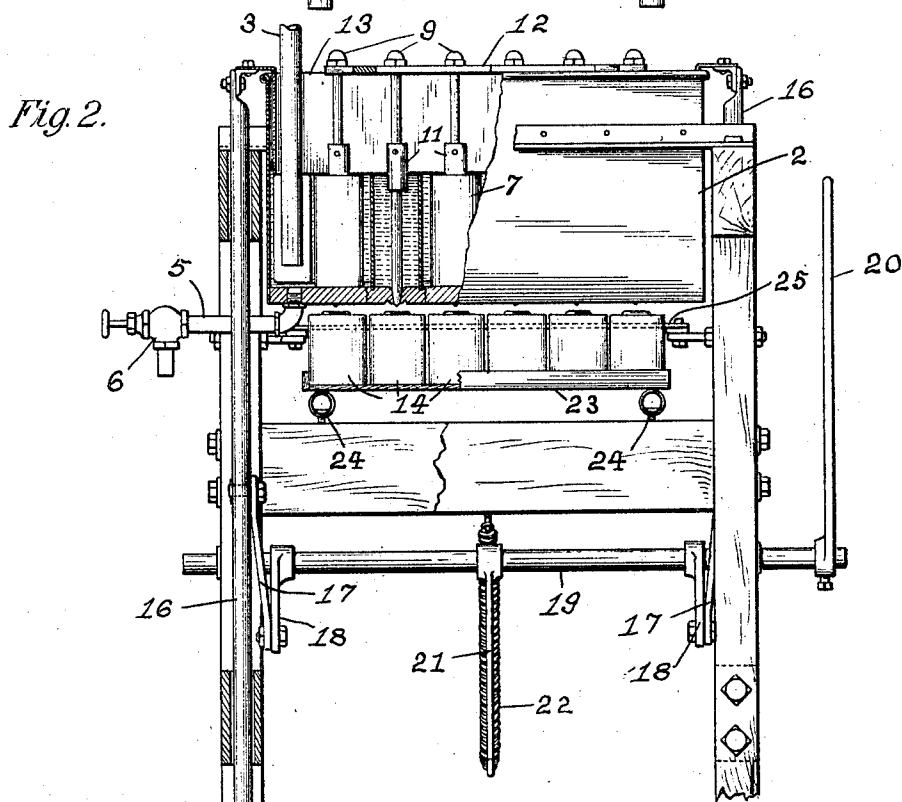
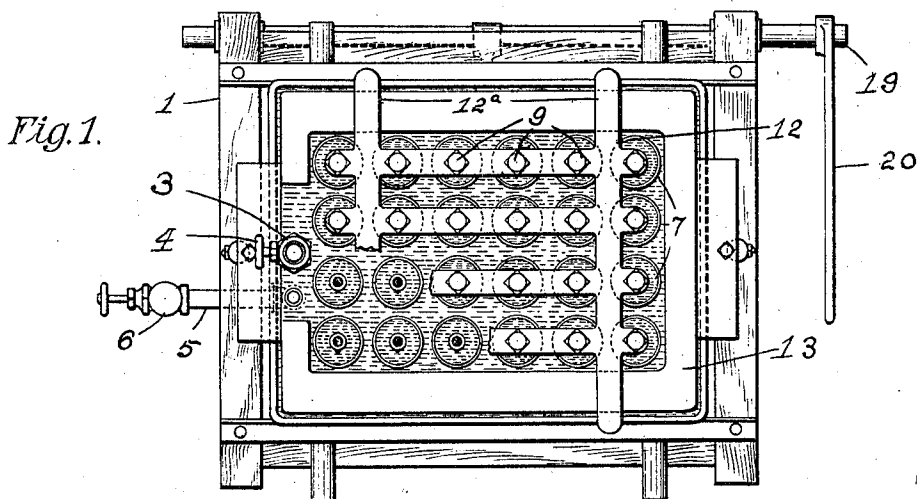


E. B. GAGE.
CAN FILLING MACHINE.
APPLICATION FILED JULY 17, 1911.

1,038,557.

Patented Sept. 17, 1912.

