

No. 632,724.

Patented Sept. 12, 1899.

E. R. KLEMM.  
BOTTLE FILLING MACHINE.

(Application filed Dec. 19, 1896.)

(No Model.)

4 Sheets—Sheet 1.

Fig. 2

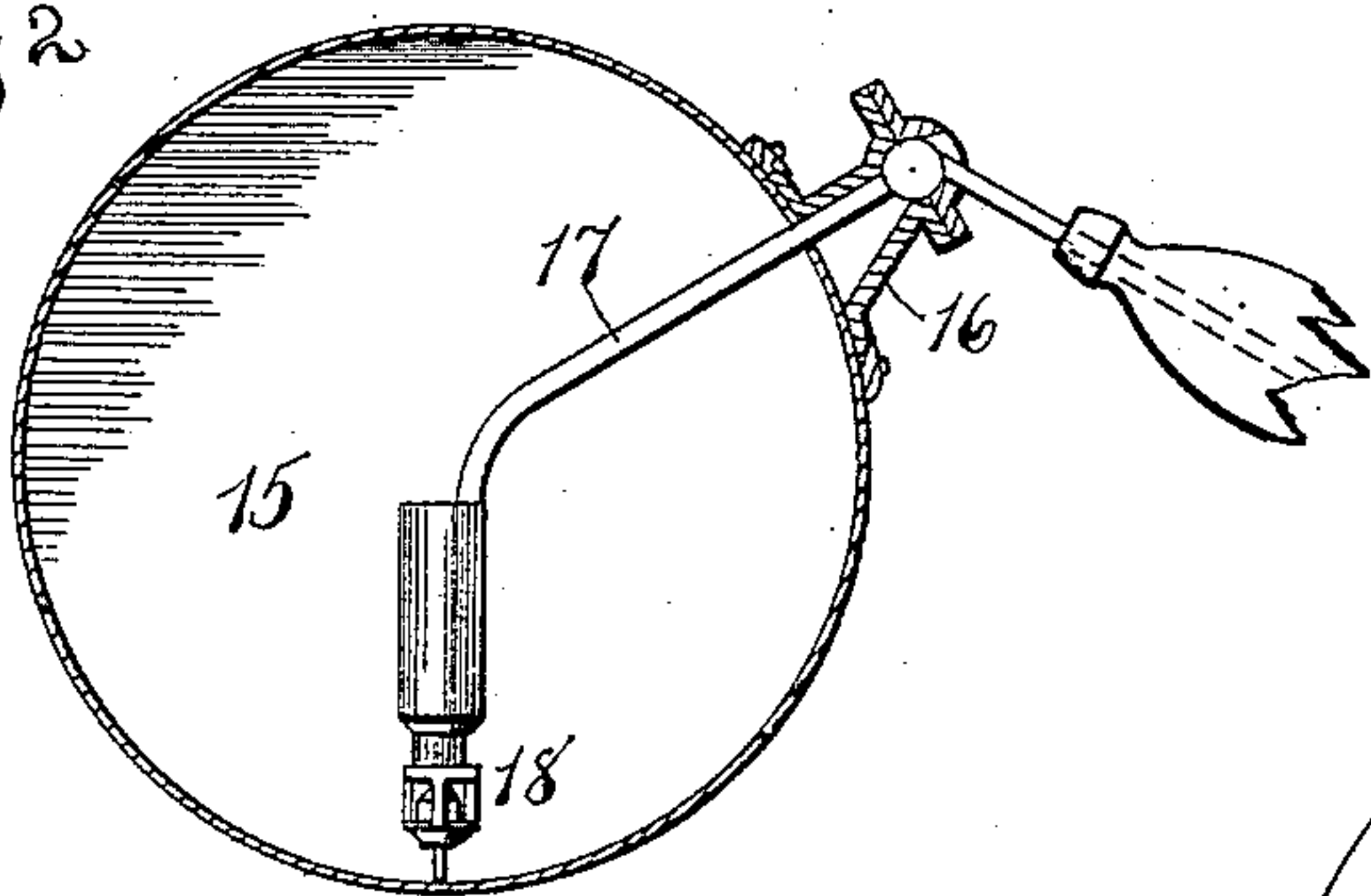


Fig. 3.

