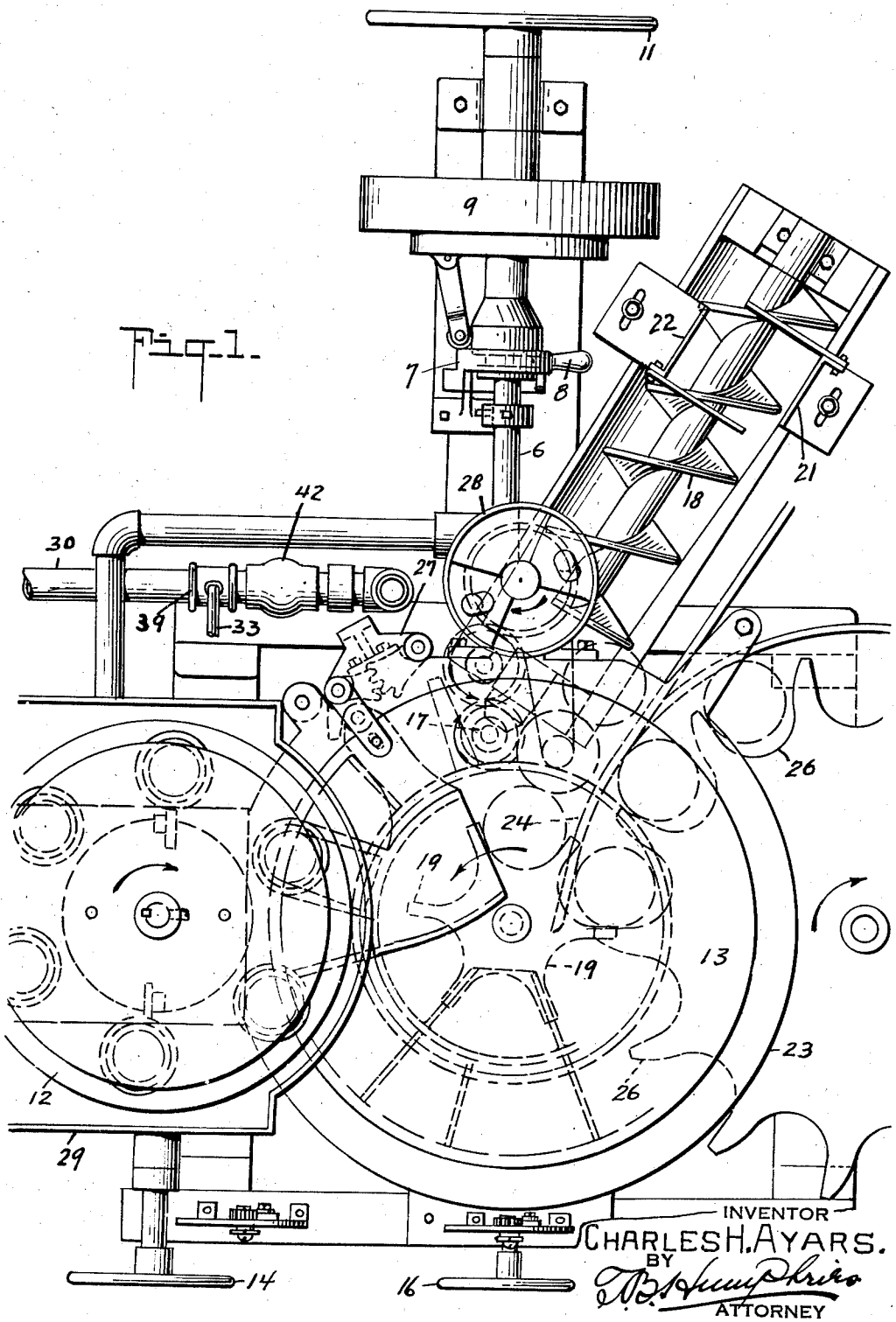
May 16, 1939. C. H. AYARS 2,158,768

CAN FILLING MACHINE

Original Filed Nov. 10, 1936 2 Sheets-Sheet 1

Fig. 1.

