

Feb. 6, 1923.

1,444,052

B. P. BABCOCK.
MEASURING DEVICE FOR CAN FILLING MACHINES.
FILED APR. 2, 1920.

Fig. 1.

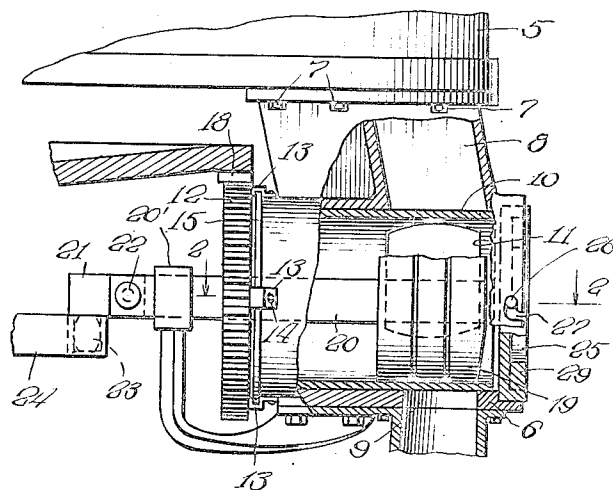


Fig. 2.

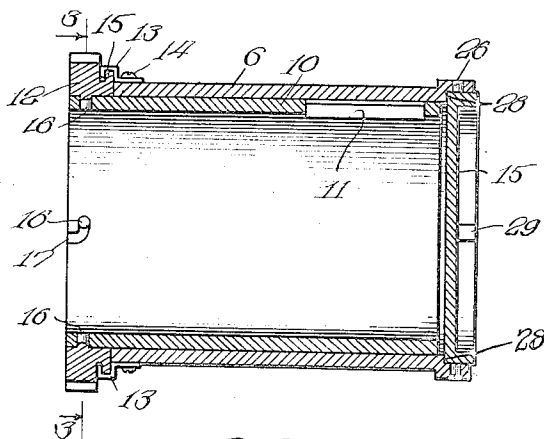
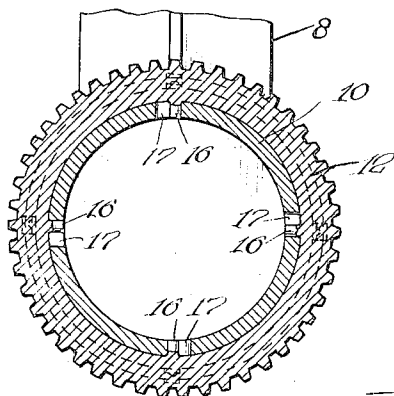


Fig. 3.



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UNITED STATES PATENT OFFICE.

BASIL P. BABCOCK, OF CHICAGO, ILLINOIS, ASSIGNOR TO SPRAGUE CANNING MACHINERY COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

MEASURING DEVICE FOR CAN-FILLING MACHINES.

Application filed April 2, 1920. Serial No. 870,817.

To all whom it may concern:

Be it known that I, BASIL P. BABCOCK, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Measuring Devices for Can-Filling Machines, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawing, forming a part of this specification.

My invention relates to improvements in measuring devices for can filling machines, and has for its object the production of a device of this character which will permit of ready and expeditious cleaning of the same so as to permit of the machine being readily maintained in a sanitary condition.

A further object is the production of mechanism of the character mentioned which will be of durable and economical construction and efficient in use.

Other objects will appear hereinafter.

With these objects in view, the invention consists generally in a novel construction which permits of ready assembling and disassembling whereby access to the various internal parts of the mechanism is facilitated.

The invention will be best understood by reference to the accompanying drawings wherein—

Fig. 1 is a partially sectional side elevation of a measuring device for can filling machines embodying the invention, adjacent parts of the can filling machine being shown in fragment;

Fig. 2 is a section taken on line 2—2 of Fig. 1 showing the measuring chamber and the rotary valve which is mounted therein, the plunger of said chamber being omitted; and

Fig. 3 is a section taken on substantially line 3—3 of Fig. 2.

The preferred form of construction, as illustrated in the drawings, is designed for use in connection with a can filling machine provided with a tank or reservoir 5 which is adapted to contain the material to be filled into the cans.