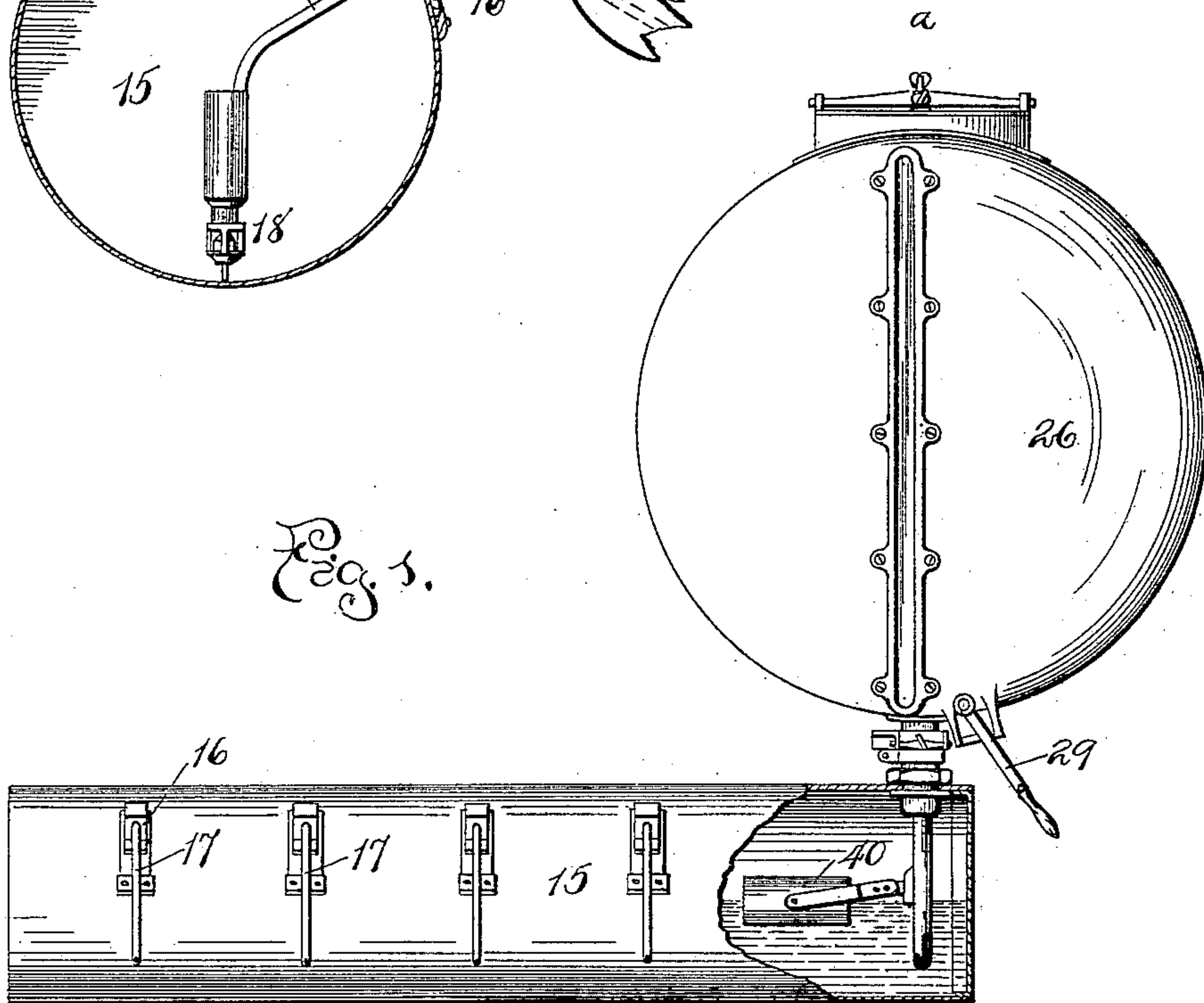
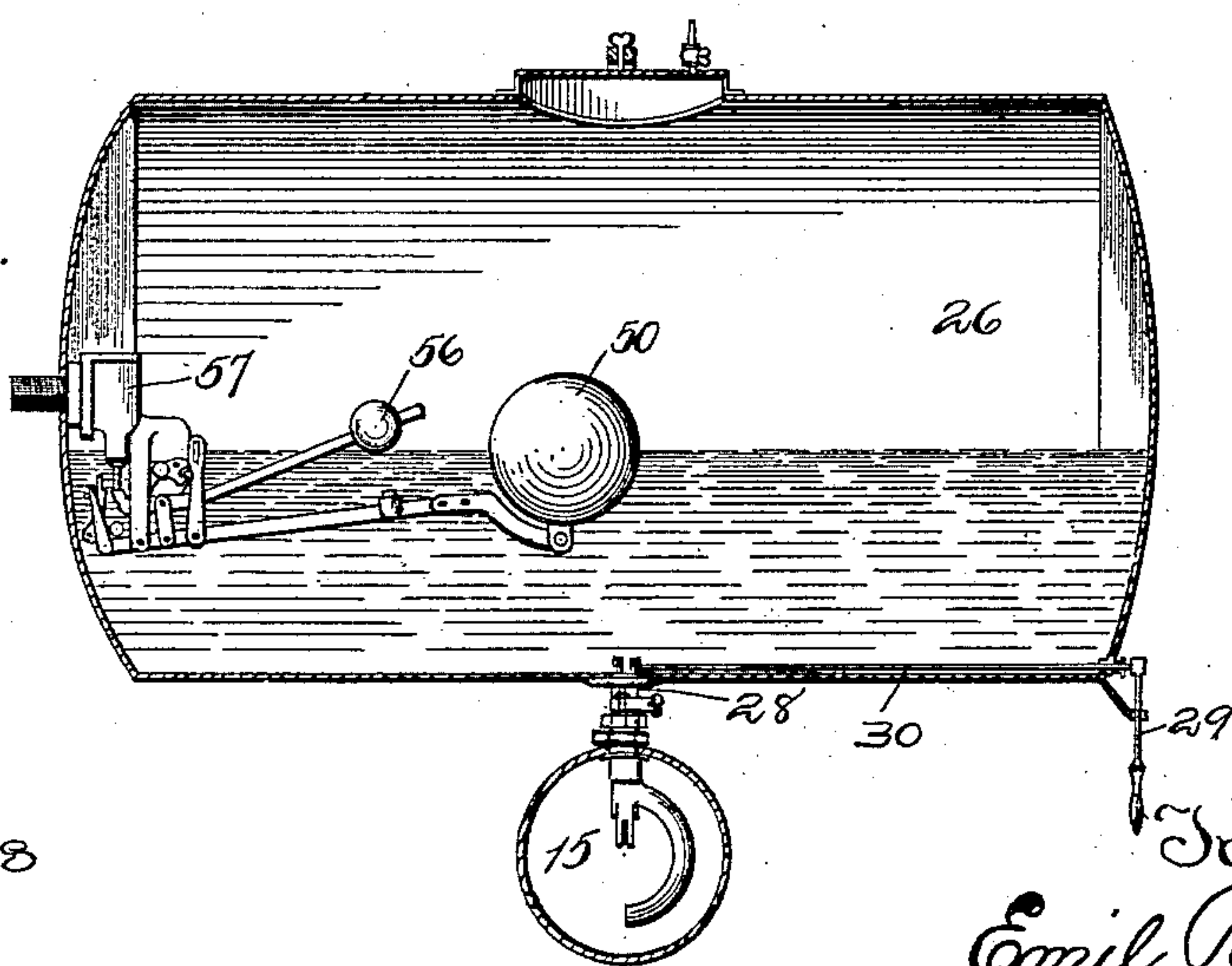


Fig. 3.



