

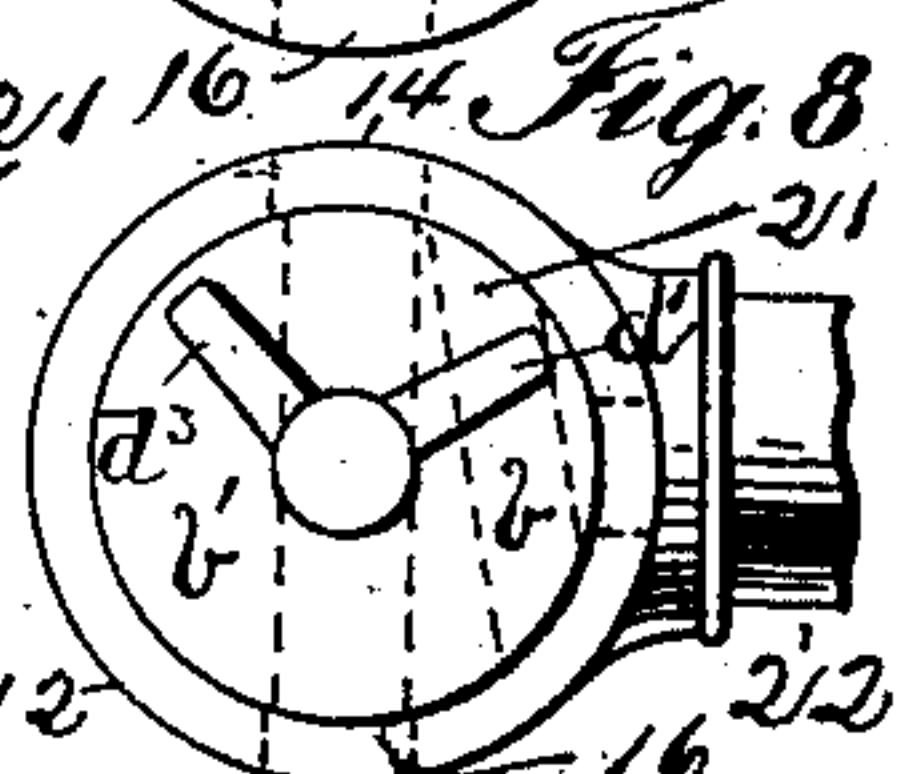
