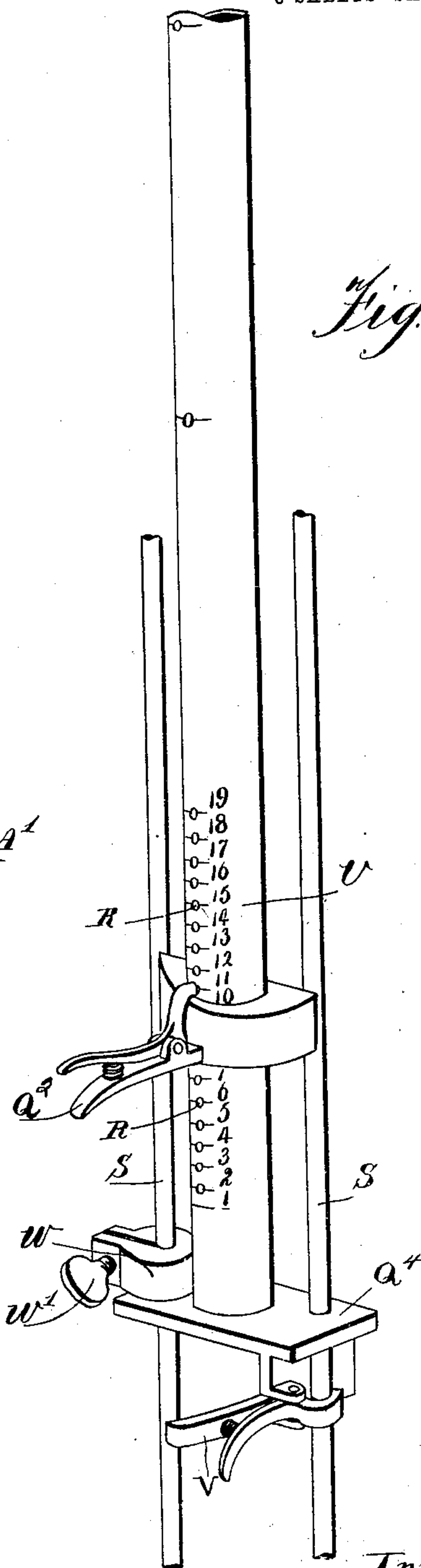
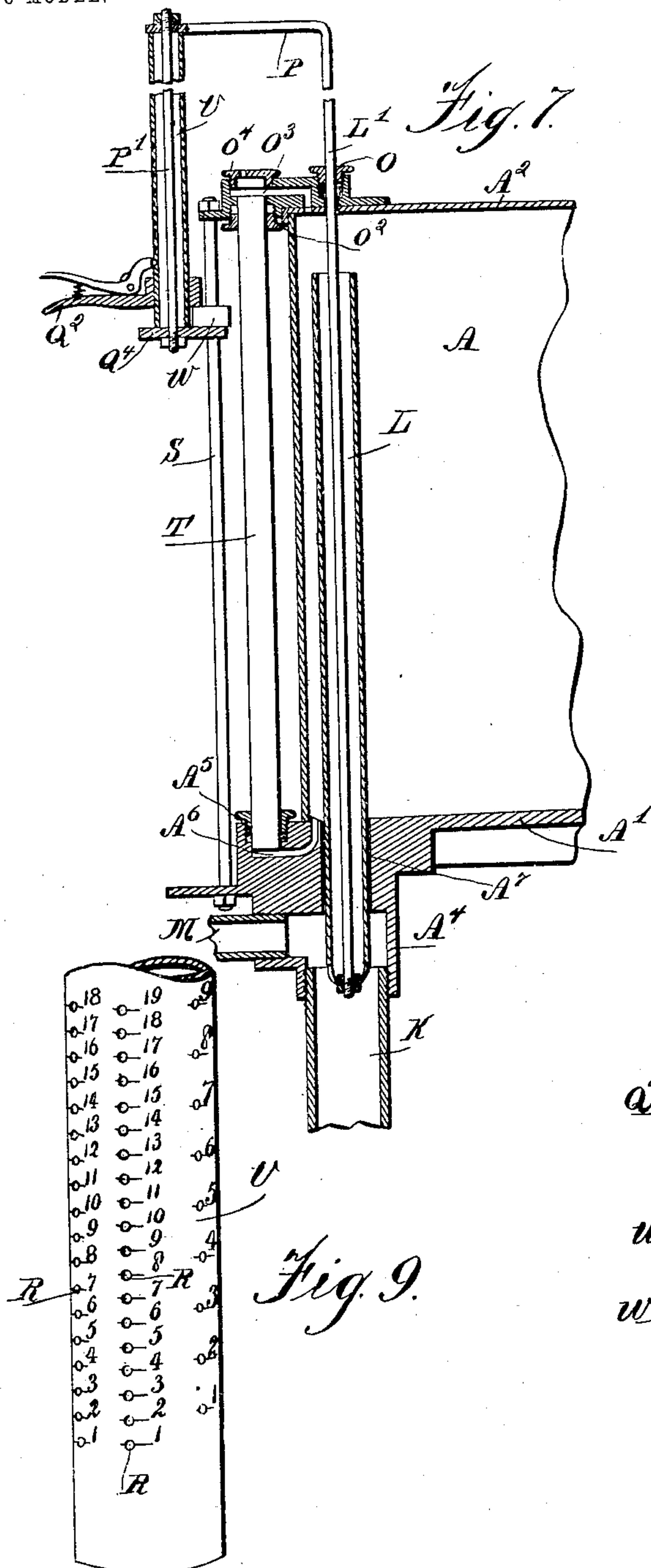
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3 SHEETS—SHEET 3.