Witnesses  
W. M. Keir  
L. M. Bulkeley.

Inventor  
Emil R. Klemm,  
By Chas. C. Bulkeley,  
att.

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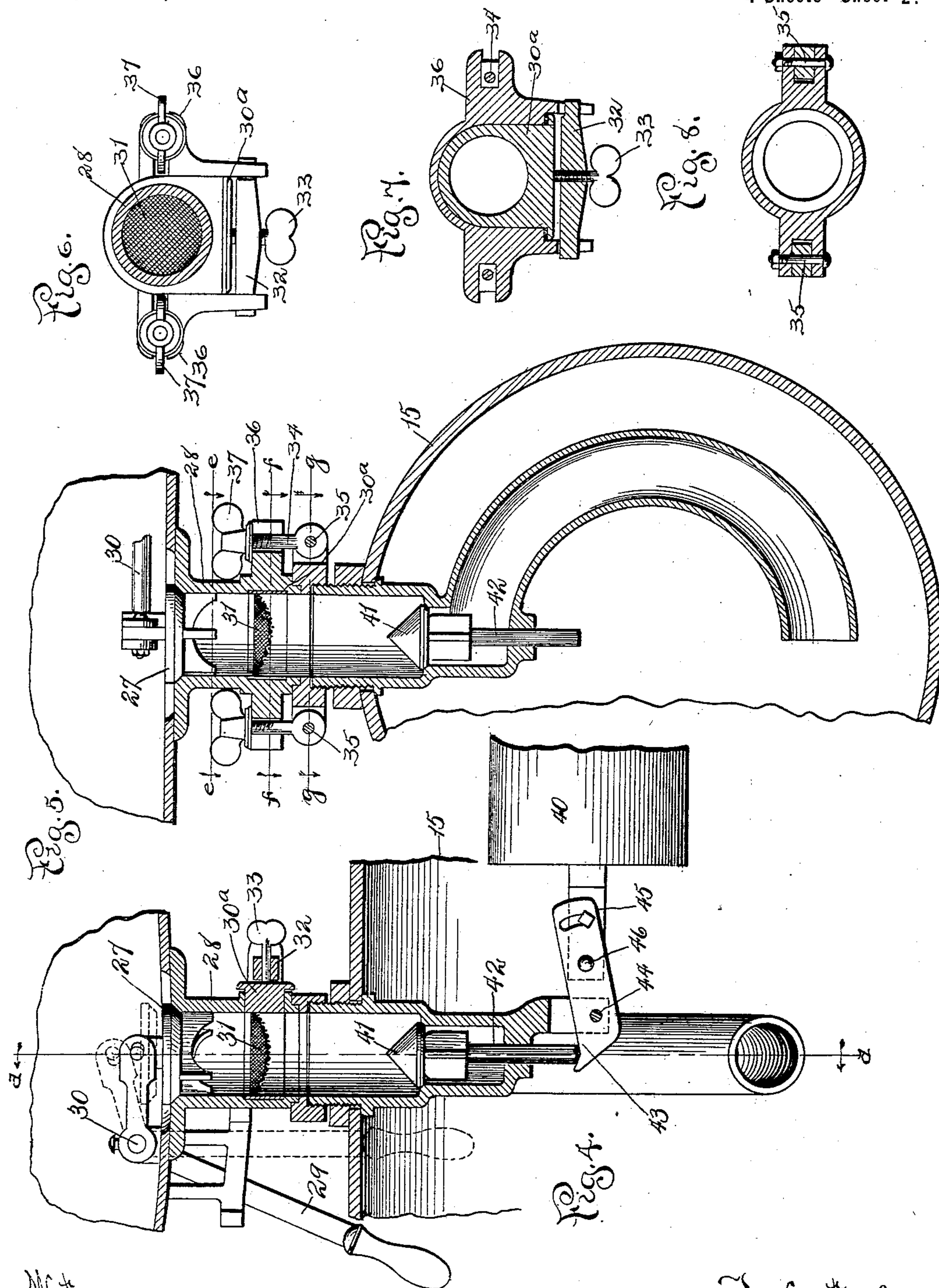
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Witnesses:  
J. B. Keir.  
A. Miller Belfield.

Inventor:  
Emil R. Klemm  
By Chas. C. Bulkley  
att.



No. 632,724.