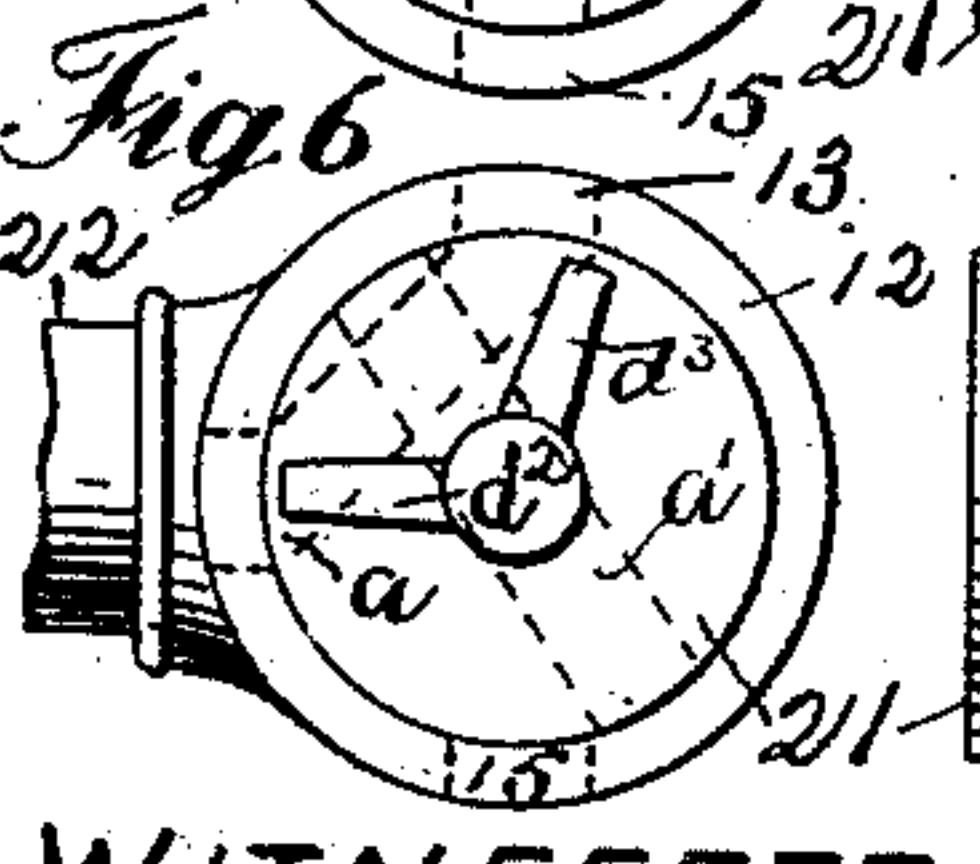
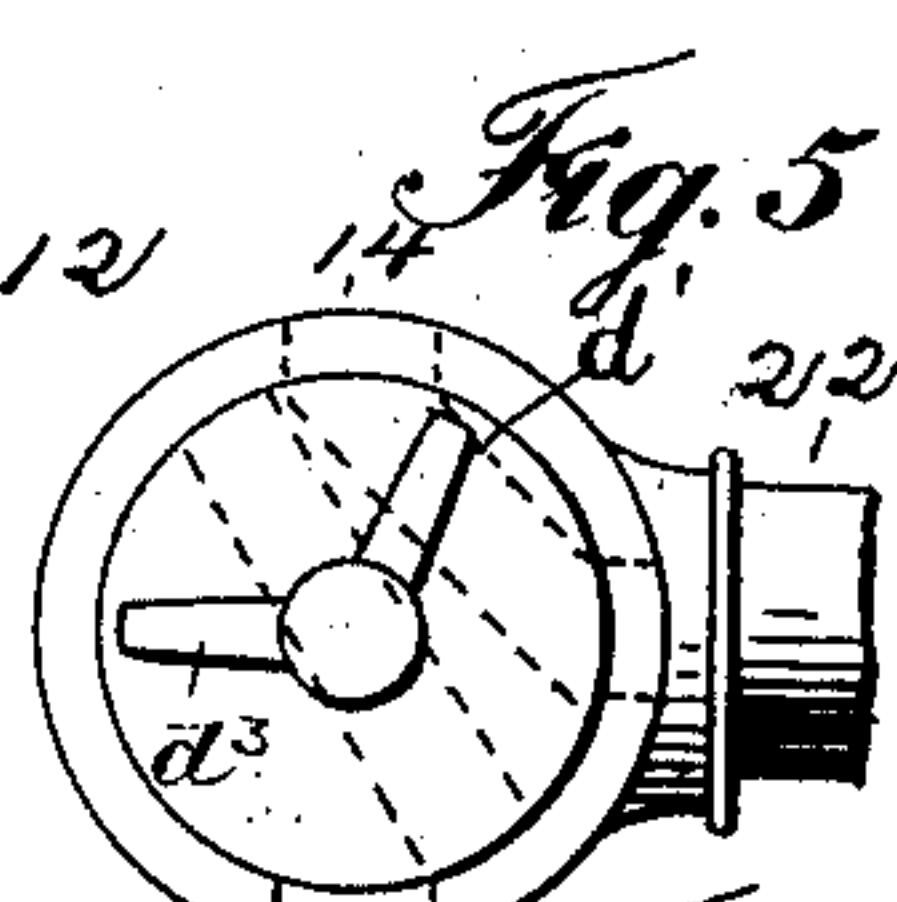
