

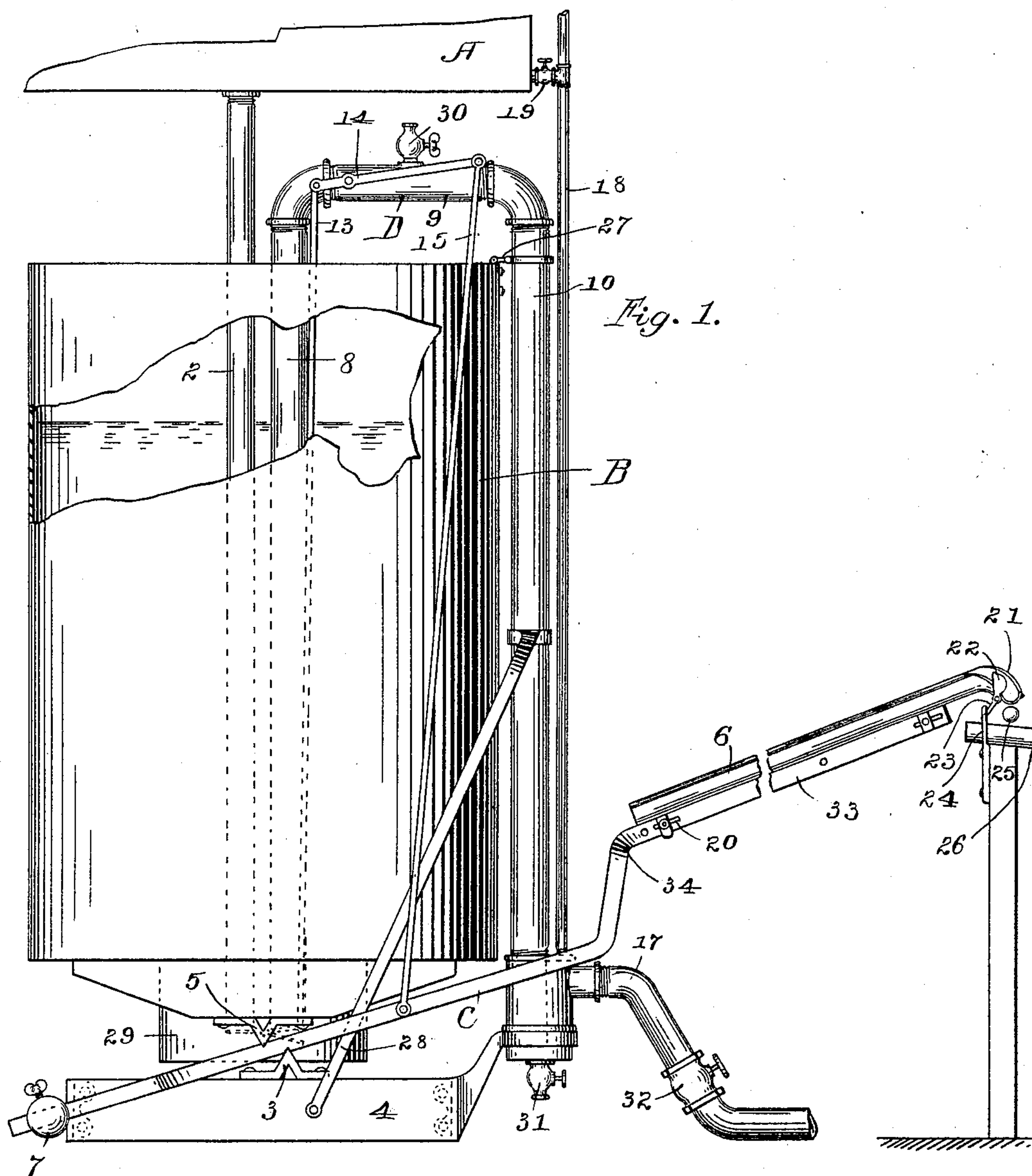
(No Model.)

2 Sheets—Sheet 1.

R. C. MEALEY.  
MILK WEIGHING MACHINE.

No. 605,889.

Patented June 21, 1898.



Witnesses:

H. St. Brading.  
H. B. Johnson

*Inventor:*

Robert C. Mealey.

per: *J D Merwin*  
Attorney.