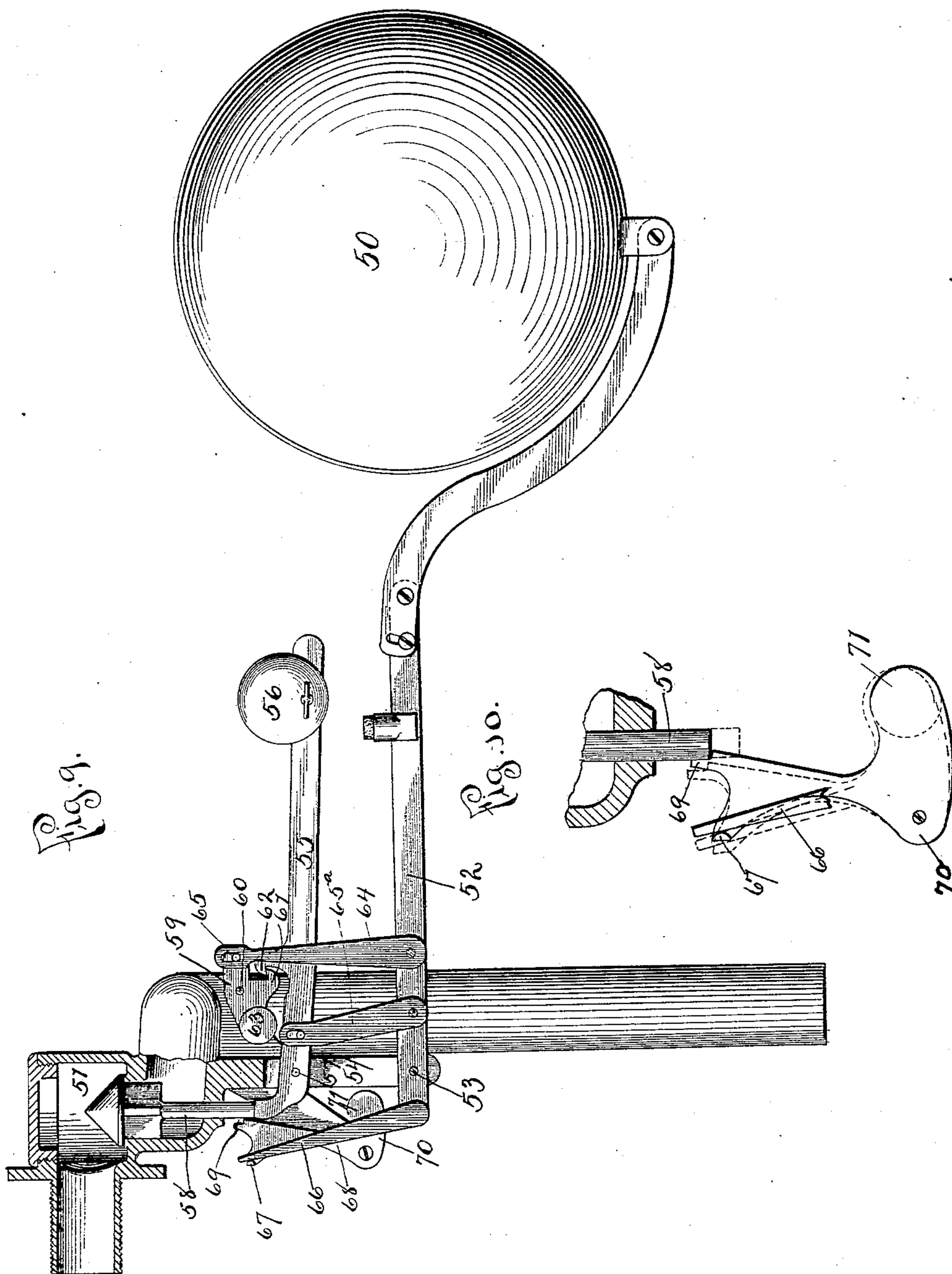
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(Application filed Dec. 19, 1896.)

(No Model.)

4 Sheets—Sheet 3.



Witnesses  
J. H. Keir  
L. M. Bulkley.

Inventor.  
Emil R. Klemm,  
By Chas. C. Bulkley,  
Atty.

No. 632,724.

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E. R. KLEMM.  
BOTTLE FILLING MACHINE.

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Fig. 12.