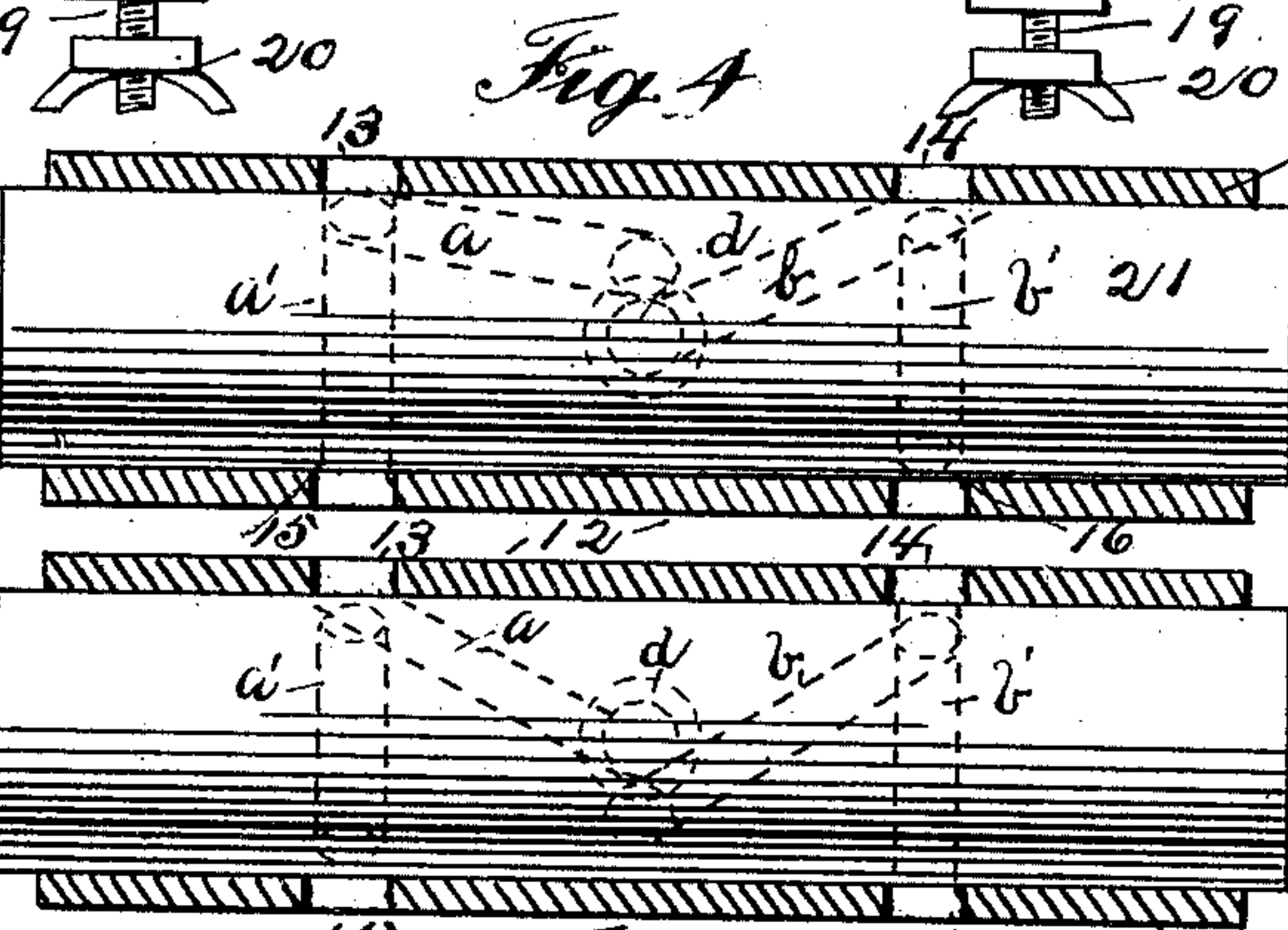