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# UNITED STATES PATENT OFFICE.

ROBERT A. KUNZMANN, OF CEDAR RAPIDS, IOWA, ASSIGNOR OF ONE-HALF  
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## MEASURING-PUMP.

SPECIFICATION forming part of Letters Patent No. 734,465, dated July 21, 1903.

Application filed January 13, 1903. Serial No. 138,799. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT A. KUNZMANN, a citizen of the United States, residing at Cedar Rapids, in the county of Linn and State of Iowa, have invented certain new and useful Improvements in Measuring-Pumps, of which the following is a specification.

This invention relates to apparatus used in the retailing of oils—such as petroleum, gasoline, and the like—and has for its object to produce a device whereby such commodities may be easily and quickly pumped from a general storage-receptacle and automatically measured out to purchasers in any desired quantity.

The nature of the invention will fully appear from the description and claims following, reference being had to the accompanying drawings, in which—

Figure 1 is a front view of a pump embodying my invention. Fig. 2 is a side view of the same as seen from the left of Fig. 1. Fig. 3 is a central vertical section as seen from the right of Fig. 2. Fig. 4 is a central section as seen from the right of Fig. 1. Fig. 5 is a side view of the gaging hand-lever. Fig. 6 is a section of the same on the line *a b* as seen from above. Fig. 7 is a section in the same plane as Fig. 4, showing a mechanical computing device for different quantities and prices. Fig. 8 is a partial front view in perspective of the computing mechanism. Fig. 9 is a partial view of a scale-tube graduated to different prices and amounts.

In the drawings, A is a tank adapted to the greatest quantity of oil that is usually wanted—say five or six gallons. This tank is mounted on suitable legs B to bring it to a convenient height for operating. The bottom of the tank is a casting A', and in it is fitted a pump-cylinder C. Below this is a check-valve D on a valve-seat E, to which is connected the supply-pipe F, leading to the general storage-tank. (Not shown.) The cover of the tank A may be of sheet metal A<sup>2</sup>, and to it is bolted or riveted a stuffing-box G for the piston-rod H of the pump. This connects with a hand-lever I, pivoted on a link J, pivoted at the

lower end in lugs A<sup>3</sup>. At another side of the tank, preferably ninety degrees therefrom for convenience, the bottom of the tank has a downward extension A<sup>4</sup>, suitably cored and tapped to take a depending pipe K, closed at its lower end, which pipe serves as a well to take a movable overflow-pipe L, more fully to be described hereinafter. At one side of the extension A<sup>4</sup> is attached a three-way cock M, adapted for use in filling a purchaser's vessel and provided at one side with a waste-pipe N, leading also to the general storage-tank. It will be understood that normally this waste-pipe is open and the delivery-nozzle of the cock closed, so that any excess of oil pumped into the tank runs over the top of the overflow-pipe and, escaping through holes at its lower end, passes out of the waste-pipe back to the general storage-tank.

To the overflow-pipe is attached a rod L' long enough so that when the overflow-pipe is depressed to the bottom of the tank the upper end of this rod will still be above the cover of the same. The rod passes through a suitable stuffing-box O, secured to the tank-cover, and at its upper end connects with a gooseneck P, running in a guide-bearing O', forming a part of the stuffing-box casting. To the gooseneck-rod is attached a handle Q, provided with a thumb-lever Q', adapted to engage suitable holes R in a scale-bar R' or scale-tube R<sup>2</sup>. The handle is guided by one or more guide-rods S, secured to the bottom and the cover of the tank.

The part A<sup>4</sup> of the bottom is provided with a stuffing-box A<sup>5</sup>, and a corresponding stuffing-box O<sup>2</sup> is provided for a similarly-projecting portion of the casting O. In these is mounted a glass tube T, communicating with the tank at the top and bottom by passages O<sup>3</sup> and A<sup>6</sup> for air and oil, respectively. Above the glass is a cap O<sup>4</sup>, with a small air-vent therein, as shown. This allows the oil to rise to the same level in the glass as in the tank and makes it visible to the eye.