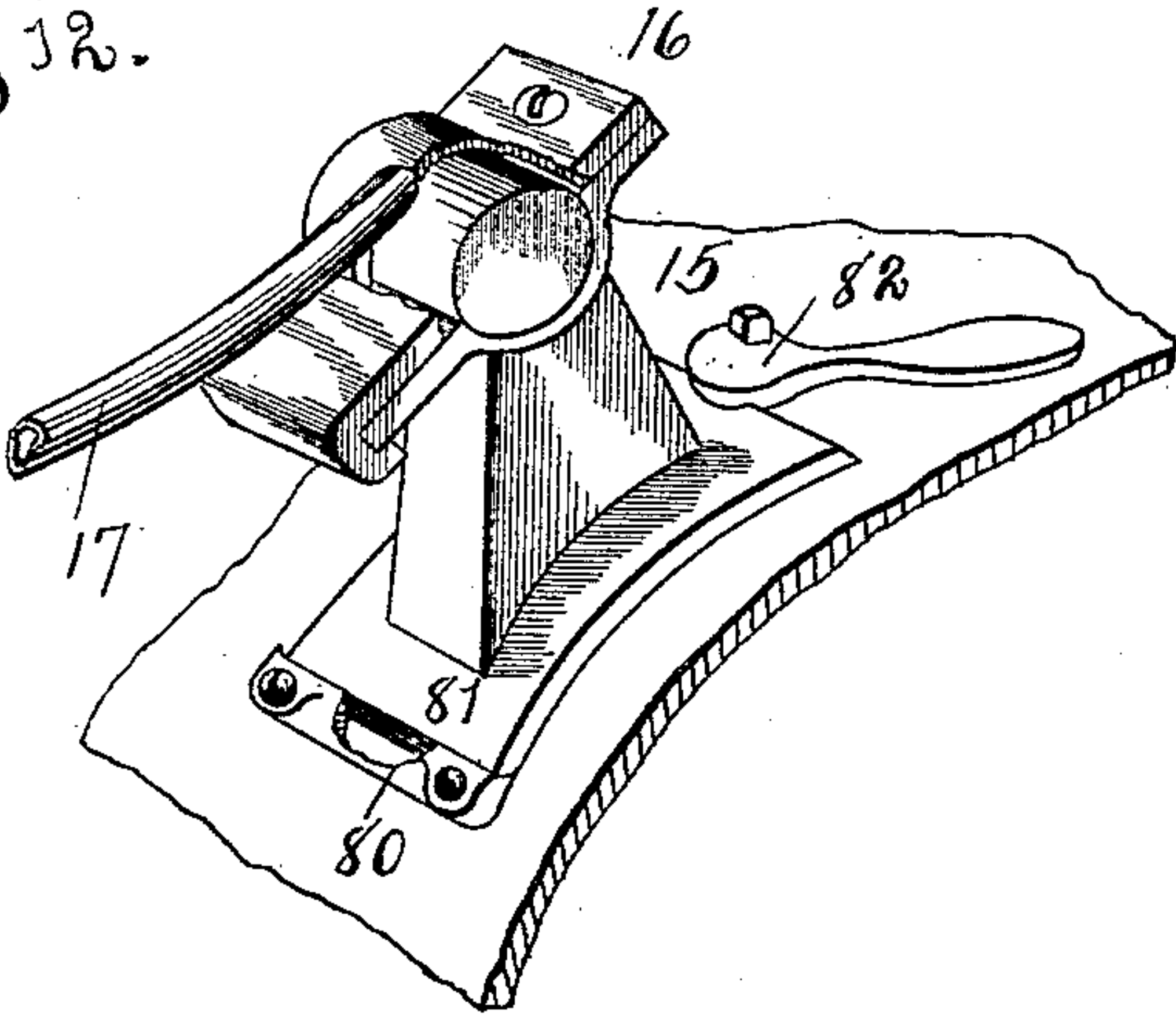


Fig. 11.

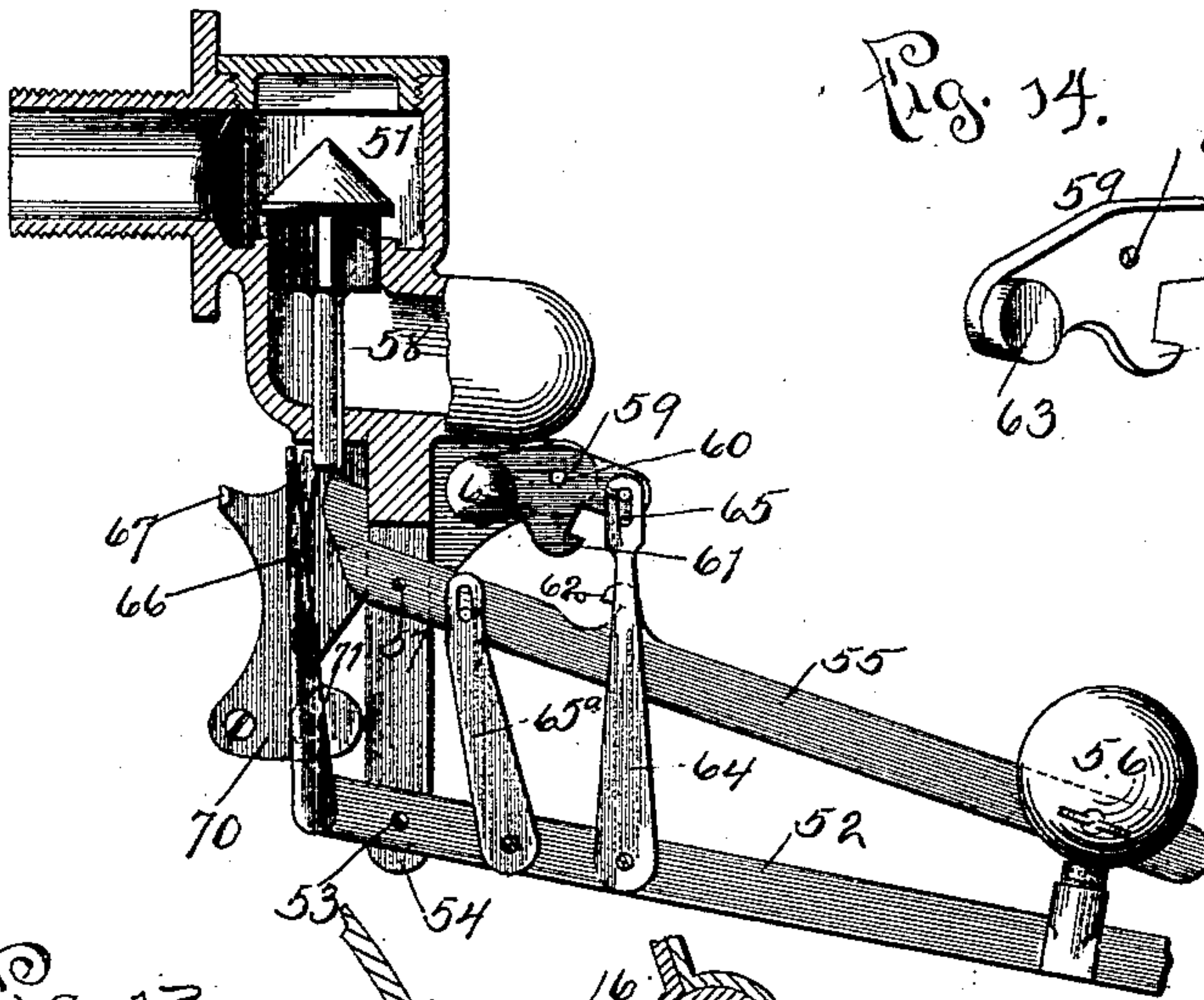


Fig. 14.