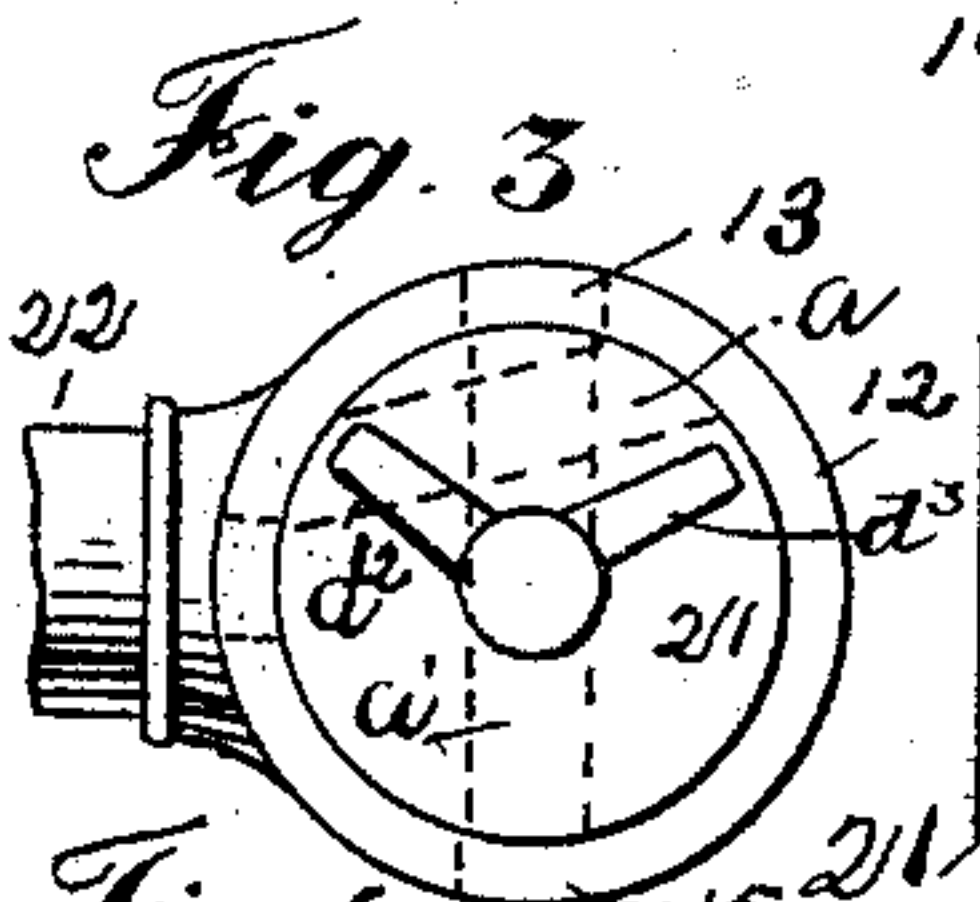
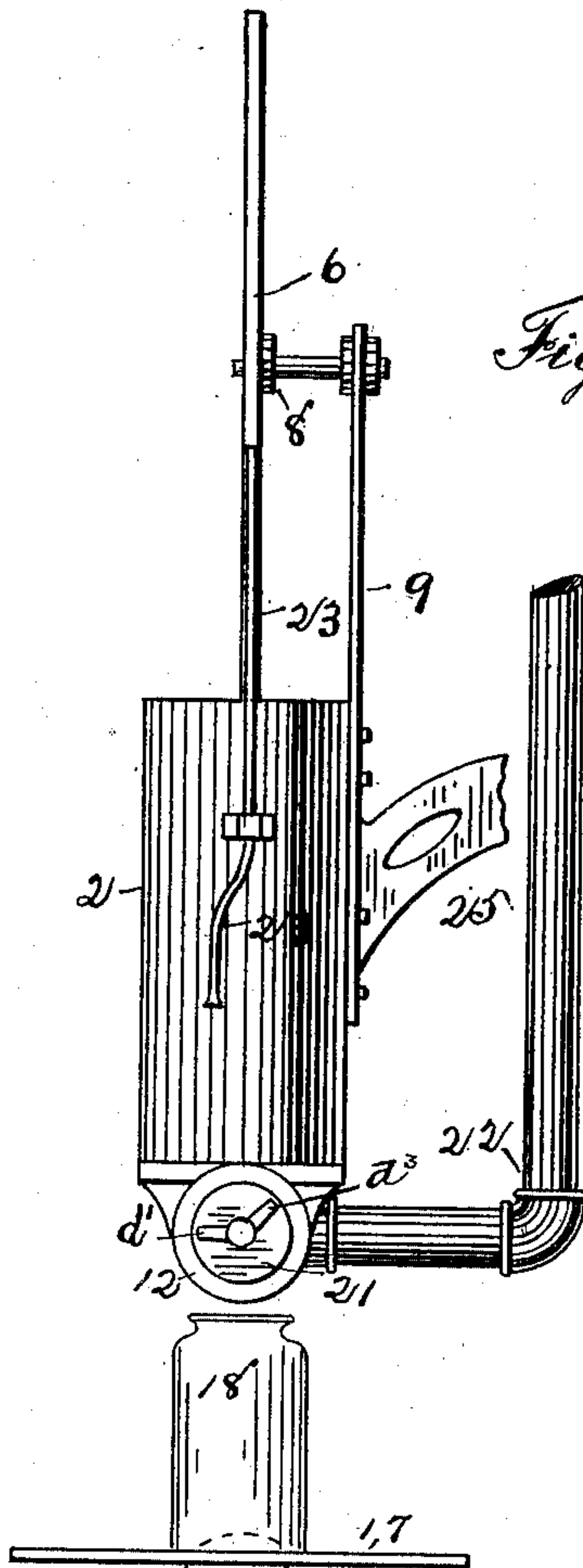