2 SHEETS—SHEET 1.



Witnesses

Wm. S. Swiney
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Inventor

Edward B. Gage

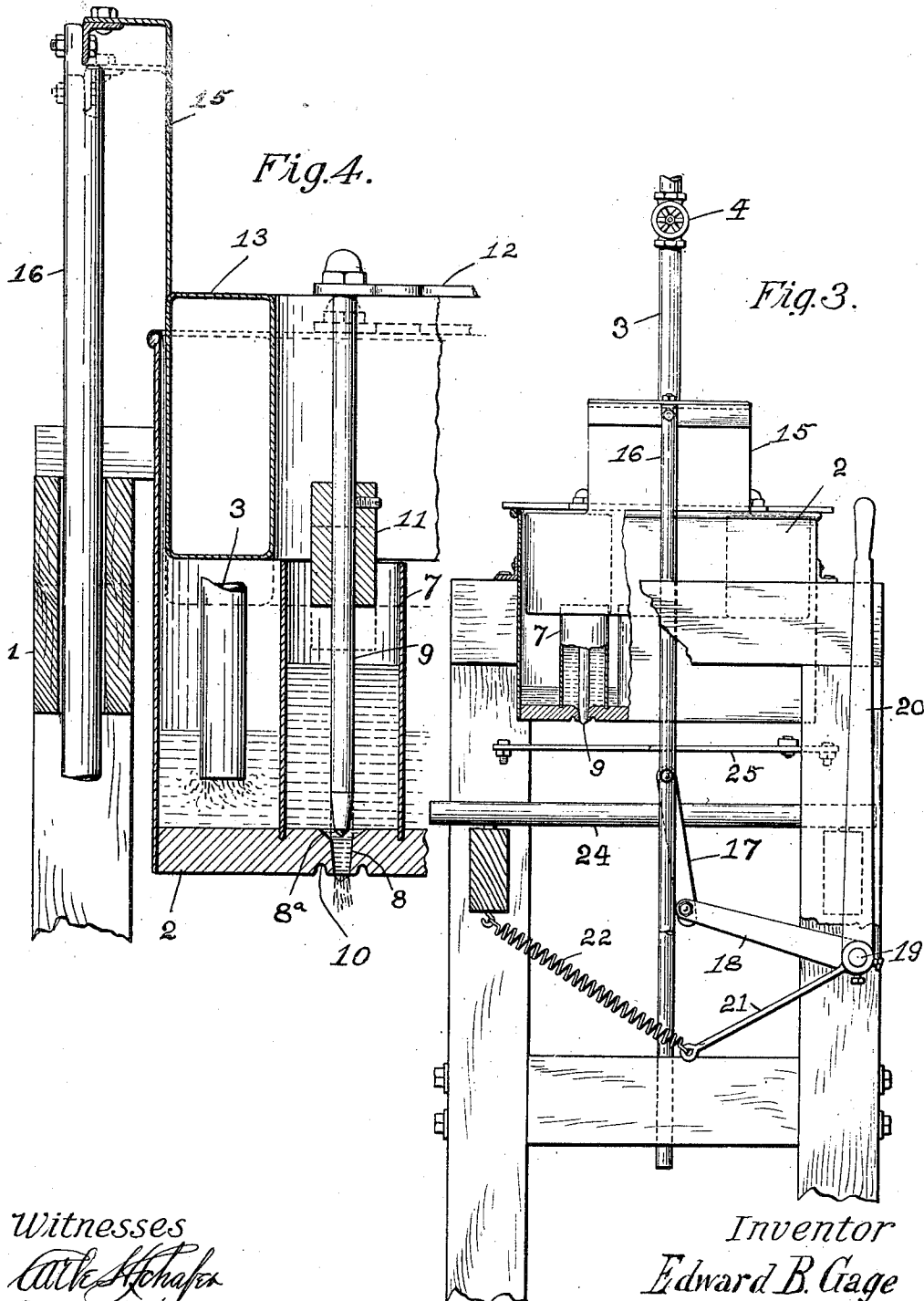
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Witnesses
Alfred H. H. H.
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UNITED STATES PATENT OFFICE.

EDWARD B. GAGE, OF KAHOKA, MISSOURI.

CAN-FILLING MACHINE.

1,038,557.

Specification of Letters Patent.

Patented Sept. 17, 1912.

Application filed July 17, 1911. Serial No. 639,072.