The measuring device constituting the subject matter of this application is mounted upon the underside of the tank 5, said measuring device comprising a cylindrical cham-

ber 6 provided at its upper side with an extension which is secured by bolts or other fastening devices 7 to the underside of tank 5. In said extension of chamber 6 is formed a passage 8 which leads from the tank 5 to the interior of said chamber 6, the inner or lower end of said passage constituting an inlet port for said chamber. At the underside of said chamber is provided an outlet port 9 through which the material is discharged from said chamber and into the cans which, in the operation of the machine, are arranged below the measuring devices.

Rotatably mounted within the chamber 6 for the control of the inlet and outlet ports thereof is a tubular valve 10 formed with an opening 11 adapted, upon rotation of said valve, to alternately register with the inlet and outlet ports of the chamber to alternately effect inlet to and discharge from said chamber.

The opposite ends of chamber 6 are open, the valve 10 projecting through one of said open ends of said chamber, and being provided with an annular gear 12 through the medium of which said valve is rotated. Said gear is held in co-operative or fixed relation with the chamber 6 by means of a plurality of angular holders 13 placed around said chamber and secured thereto by screws 14. The members 13 engage an annular flange 15 formed upon the gear 12, as clearly seen in Fig. 2. The arrangement is such that said gear will be permitted free rotary movement, but will be constantly maintained in cooperative or fixed relation with the chamber 6, as above stated. Said gear is operatively connected with the adjacent end of valve 10 by bayonet joint connections, said gear being formed with a plurality of inwardly projecting pins 16 which loosely engage with angular slots 17 formed in the adjacent end of valve 10, as clearly seen in Figs. 2 and 3.

The arrangement is such that in the operation of the machine, at which time the valve 10 is rotated by the gear 12, the direction of rotation will be such that the pins 16 will remain in engagement with the slots 17. Release of said valve 10 may, however, be effected, if desired, by reversely rotating the valve and moving the same longitudinally,

such movement of said valve causing the slots 17 to disengage the pins 16, as will be readily understood.

Rotation of the gear 12, as just mentioned, is effected by means of a stationary gear 18 meshing therewith, the arrangement being such that as the measuring devices revolve with the tank 5, the gear 12 will ride about and be in mesh with the gear 18.

Mounted for axial movement within the valve 10 is a plunger 19, the rod or stem 20 of which projects through the inner end of said valve, said rod passing through a guide 20' and being provided at its exposed end with a detachable section 21, the parts 20 and 21 being overlapped and locked together by a removable pin or screw 22. The member 21 carries a roller 23 which engages with a cam 24 whereby, in the operation of the machine, the plunger 19 will be caused to reciprocate in the valve 10 as the measuring device revolves. The rotation of said valve and the reciprocation of said plunger are so timed that movement of the plunger to the left, as seen in Fig. 1, will occur when the opening 11 of the valve 10 is in registration with the inlet port of chamber 6, whereas movement of said plunger in the opposite direction will take place when said opening 11 is in registration with the outlet port 9 of said chamber, said plunger being adapted to insure the forcing of the material from the measuring device in the latter instance.

By reason of the sectional construction of the plunger rod 20, that is, the detachable connection between said rod and the section 21 thereof, when it is desired to remove the plunger 19, the connecting device 22 needs only to be removed whereupon the rod 20 will be disconnected from the section 21, permitting of the plunger to be removed through the outer end of the measuring chamber.

Said outer end of said measuring chamber is closed by a removable closure 25 which is in bayonet joint connection with the corresponding end of said chamber, said closure being provided at its periphery with a plurality of spaced outwardly projecting pins 26 which loosely engages angular slots 27 formed in said end of said chamber, as clearly seen in Figs. 1 and 2. The arrangement is such, as will be seen, that connection and disconnection of said closure may be effected by rotating and longitudinally moving the same, as will be readily understood. When said closure is in closing position, the same seats against a shoulder 28 to form a tight connection with the end of the measuring chamber. Diametric lugs 29 are formed in the countersunk outer side of said closure which permit of engagement by a suitable tool in applying or removing said closure.