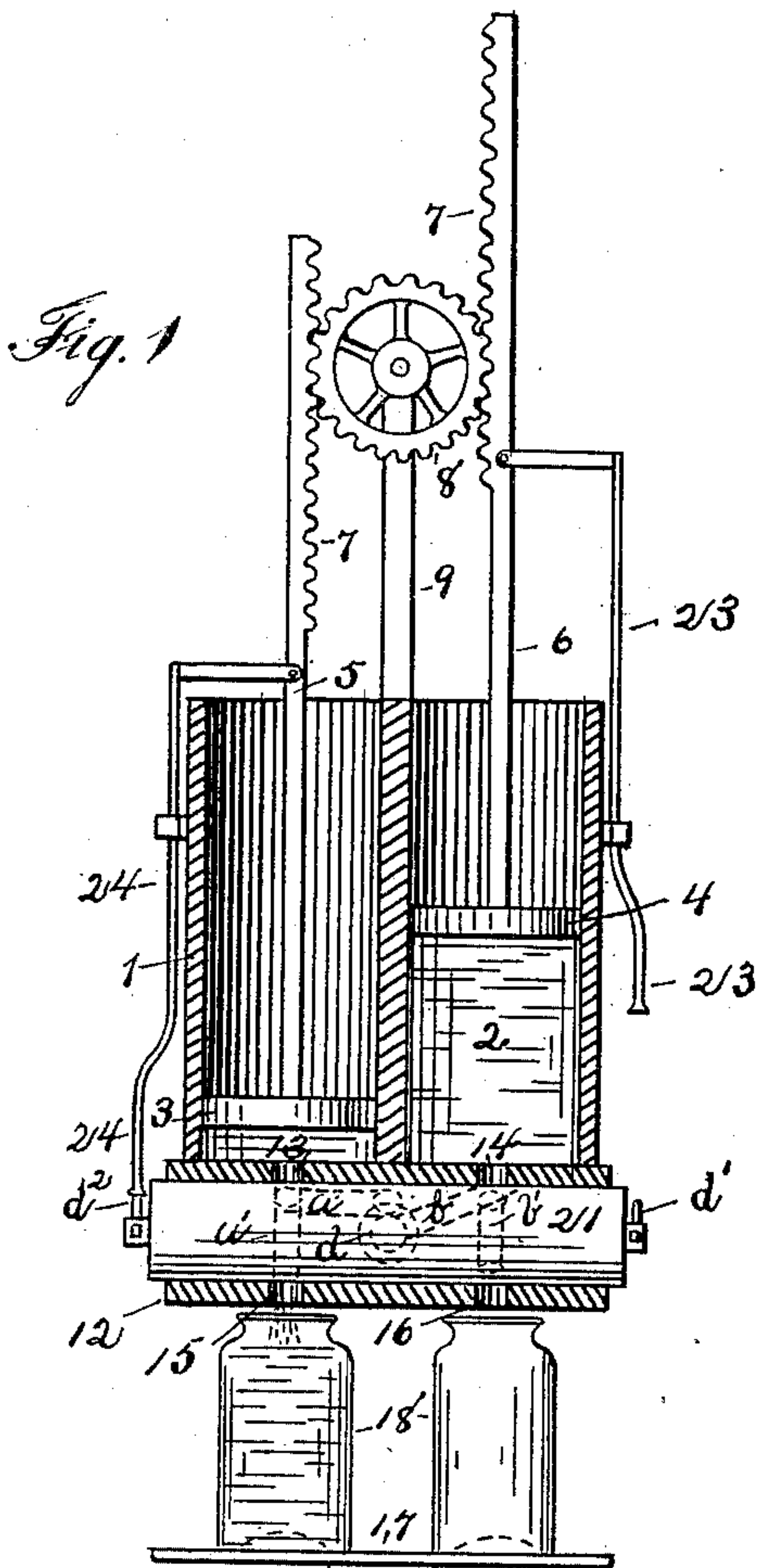
No. 711,144.