To all whom it may concern:

Be it known that I, EDWARD B. GAGE, citizen of the United States, residing at Kahoka, in the county of Clark and State of Missouri, have invented certain new and useful Improvements in Can-Filling Machines, of which the following is a specification.

The present invention relates to certain new and useful improvements in machines of that general type which are employed for filling cans or other receptacles with some liquid material such as milk, the primary object of the invention being the provision of a can filling machine which embodies novel features of construction whereby a large number of cans or the like may be accurately filled in a comparatively short period of time and with a small amount of labor.

A further object of the invention is the provision of a can filling machine which is comparatively simple and inexpensive in its construction, which can be easily cleaned and maintained in a sanitary condition, and which will operate in a quick and effective manner to accomplish the desired result.

With these and other objects in view, the invention consists in certain novel combinations and arrangements of the parts as will more fully appear as the description proceeds, the novel features thereof being pointed out in the appended claims.

For a full understanding of the invention, reference is to be had to the following description and accompanying drawings, in which:—

Figure 1 is a top plan view of a can filling machine constructed in accordance with the invention, portions being broken away. Fig. 2 is a side elevation thereof, portions being broken away and shown in section. Fig. 3 is an end view of the machine, portions being broken away and shown in section, and Fig. 4 is an enlarged sectional view through one end of the tank.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

Specifically describing the present invention, the numeral 1 designates the supporting frame, which may be of any suitable construction, and upon which the tank 2 is mounted. A supply pipe 3 extends downwardly into the tank at one end thereof and terminates at a point toward the bottom

of the tank, the said pipe serving to lead the milk or other liquid into the tank, and the flow of milk or liquid through the pipe being controlled by a valve 4. A drain pipe 5 is also shown as leading from the bottom of the tank, the said drain pipe being provided with a valve 6 which is closed during the operation of the machine.

A series of measuring cups 7 project upwardly from the bottom of the tank and terminate at a point below the top of the tank, preferably about midway between the top and bottom thereof. These measuring cups are shown as being substantially cylindrical in shape, and are of such a size as to contain the exact amount of milk or other liquid which it may be desired to run into each of the cans being filled. A discharge opening 8 is provided in the tank bottom for each of the cups 7, the said discharge opening being normally closed by a vertically movable valve rod 9. The upper end of the discharge opening 8 is flared at 8^a so as to bring the end of the valve rod into the opening when the said valve rod is lowered into a closed position, while a groove 10 on the lower side of the tank bottom surrounds each of the openings 8 so as to provide the equivalent of a short spout and cause the liquid to emerge through the discharge opening in a well defined stream and prevent the liquid crawling along the plate and dropping off at wrong places.

Each of the valve rods 9 is provided with a weight 11 which normally tends to move the same downwardly into a closed position and which by being adjustable up and down on the valve rod and held in the required position by a set screw makes a displacement which will control the exact amount of liquid in each cup, while the upper end of each of the valve rods is engaged by a frame 12, the said frame being formed with arms 12^a which extend over the sides of the tank 2 and rest upon the same when the frame is lowered so as to bring the valve rods into a closed position. A displacement member 13 extends partially around the sides of the tank 2 on the interior thereof and partially surrounds the various measuring cups 7. When this member 13 is forced downwardly into the tank it serves to displace the milk or other liquid therein and raises the level of the milk so that it will overflow into the various measuring cups 7. After the various measuring cups

have thus been filled, the displacement member 13 is raised so as to bring the same into engagement with the frame 12 and cause the level of the milk within the tank to drop below the top of the measuring cups 7. A continued upward movement of the displacement member 13 then serves to lift the frame 12 together with the valve rods 9 so as to permit the milk within the measuring cups 7 to flow through the discharge openings 8 into the respective cans 14 arranged under the openings, the capacity of the said measuring cups corresponding with the size of the cans. After the contents of the measuring cups have been drained, the displacement member 13 is again lowered within the tank so as to permit the frame 12 and valve rods 9 to drop into closed position. A continued downward movement of the displacement member serves to again fill the measuring cups 7, and this operation may be continued indefinitely.