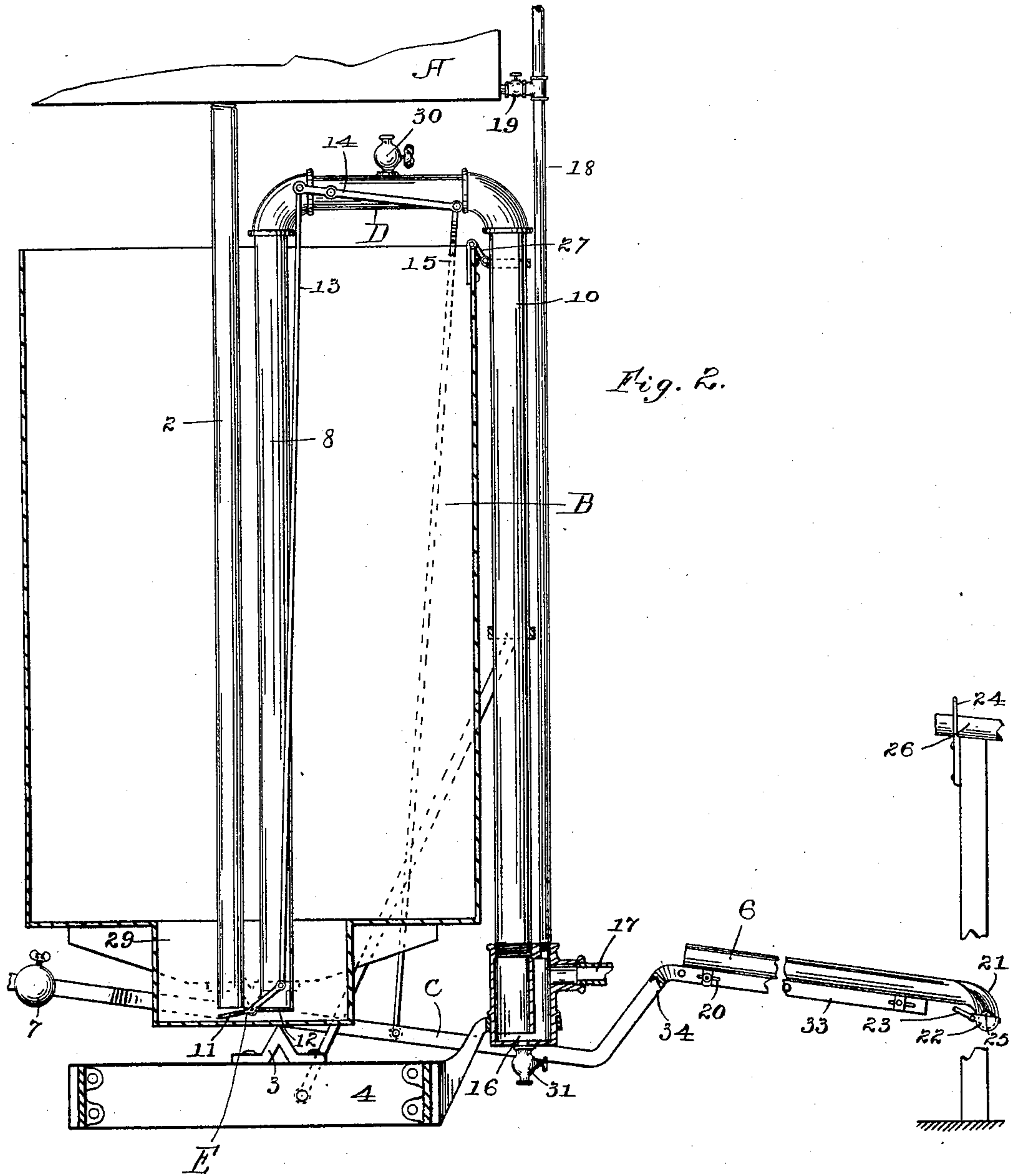
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Witnesses:

*Wes. R. D. L. Wray*  
*W. S. Johnson*

Inventor:

*Robert C. Mealey,*  
per: *P. D. Merwin*  
*Attorney*



# UNITED STATES PATENT OFFICE.

ROBERT C. MEALEY, OF HOWARD LAKE, MINNESOTA.

## MILK-WEIGHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 605,889, dated June 21, 1898.

Application filed July 26, 1897. Serial No. 645,916. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT C. MEALEY, of Howard Lake, Wright county, Minnesota, have invented certain Improvements in Milk-Weighing Machines, of which the following is a specification.

My invention relates to improvements in weighing-machines designed especially for weighing the skim-milk to be delivered back to the farmers at creameries; and it consists, essentially, in the improved features of construction and combination hereinafter particularly described and claimed.

In the accompanying drawings, forming part of this specification, Figure 1 is a side elevation of my improved apparatus, partially broken away; and Fig. 2 is a vertical section of the same.

In the drawings, A represents the reservoir in which the milk is kept inside the creamery.