Patented Oct. 14, 1902.

A. C. WRIGHT.  
MEASURING AND FILLING APPARATUS.

(Application filed Mar. 11, 1902.)

(No Model.)



WITNESSES:  
Frank O. Ward  
Chas. F. Kane.

INVENTOR:  
A. C. Wright  
by W. A. Ackers  
his atty.



# UNITED STATES PATENT OFFICE.

ALLEN CHURN WRIGHT, OF BERKELEY, CALIFORNIA.

## MEASURING AND FILLING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 711,144, dated October 14, 1902.

Application filed March 11, 1902. Serial No. 97,710. (No model.)

*To all whom it may concern:*

Be it known that I, ALLEN CHURN WRIGHT, a citizen of the United States, residing at Berkeley, county of Alameda, State of California, have invented certain new and useful Improvements in Measuring and Filling Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the same.

The present invention relates to a simple and effective device for measuring liquids, such as syrup, and automatically discharging same for the filling of jars, cans, or packages, the object of the invention being to facilitate the handling of the material and filling of the cans, jars, or packages.

To comprehend the invention, reference should be had to the accompanying sheet of drawings, wherein—

Figure 1 is a vertical sectional front view in elevation of the apparatus. Fig. 2 is a side view thereof. Figs. 3 and 5 are end views of the cut-off valve in the position indicated in Fig. 4 of the drawings. Fig. 4 is a longitudinal sectional view of the valve-casing with the valve therein. Figs. 6 and 8 are end views of the cut-off valve illustrated in Fig. 7; and Fig. 7 is a view similar to that of Fig. 4 of the drawings, the position of the valve being changed so as to illustrate the open ports of Fig. 4 as closed and the closed ports thereof as opened.

In the drawings the numerals 1 2 are used to indicate the syrup-cylinders, within which work, respectively, the pistons 3 4. The piston-stems 5 6 extend above or beyond the upper end of the cylinders, and the inner edge or face of each piston-stem near its upper portion is formed into a rack 7. These rack portions of the piston-stems engage or mesh with the rack-pinion 8, which pinion is journaled in bearings of upright 9. The cylinders are secured to the valve-casing 12, communication between the cylinders and the interior of the casing being established by ports 13 14, respectively, of the casing. This valve-casing is also provided with the outlets 15 16, located a short distance apart. Below the outlets 15 16 is located a supporting-shelf 17 for the jars or cans 18 to be filled. This supporting-shelf is secured to rod 19, which

screws into base 20. The shelf may be raised or lowered, so as to decrease or increase its distance from outlets 15 16, in accordance with the height of the jar or package to be placed beneath the outlet for filling.