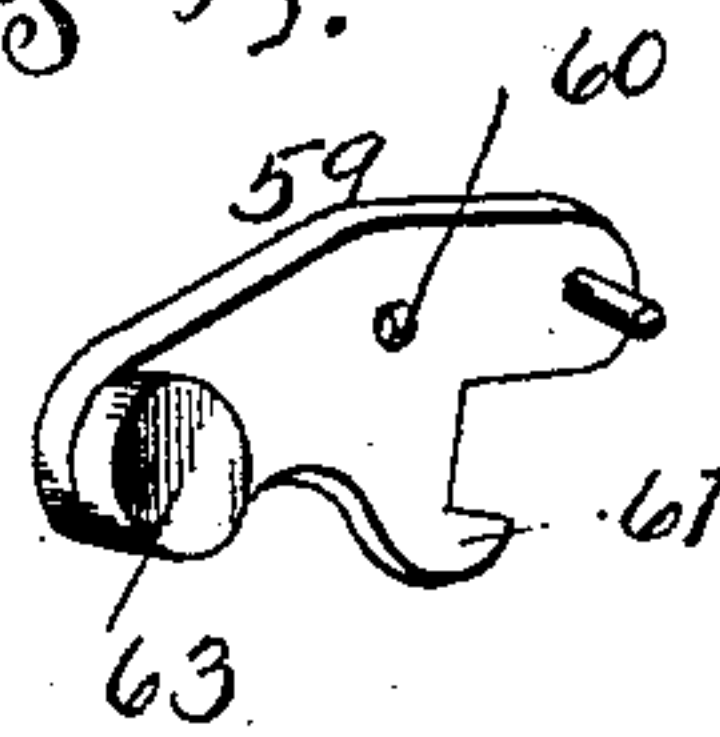
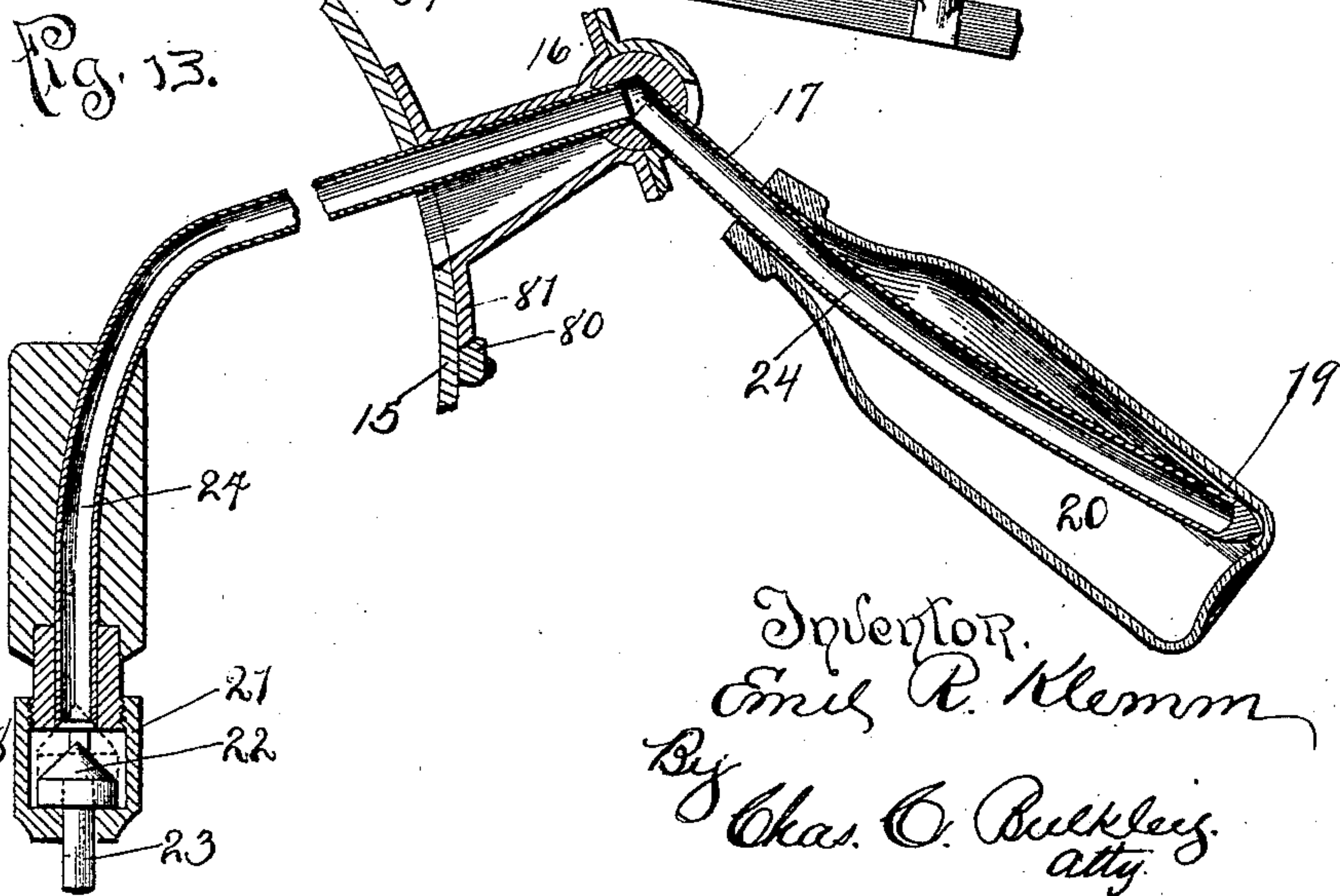


Fig. 13.