The overflow-pipe slides up or down in an oil-tight fitting hole A<sup>7</sup>, which is at the lower



part of the slightly-inclined bottom of the tank. Of course when the overflow-pipe is completely depressed all the oil will flow out of the tank on opening the service-cock, the opening of which serves, as will be understood, to close the waste-pipe.

The operation of the device will be readily understood. Supposing the tank to be filled to the five-gallon level, as indicated in Fig. 1, and a purchaser wishes one gallon of oil, the retailer has only to hang the vessel on the service-cock, open the cock, thereby closing the waste-cock, and depress the handle Q to the four-gallon point, when a gallon of oil will run out. In case the tank is empty and a customer wishes to buy a gallon the handle is raised to the one-gallon point and the service-cock closed. Oil is then pumped until it overflows out of the waste-pipe. As soon as it stops flowing therefrom the dealer opens the service-cock and moves the handle to the bottom, when of course all the oil in the tank flows into the customer's vessel. So, also, of any other desired quantity up to the limited capacity of the tank. Provision is also made for the dispensing of the commodity by value as well as by quantity. The device for this purpose is shown in Figs. 7, 8, and 9 and involves the addition of parts not above described. U is a scale graduated according to varying prices of oil. Thus in Fig. 9 the lowest price is nine cents per gallon and the highest nineteen. These scales are arranged in vertical columns, preferably of a tube forming a part of the gooseneck. The tube may be turned, according as the price may change, by loosening a nut on the straining-rod P'. On this differential scale-tube is loosely mounted a slidable handle Q<sup>2</sup>, with a thumb-lever to engage holes in the same in the manner already described. The lower end of the scale-tube rests upon a sliding cross-head Q<sup>4</sup>, mounted on guide-rods S. To the cross-head is connected a grip-lever V, adapted to clamp one of the guide-rods and hold the scale securely at any desired point. On the other rod above the cross-head is a stop-collar W, with a suitable clamping-screw W'. The bottom or zero line on the scale-tube is at the same level as the top of the overflow-tube, and when the handle is set at this line the device operates in the same manner as the simpler device, already described. When in this position, the collar is close to the cross-head and the handle close to the collar.

In operating the device according to price the operator first raises and sets the collar as high as it will go. He then moves up the handle according to the value of the amount desired. The service-cock is then opened, and finally the grip is released, when the scale-tube, together with the connected overflow-pipe, descends until stopped by the collar, when the exact amount according to value

will have been measured out. For example, referring to Fig. 8, in this case oil is supposed to be worth nineteen cents per gallon. A customer wishes ten cent's worth. The handle is shown set at "10." The operator now has only to release the grip and depress the scale, when the desired amount of oil will flow out. If gallons or parts thereof are wanted, the handle and its index are moved to the cardinal points and the price-numbers are disregarded.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a measuring-pump, the combination of a pump, a receptacle for the pumped oil, a waste-pipe, a three-way service-cock, and a vertically-adjustable overflow-pipe adapted to communicate alternately with the waste-pipe and the cock, substantially as and for the purpose set forth.

2. In a measuring-pump, the combination of a pump, a receptacle for the pumped product, a three-way cock, a waste-pipe communicating therewith, and a vertically-adjustable overflow-pipe in said receptacle and communicating with said cock, substantially as and for the purpose set forth.

3. In a measuring-pump, the combination of a pump, a receptacle for the pumped product, a vertically-adjustable overflow-pipe mounted therein, a well below said receptacle, into which the overflow-pipe passes when depressed, a three-way service-cock and a waste-pipe communicating with said well, substantially as and for the purpose set forth.

4. In a measuring-pump, the combination of a pump, a receptacle for the pumped product, a vertically-adjustable overflow-pipe in said receptacle, an external connection with said overflow-pipe and a contiguous scale to indicate the relative altitude thereof, a three-way service-cock and a waste-pipe adapted to alternately dispose of the overflow from said overflow-pipe, substantially as described.

5. In a measuring-pump, the combination of a pump, a receptacle for the pumped product, a vertically-adjustable overflow-pipe therein, a three-way service-cock and a waste-pipe adapted to alternately dispose of the liquid discharged through said overflow-pipe, an external glass to denote the level of the liquid in the receptacle, an external scale graduated to certain volumes as determined by the height of the overflow-pipe, and means substantially as described, contiguous to said scale, for raising or depressing the overflow-pipe.

6. In combination with a measuring-pump, substantially as described, having a vertically-adjustable overflow-pipe to discharge a given volume of liquid according to its relative altitude, a computing device connected with said overflow, and comprising a differentially-graduated scale-tube, an index-han-

5 dle adjustable thereon and adapted to engage the same at any desired point, guides for said tube, a movable collar or stop on one of said guides, and a grip connected with the scale-tube and adapted to engage the other guide, substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

ROBERT A. KUNZMANN.

Witnesses:

J. M. ST. JOHN,

J. F. GROAT.