B represents a vertical open-top tank forming part of my apparatus and connected with the reservoir A by means of a supply-pipe 2, extending to nearly the bottom of the tank B. In order to support said tank and provide for its vertical movement, I provide the lever C, resting upon the fulcrum 3, which is mounted upon the base 4. The tank is formed with a depending pivot-point 5, adapted to fit into a notch in the lever C, being offset a desired distance from the fulcrum 3 to give the necessary leverage. Upon the power end 33 of the lever C is secured a trough 6 for the purpose hereinafter described, and upon the opposite end of the lever is slidably mounted a weight 7 to compensate for variations in weight of the apparatus.

The tank B is adapted to be emptied of its milk by means of a siphon D, consisting of a vertical pipe 8, extending downward in the tank to the lower end of the supply-pipe 2 and being connected at its upper end by the horizontal pipe 9 with the vertical pipe 10, which extends downward upon the outside of the tank to approximately the bottom thereof. The ends of the pipes 2 and 8 are covered by a trip-valve E, having flaps 11 and 12 to close the pipes 2 and 8, respectively; said flaps being so arranged that when one of the pipes is closed the other will be open. This valve is operated by means of the rod 13, con-

necting it with one end of the lever-arm 14, pivoted upon the pipe 9, the other end of the lever-arm being connected by the rod 15 to the lever C. These parts are so adjusted that when the lifting-lever C stands in the position shown in Fig. 1 the valve E will stand with the flap 12 in open position, and when the lever is standing in the position shown in Fig. 2 the flap 11 will stand in open position and the flap 12 closed, allowing the inflow of milk into the tank through the pipe 2. I preferably provide duplicate sets of the rods for controlling valve E and lever C, one set upon each side of the siphon-pipes, the levers C being connected at 34 to form one power end 33.

Around the lower end of the pipe 10 of the siphon is arranged a chamber 16, provided with a horizontal outlet-pipe 17 near its top, through which the milk passes, this pipe being closed by a suitable valve 32, as shown in Fig. 1. A vertical air-pipe 18 is secured to the top of the chamber 16 at the side of the siphon-pipe 10, said air-pipe being open at its top to allow the inlet of air and having also valve-controlled connection 19 with the milk-reservoir, so as to allow the inlet of milk to start the siphon.

In order to actuate the lifting-lever C to operate the apparatus, I secure upon the power end of the lever the trough 6, hereinbefore mentioned, this trough having slot-and-pin connection 20 with the lever to allow of its longitudinal adjustment. The outer end of the trough is formed with a downwardly-curved mouth 21, normally closed by a pivoted stop 22. This stop is formed with a projecting trigger 23, adapted to be engaged by the trip 24 when the lever is carried into raised position to turn the stop away from the mouth and allow the ball 25; which has been placed in the trough, to drop into the runway 26 and pass back to where the balls are kept.

As shown in the drawings, the tank B has a hinge-support 27 at its top to the siphon-pipe 10, said siphon-pipe being supported by suitable braces 28. I preferably form the bottom of the tank with a central depending pit 29, into which the supply-pipe 2 and the siphon-pipe 8 project, so that but a small quantity of milk may remain in the tank when not in use.

The operation of my apparatus is as follows:



A sufficient amount of milk is supplied from the reservoir through the pipe 18 to fill the siphon and the pit 29 and chamber 16 to approximately the height of the outlet-pipe 17, the stop-cock 30 being open while this is being done. The milk is then turned off to allow air to pass through the pipe 18 to keep the siphon balanced. A ball 25 is then given to the farmer equivalent to the weight of milk which he is to receive. The farmer places the ball in the trough 6, the weight of which carries the lever-arm to lowered position, raising the tank, and through the lever connections (see Fig. 2) closes the flap 12 of the valve E and opens the flap 11 to allow the inflow of milk from the reservoir into the tank. When a sufficient quantity of milk has passed into the tank to overbalance the weight 25, the lever-arm will be lifted, as shown in Fig. 1, closing the flap 11 of the valve E and opening the flap 12 to allow the siphon to act, the ball 25 being freed from the trough, as hereinbefore described. The overbalancing weight of the milk in the tank will then cause it to flow out through the siphon until the pressure is equalized. It will be evident that this will always leave the siphon full and also milk in the pit and chamber up to approximately the height of the outlet 17. When it is desired to drain off the milk from the siphon, the stop-cock 31 in the bottom of the chamber 16 may be opened.

The points of leverage of lever C are so arranged as to enable the use of comparatively small balls 25, and this may be further varied by adjustment of trough 6.