Witnesses  
J. B. Keir

Inventor.  
Emil R. Klemm  
By  
Chas. C. Bulkley  
att'y



# UNITED STATES PATENT OFFICE.

EMIL R. KLEMM, OF CHICAGO, ILLINOIS.

## BOTTLE-FILLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 632,724, dated September 12, 1899.

Application filed December 19, 1896. Serial No. 616,271. (No model.)

*To all whom it may concern:*

Be it known that I, EMIL R. KLEMM, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Bottle-Filling Machines, of which the following is a specification.

My invention relates to certain improvements in that class of bottle-filling machines which employ a containing vessel and valves actuated by the adjustment of the bottle in position to be filled.

My invention consists in certain improvements in the valves for controlling the passage of the fluid from a primary containing vessel to the bottles to be filled, and also in the valves between an auxiliary chamber and the primary vessels, together with means for sensitively and at the right time automatically operating the valve.

My invention consists in certain other features about to be described, and pointed out in my claims, reference being now had to the accompanying drawings, in which—

Figure 1 is a front elevation of the primary reservoir and an end elevation of the auxiliary reservoir. Fig. 2 is a cross-section of the primary reservoir. Fig. 3 is a central longitudinal section through the auxiliary reservoir on the line *a a* of Fig. 1. Fig. 4 is an enlarged sectional detail view of the pipe connections between the two reservoirs, showing the valves in said connections. Fig. 5 is a like sectional view on the line *d d* of Fig. 4. Fig. 6 is a sectional view on the line *e e* of Fig. 5. Fig. 7 is a like view on the line *f f* of Fig. 5. Fig. 8 is a like view on the line *g g* of Fig. 5. Fig. 9 is an enlarged detail view of the controlling-valve between the two reservoirs, which is operated by a float, and also shows the automatically-operating mechanism actuating and engaging the valve. Fig. 10 is an enlarged detail view of the gravity holding-lever for the valve. Fig. 11 is a view illustrating the position assumed by the parts when the valve is opened. Fig. 12 is a view illustrating in perspective the means of removably mounting the bottle valve-arm upon the primary reservoir. Fig. 13 is a detail sectional view of the bottle valve-rod and valve actuated thereby. Fig. 14 is an enlarged detail view of the pivoted gravity-trigger.

The primary reservoir or bottle-filling reservoir is designated at 15, having mounted thereon removably, in a manner to be described, the holders 16, in which holders the bottle valve-rods 17 are pivotally mounted. This bottle valve-rod is hollow throughout its length in order that free communication may be had between the valve 18, carried on its lower end, and the point of discharge at 19 into the bottle 20, Fig. 13. The valve 18 consists of a casing 21, which is secured rigidly to the bottle valve-rod 17, and a movable valve-face 22, having secured thereto a tang 23, which latter is adapted to engage against the lower side wall of the primary reservoir 15. When no bottle is upon the valve-rod, the valve is in the position shown by the dotted lines in Fig. 13; but when a bottle is placed upon the valve-rod its lower end is raised away from the valve-face 22 and the valve 18 opened in order to permit the passage of the liquid through the channel 24 in said valve-rod. It will be observed that a number of these bottle valve-rods and valves are arranged side by side on the primary reservoir 15.

Located in proximity to the primary reservoir 15 is an auxiliary reservoir 26, which preliminarily receives and holds the liquid before delivery or discharge into the primary reservoir 15. The primary and auxiliary reservoirs are connected together by means of a pipe connection, and means, both automatically operative and manually operated, are provided to control the discharge of the liquid from one reservoir into the other, which mechanism I will now proceed to describe.

The manually-operated valve is designated at 27, Figs. 4 and 5, and is operated within the pipe connection 28 between two reservoirs by means of a hand-lever 29, positioned on the exterior of the reservoir to a rocker-bar 30, Fig. 3. The valve 27 is thus adapted to be operated manually from the exterior of the reservoirs to close or open communication between the two reservoirs. Just below this valve 27 is a removable and replaceable sieve-frame 30<sup>a</sup>, having secured thereto a sieve 31. This sieve-frame and sieve are adapted for removal from the pipe-connections 28 by removing the holding-bar 32, Figs. 6 and 7, which



secures the sieve in place, and which sieve is adjusted by means of the set-screw 33. I provide a pipe-coupling just below the sieve 31, by which the piping connection 28 may be severed or united, consisting of the set-screws 34, pivoted at 35 and adapted to engage in the ears 36 and held in place by the thumb-nuts 37. A float 40 is provided, which rests upon the body of liquid in the reservoir 15, which is connected with a valve 41 to control automatically the flow of the liquid from the reservoir 26 into the reservoir 15. Connected to this valve 41 is a lift-rod 42, which is engaged at its lower end by the connecting-lever 43, pivoted at 44. The float 40 is rigidly but adjustably connected to the connecting-lever 43, and thus as the float 40 descends the outer end of said lever 43 pushes the valve 41 into an open position. Adjustment may be effected between the float 40 and the connecting-lever 43 by means of the set-screw 45 on the pivot 46. When, therefore, the manually-operated valve 27 is open and the liquid in the reservoir 15 descends below a predetermined level, the float 40 lowers and opens the valve 41 to permit a flow of the liquid from the auxiliary reservoir 26 into the primary reservoir 15.