Within the valve-casing 12 is fitted a rotatable valve 21, which valve is provided with the inlet and outlet ports  $a$   $a'$  and  $b$  and  $b'$ , which inlet-ports communicate, respectively, with the ports 13 and  $d$  and 14 and  $d'$ . With the port  $d$  communicates the supply-pipe 22, which leads from a reservoir located at any suitable place containing the liquid or syrup to be conveyed to the jars or packages to be filled.

Port  $a'$  of the valve is so arranged as to communicate with outlet 15 when registering with port 13, while port  $b'$  when registering with port 14 communicates with outlet 16. When port  $a$  is out of registry with port 13, port  $b$  will communicate with port 14 and supply-port  $d'$ , opening communication between cylinder 2 and the supply-pipe 22. The turning of valve 21 so as to cut off port  $a'$  and establish communication between cylinder 1 and supply-pipe 22 by placing port  $a$  in registry with ports 13 and  $d$  destroys communication between ports 14 and  $d$  through port  $b$  and establishes connection between outlet 16 and cylinder 2 through valve-port  $b'$ , so as to permit the liquid in cylinder 2 to escape therefrom into jar or package located beneath outlet of cylinder 2 to receive same.

The fluid or liquor from the reservoir is forced by its head-pressure through supply-pipe 22 and is admitted into one of the cylinders—say cylinder 1—through inlet-port  $a$ . As the liquor is admitted into this cylinder it forces piston 3 upward, the stem 5 of which during its upstroke causes the rack-pinion 8 to rotate so as to force stem 6 and piston 4 of cylinder 2 downward. During the downstroke of piston 4 the liquor or fluid contained in cylinder 2 is forced therefrom and through valve outlet-port  $b'$  into outlet 16, from which it escapes into the jar, vessel, or package resting thereunder to be filled.

As the downwardly-moving piston 4 is about to complete its stroke arm  $d'$ , projecting from one end of the rotatable valve 21, is engaged by lower end of rod 23, secured at its upper



end to piston-stem 6, and gradually forced downward so as to impart a quarter-rotation to the valve. This movement of the valve closes inlet-port *a* and outlet-port *b'*, at the same time opening into port *b* and outlet-port *a'*. When the valve stands in this position, the liquor and fluid from the supply-pipe will enter cylinder 2 through inlet-port *b* and forces piston 4 and its stem 6 upward, so as to fill said cylinder with liquor to be forced therefrom during the next downstroke of the piston 4. During the upstroke of said piston the stem 6 imparts an opposite rotation to rack-pinion 8, the movement of which forces piston-stem 5 and its piston 3 downward within cylinder 1. With this movement of the piston 3 the liquor or fluid contained in cylinder 1 is expelled therefrom and through outlet-port *a'* into outlet 15, from whence it escapes into the vessel, jar, or package located thereunder to receive same. As the piston 3 approaches its full downstroke lower end of rod 24 engages arm *d*<sup>2</sup>, projecting from opposite end of valve 21 as that of arm *d'*, and gradually forces said arm downward, so as to impart a reverse quarter-rotation to the valve 21, thereby closing inlet-port *b* and outlet-port *a'* and opening inlet-port *a* and outlet-port *b'*. The operation of emptying cylinder 2 and filling cylinder 1, before described, is again repeated. In order to render the rotatable valve 21 evenly balanced, there is attached to each end of said valve balance weights or arms *d*<sup>3</sup>, which oppose arms *d'* *d*<sup>2</sup>. It will thus be observed that the operation of filling and emptying the cylinders is entirely automatic, it only being required that an operator be employed to remove the filled vessels and replace same with ones to be filled.

The cylinders may be supported in any suitable manner. I have illustrated same as being attached to bracket 25, which in turn may be secured to a wall or other support.

When it is desired to discontinue the working of the apparatus, it is only required to cut off the supply of liquor or fluid through the supply-pipe. A suitable cock may be utilized for this purpose.