I claim—

1. The combination with the reservoir, the weighing-tank, and the supply-pipe leading from the reservoir to said tank, of the siphon-pipe leading from said tank, the connections for allowing an inlet of liquid to start said siphon, the valves closing said supply and siphon pipes, and means actuated by the weight of the liquid in said tank to close said supply-pipe and open said siphon-pipe.

2. The combination with the reservoir, the weighing-tank, and the supply-pipe leading from the reservoir to said tank, of the siphon-pipe leading from said tank, the valve closing said supply and siphon pipes, the means adapted to be actuated by the weight of the liquid in said tank to close said supply-pipe and open said siphon-pipe, and the connections for allowing an inlet of milk to said siphon-pipe independent of the tank.

3. The combination with the reservoir, the weighing-tank and supply-pipe leading from the reservoir to said tank, of the siphon-pipe leading from said tank, the chamber inclosing the outlet end of the siphon-pipe, and provided with an outlet-pipe, the connection between said chamber and the source of supply adapted for use in starting the siphon, the valves closing said supply and siphon pipes and the means adapted to be actuated

by the weight of the liquid in said tank to close said supply-pipe and open said siphon-pipe.

4. The combination with the reservoir, the weighing-tank, and the supply-pipe leading from the reservoir to said tank, of the lever supporting said tank, the pivotal point for said tank being offset from the fulcrum-point of said lever to give the desired leverage, the means upon the end of the lever for holding a weight, the outlet-pipe for said tank, the valves closing said supply and outlet pipes, and the connections between the same and said lever, whereby the supply-pipe valve is opened and the outlet-valve closed when the lever is tilted by said weight, the reverse action taking place when the lever is oppositely tilted by the weight of the milk in the tank.

5. The combination with the reservoir, the weighing-tank, and the supply-pipe leading from the reservoir thereto, of the lever fulcrumed below said tank, the tank being supported upon said lever at a point offset from its fulcrum, the outlet-pipe leading from said tank, the valves closing said supply and outlet pipes, the connection between said valves and lever, the means upon the power end of said lever for holding a weight, and the means for releasing said weight when said lever is tilted by the overbalancing weight of the milk in the tank.

6. The combination with the reservoir, the weighing-tank, of the lever supporting said tank, the pivotal point of said tank being offset from the fulcrum-point to give the desired leverage, the pipe for supplying liquid to, and the port for discharging the liquid from, the tank, the valves for closing the same, the connection between said valves and lever, the means for tilting said lever to open the supply-pipe valve, said outlet-port valve being opened by means of the weight of milk in said tank.

7. The combination with the reservoir, the weighing-tank, and the supply-pipe leading from said reservoir thereto, of the lever fulcrumed below said tank and supporting the same, the siphon-pipe leading from said tank, the valves closing said supply and siphon pipes, and operatively connected with said lever, the means for lowering the power end of said lever to actuate said valves and allow inlet of fluid to the tank, the valves being actuated to allow an escape of such fluid by the reverse motion of the lever, and the adjustable weight upon the opposite end of said lever.

8. The combination with the reservoir, the weighing-tank and the supply-pipe leading from the reservoir thereto, of the lever supporting said tank, the siphon-pipe leading from said tank, the valves closing said supply and siphon pipes, and the connections between said valves and lever whereby the supply-pipe valve will be closed and the si-



phon-pipe valve opened when said lever is tilted by a predetermined weight of milk in said tank.

5 9. The combination with the reservoir, the weighing-tank and the supply-pipe leading from said reservoir thereto, of the lever fulcrumed below said tank and supporting the same, the siphon-pipe leading from said tank, the valves closing said supply and siphon  
10 pipes, and the connections between said valves and lever whereby when the lever is turned to lift the tank the supply-pipe valve will be opened and the siphon-valve closed, and when the lever is oppositely tilted by the  
15 weight of the milk in the tank, the supply-pipe valve will be closed and the siphon-pipe opened to cause the siphonage of the milk from the tank.

20 10. The combination with the reservoir, the weighing-tank and the supply-pipe leading

from the reservoir thereto, of the lever fulcrumed below said tank and supporting the same, the means upon the power end of said lever for holding a weight, the siphon-pipe leading from said tank, the valves closing  
25 said supply and siphon pipes, the connections between said valves and lever whereby the supply-pipe valve is opened and the siphon-valve closed when said lever is tilted by said weight, said siphon-pipe valve being  
30 opened and the supply-pipe valve closed when the lever is oppositely tilted by the overbalancing weight of the milk in the tank.

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

ROBERT C. MEALEY.

Witnesses:

H. S. JOHNSON,  
F. G. BRADBURY.