The flow of the liquid from any source of supply into the auxiliary reservoir 26 is automatically controlled in a manner which I will proceed to describe by means of a float 50. In performing this work automatically it is desirable that the float and the lever 52, controlled thereby, shall have a preliminary traverse as the level of the liquid descends below a predetermined point in order that the valve 51, controlled by the float, shall not be opened immediately upon a slight movement of the float. It is further desirable that the valve be opened suddenly and to its full extent when the float has descended to a particular point. It is also desirable that the valve be held in an open position until the reservoir is again filled to its fullest capacity and the mechanism for opening the valve after it is closed restored to an operative position. The mechanism for accomplishing these results consists of a float rod or lever 52, pivoted at 53 on a pivot-bar 54. A weight-lever 55, carrying a weight 56 at its outer end, is pivoted at 57 to the pivot-bar 54, the end portion of said lever being upturned and adapted to engage against the lower end of the valve-stem 58 of the valve 51. This weight-arm 55 and weight 56 are held in a suspended position by means of the weighted gravity-trigger 59, pivoted at 60, the pawl 61 of which engages the hook 62 on the weight-lever 55, the weight 63 of the gravity-trigger 59 causing said pawl 61 to engage normally the hook 62. The float-lever 51 is connected with the trigger 59 by the connecting-bar 64, the upper end of which is slotted at 65 and coupled to the trigger 59 in such a manner as to provide a loose connection, whereby the float-lever 52 may move a certain distance

without disturbing the trigger 59. A lever or arm 65<sup>a</sup>, slotted in the same manner at its upper end, connects the float-lever 52 loosely with the weight-lever 55. Secured rigidly to the extreme end of the float-lever 52 is a trip-finger 66, which engages against a lug 67 on the valve-holding bell-crank lever 68, the upper end of which latter is notched at 69 and the arm 70 of which is weighted at 71.

The operation of this portion of my device is as follows: Referring to Fig. 9, it will be observed that the trigger 59 is engaged with and holds the weight-arm 55 and weight 56 in an elevated position, the valve-stem 58 of the valve 51 bearing slightly upon the upturned end of said weight-arm 55. It will also be observed that the upper notched end portion of the valve-holding lever 68 rests against said valve-stem 58. The float 50 as the liquid is withdrawn from the reservoir 26 has a certain determined preliminary traverse, owing to the loose connection between the rod 64 and the trigger 59, without opening the valve 51. When, however, the level of the liquid has descended by reason of the outflow of a portion of the liquid, the float 50 in its further descent operates the float-lever 52 and pulls down upon the rod 64 to rotate the trigger 59 upon its pivot, thus causing the disengagement of the trigger-pawl 61 from the hook 62 on the weight-lever 55, which releases the weight 56, permitting it to fall by gravity and push open the valve 51, as shown in Fig. 11.

As it is not desirable to close the valve 51 and cut off the supply immediately upon the ascent of the float 50, the valve-holding lever 68 has its upper notched end dropped below the lower end of the valve-stem 58 by means of the weight 71, and when the upturned end of the weight-arm 55 is lowered by the ascension of the float 50 and the valve-stem 58 released thereby said valve-stem is engaged by and rests upon the valve-holding lever 68, thus maintaining the valve 51 open until the various parts are restored to a position as shown in Fig. 9. Prior to this restoration, however, the finger 66 engages the abutment 67 and disengages the valve-holding lever 68 from the valve-stem 58, permitting the valve 51 to close by gravity and cut off the supply.

In Fig. 12 I have shown in detail one of the holders 16 for the bottle valve-rod 17, which is removably mounted upon the primary reservoir 15 by means of a strap 80 engaging one end edge of the base 81, the other end edge of which is engaged by a cam-latch 82.

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

1. The combination with the primary delivery-reservoir of an auxiliary reservoir, a float moved by the liquid in the auxiliary reservoir, a valve for controlling the supply of liquid to the auxiliary reservoir and mechanism for operating the valve the action of which is initiated by the float consisting of a



weighted arm held in a suspended position when the valve is closed and loosely connected with the float which has a preliminary movement independent of the weighted arm and means for releasing the suspended weighted arm in the further movement of the float whereby to open the valve.

2. In a bottle-filling machine an auxiliary reservoir, a valve for controlling the supply thereto, a float for initiating the operation of said valve, mechanism for operating the valve consisting of a weighted lever or arm, a pivoted trigger engaging the said arm to hold the weight suspended and a connection between the float and the trigger which permits a preliminary traverse of the float without disturbing the trigger but which trigger is finally tripped to release the weighted arm and open the valve together with a valve-holder which engages and holds the valve open while the weighted arm is being restored.

3. In a bottle-filling machine an auxiliary reservoir, a valve for controlling the supply thereto, a float for initiating the operation of

said valve, mechanism for operating the valve consisting of a weighted lever or arm, a pivoted trigger engaging the said arm to hold the weight suspended and a connection between the float and the trigger which permits a preliminary traverse of the float without disturbing the trigger but which trigger is finally tripped to release the weighted arm and open the valve together with a valve-holder which engages and holds the valve open while the weighted arm is being restored and a finger actuated by the float to disengage the valve-holder and permit the valve to close.

4. The combination with the primary reservoir of a removable and replaceable bottle-valve-rod holder held in the said manner by a strap and manually-operated cam-lever.

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

EMIL R. KLEMM.

Witnesses:

CHAS. C. BULKLEY,  
W. T. TOMPKINS.