Having thus described the invention, what is claimed as new, and desired to be protected by Letters Patent, is—

1. In a measuring and filling apparatus, the combination with a pair of cylinders, pistons working therein, a rotatable valve for controlling the admission of fluid into and from the cylinders, a supply-pipe communicating with the casing of the rotatable valve, communication between the cylinders and the interior of the valve-casing, outlet-ports in said casing, inlet-ports in the valve which alternately connect the cylinders with the supply-pipe, and outlet-ports in said valve which alternately connect the cylinders with the outlet-ports of the valve-casing, and connection between the pistons of the cylinder whereby as one piston is forced upward by

the admission of fluid into its cylinder the opposing piston is forced downward to expel the contents of its cylinder.

2. In a measuring and filling apparatus, the combination with a pair of receiving-cylinders, of means whereby the cylinders are alternately connected with a supply-pipe, a piston working in each cylinder, connection between the pistons so arranged that as one piston is forced upward by the pressure of the fluid admitted into its cylinder the opposite piston is forced downward within its cylinder to expel the contents thereof, outlets for the cylinders, and valved outlets with which the outlets of the cylinders alternately communicate so as to permit of one cylinder exhausting while the other cylinder is being filled.

3. In a measuring and filling apparatus, the combination with the valve-casing, of the cylinders mounted thereon, communication between the cylinders and the interior of the casing, a valve rotatably secured within the casing, a series of inlet and outlet ports formed within the rotatable valve, a supply-pipe extending into the valve-casing with which the inlet-ports of the valve alternately registers to establish connection with the cylinders so as to admit fluid alternately to the cylinders, outlets in the valve-casing with which the outlet-ports of the valve alternately registers, a piston in each cylinder, connection between the pistons whereby the upward movement of one piston within its cylinder causes the downward movement of the opposing piston so as to expel the liquor contained in its cylinder, and of means for operating the rotatable valve as one cylinder exhausts to close the outlet-port and open the inlet-port therefor while opening the outlet and closing the inlet ports for the opposing cylinder.

4. In a measuring and filling apparatus, the combination with the receiving-cylinders, of a rotatable valve provided with an inlet and outlet port for each cylinder, a supply-pipe with which the inlet-ports register so as to alternately establish communication with the cylinders, a piston working in each cylinder, connection between the pistons whereby the upward movement of one piston by the admission of fluid into its cylinder forces the opposing piston downward to expel the fluid contained in its cylinder, and means actuated by the downward movement of the pistons by which the rotatable valve is operated to close the outlet-port and open the inlet-port for the exhausting-cylinder while opening the outlet-port and closing the inlet-port for the opposing cylinder.

5. In a measuring and filling apparatus, the combination with a pair of receiving-cylinders, of a valve-casing, communications between the cylinders and the interior of the valve-casing, supply-pipe therefor, a rotatable valve located within said valve-casing between the cylinders and the supply-pipe, a series of inlet and outlet ports in the said valve the inlet-ports of which register alter-



nately with the cylinders and the supply-pipe the outlet-ports of said valve alternately registering with outlet-ports in the valve-casing whereby one cylinder is permitted to exhaust  
5 while the opposing cylinder is receiving fluid, and of means actuated by the exhausting of one cylinder which operates the valve so as to close the outlet-port and open the inlet-port for said cylinder, while opening the out-let-port and closing the inlet-port for the opposing cylinder.

In witness whereof I have hereunto set my hand.

ALLEN CHURN WRIGHT.

Witnesses:

N. A. ACKER,  
D. B. RICHARDS.

Affidavit having been filed showing that the name of the patentee in Letters Patent No. 711,144, granted October 14, 1902, for an improvement in "Measuring and Filling Apparatus," should have been written and printed *Allen Cheever Wright* instead of "Allen Churn Wright," it is hereby certified that the proper correction has been made in the files and records pertaining to the case in the Patent Office, and should be read in the Letters Patent that the same may conform thereto.

Signed and sealed this 2d day of December, A. D., 1902.

[SEAL.]

F. I. ALLEN,  
*Commissioner of Patents.*