With the construction set forth, it will be

seen that an arrangement is provided which permits of ready disconnection or disassembling of the parts. In doing this, the closure 15 is first removed. This having been done, the plunger 19 may be removed by simply withdrawing the pin 22, thus disconnecting the plunger rod from the section 21, which carries the cam roller 23. Upon removal of said plunger, the valve 10 may be readily removed by simply reversely rotating the same to effect disengagement from the pins 16 on gear 12. It will thus be seen that the various internal parts of the measuring device may be readily and quickly removed to permit of thorough cleansing of the same, and when these parts are removed, the interior of the measuring chamber as well as the inlet and outlet ports or passages thereof are rendered readily accessible so as to permit of easy cleansing thereof. Thus with this arrangement a machine is provided which may be readily maintained in a clean and sanitary condition which is, of course, of prime importance in canning machinery. Reassembling of the parts may, of course, be as readily effected as disassembling of the same above described.

The mounting of gear 12 is such that upon detachment of valve 10 therefrom and removal of the latter, said gear will be maintained in fixed or cooperative relation with the chamber 6 through the medium of the holders 13, so that upon reinsertion of said valve, said gear will be in proper position to receive said valve.

While I have illustrated and described the preferred form of construction for carrying my invention into effect, this is capable of variation and modification without departing from the spirit of the invention. I therefore do not wish to be limited to the precise details of construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claims.

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

1. The combination of a measuring chamber; a valve rotatably mounted in said chamber; a driving element for said valve in fixed relation with said chamber; and a detachable bayonet joint connection between said driving element and said valve.

2. The combination of a measuring chamber; a valve rotatably and removably mounted in said chamber; a driving element for said valve; a detachable connection between said driving element and said valve; and means for holding said driving element in cooperative relation with said chamber upon removal of said valve.

3. The combination of a measuring chamber; a tubular valve rotatably and removably mounted in said chamber; a driving

element for said valve encircling the same; a detachable connection between said driving element and said valve; an annular flange on said driving element; and means 50
engaging said flange for holding said driving element in cooperative relation with said chamber upon removal of said valve.

4. The combination of a measuring chamber; a tubular valve rotatably and removably mounted in said chamber; a driving element for said valve encircling the same; a detachable connection between said driving element and said valve; an annular flange on said driving element; and means 15
on said chamber engaging said valve for holding said driving element in cooperative relation with said chamber upon removal of said valve.

5. The combination of a measuring chamber; a tubular valve rotatably and removably mounted in said chamber; a driving element for said valve encircling the same; a detachable connection between said driving element and said valve; an annular flange on said driving element; and a plurality of angularly formed devices on said chamber engaging said flange for holding said driving element in cooperative relation with said chamber upon removal of said 20
valve.

6. The combination of a measuring chamber; a tubular valve rotatably and removably mounted in said chamber; a driving element for said valve encircling the same; a detachable bayonet joint connection between said driving element and said valve; an annular flange on said driving element; and means engaging said flange for holding said driving element in cooperative relation with said chamber upon removal of said 25
valve.

7. The combination of a measuring chamber having an open end; a valve rotatably mounted in said chamber and projecting through said open end thereof; a driving element for said valve encircling the same; a detachable connection between said driving element and said valve; and means for 30
holding said driving element in cooperative relation with said chamber upon removal of said valve.

8. The combination of a measuring chamber having open opposite ends; a tubular valve rotatably mounted in said chamber and projecting through one of said ends of said chamber; a driving element for said valve; a detachable connection between said driving element and said valve; means for holding said driving element in cooperative relation with said chamber upon removal of said valve; and a removable closure for the other end of said chamber.

9. The combination of a measuring chamber having open opposite ends; a tubular valve rotatably mounted in said chamber; a driving element for said valve; a detachable connection between said driving element and said valve; means for holding said driving element in cooperative relation with said chamber upon removal of said valve; a removable closure for one end of said chamber; a plunger mounted to move axially within said valve, said plunger projecting through the opposite end of said chamber; means for operating said plunger; and a 65
detachable connection between said plunger and said operating means.

10. The combination of a measuring chamber; a valve rotatably and removably mounted in said chamber; a driving element for said valve; a detachable connection between said driving element and said valve; means for holding said driving element in cooperative relation with said chamber upon removal of said valve, said last mentioned means comprising an annular flange on one of said parts and means on the other part loosely engaging said flange.

In witness whereof, I have hereunto subscribed my name. 90

BASIL P. BABCOCK.

Witnesses:

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JOHN L. FREEMAN.