Projecting upwardly from each end of the displacement member 13 is an arm 15, the upper ends of the said arms being connected to vertically disposed plungers 16 which are slidably mounted upon the supporting frame and extend downwardly below the tank. Each of these plungers 16 is connected by a link 17 to a crank arm 18 projecting from a shaft 19 journaled upon one side of the supporting frame 1, the said rock shaft being provided with an operating handle 20. A third crank arm 21 also projects from the rock shaft 19 and is engaged by a spring 22 which normally tends to hold the displacement float 13 in an elevated position. It will be obvious, however, that by swinging the operating handle back and forth the said displacement float 13 would be raised and lowered so as to successively fill and drain the various measuring cups 7, as has been previously described.

The cans 14, or other receptacles to be filled, are arranged upon a tray 23 or other carrying device or holding device which is adapted to be slid into and out of operative position upon the horizontal guide rails 24. A suitable positioning rail 25 is provided upon the main frame 1 for engaging the cans 14 when they are properly disposed under the discharge openings 8. This positioning rail may extend around three sides of the group of cans upon the tray. After the cans have been filled, the tray 23 may be withdrawn and another tray filled with empty cans slid into position, and the apparatus will admit of the cans being accurately filled as quickly as they can be placed in and out of position.

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

1. A can filling machine including a tank having a discharge opening in the bottom

thereof, a measuring cup projecting upwardly from the bottom of the tank and surrounding the discharge opening, a valve rod projecting upwardly through the measuring cup and controlling the discharge opening, a frame connected to the valve rod and adapted to rest loosely upon the top of the tank when the valve rod is in closed position, a vertically movable displacement member mounted within the tank so as to cause the liquid within the tank to overflow into the measuring cup when it is lowered, and means for raising and lowering the displacement member, the said displacement member upon its upward movement engaging the before mentioned frame which is arranged in the path thereof so as to elevate the valve rod and permit the liquid within the measuring cup to be discharged through the before mentioned discharge opening.

2. A can filling machine including a tank having a discharge opening in the bottom thereof, a measuring cup projecting upwardly from the bottom of the tank and surrounding the discharge opening, a valve rod projecting upwardly through the measuring cup and controlling the discharge opening, a frame connected to the valve rod and normally resting loosely upon the top of the tank when the valve rod is in a closed position, a displacing weight adjustably mounted upon the valve rod so as to hold the valve rod normally in a lowered and closed position, said displacing weight forming a means for regulating the exact amount of liquid in the cup, a vertically movable displacement member mounted within the tank and serving when lowered to cause the liquid within the tank to overflow into the measuring cup, and means for raising and lowering the displacement member, the said displacement member upon its upward movement engaging the before mentioned frame which is arranged in the path thereof so as to lift the valve rod and permit the liquid within the measuring cup to be discharged through the discharge opening.

3. A can filling machine including a tank having a discharge opening in the bottom thereof, a measuring cup surrounding the discharge opening and projecting upwardly from the tank bottom, a valve rod controlling the discharge opening and projecting upwardly through the measuring cup, a frame connected to the valve rod and normally resting loosely upon the top of the tank when the valve rod is in a closed position, a vertically movable displacement member extending around the sides of the measuring cup and mounted within the tank, the said displacement member serving when lowered to cause the liquid within the tank to overflow into the measuring cup, and means for raising and lowering the displacement member.

ment member, the said displacement member upon its upward movement serving to engage the frame to lift the valve rod into an open position and permit the liquid within the cup to be discharged through the discharge opening.

4. A can filling machine including a tank having a discharge opening in the bottom thereof, a measuring cup surrounding the discharge opening and projecting upwardly from the tank bottom, a valve rod projecting upwardly through the measuring cup and controlling the discharge opening, a frame connected to the valve rod, a vertically movable displacing member mounted within the tank and serving when lowered to cause the liquid within the tank to overflow into the measuring cup, a rock shaft, a crank arm

projecting from the rock shaft, a slide having an operative connection with both the crank arm and the displacement member, and means for moving the rock shaft to raise and lower the displacement member, the said displacement member upon its upward movement engaging the before mentioned frame which is arranged in the path thereof so as to lift the valve rod and permit the liquid within the measuring cup to be discharged through the discharge opening.

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

EDWARD B. GAGE.

Witnesses:

H. S. KEARNS,
ALFRED C. MARTIN.