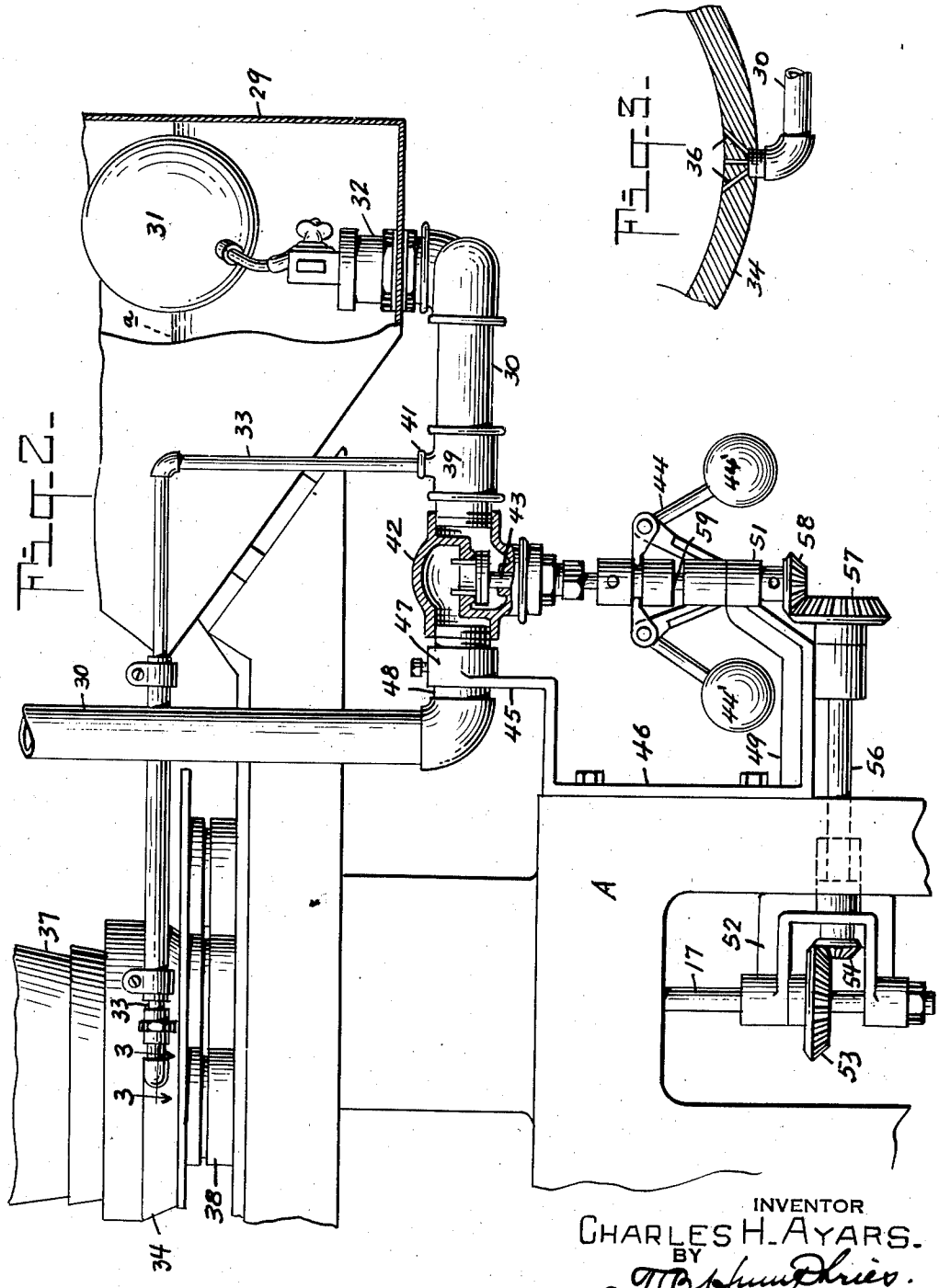


INVENTOR
CHARLES H. AYARS.
BY
ATTORNEY

May 16, 1939. C. H. AYARS 2,158,768

CAN FILLING MACHINE

Original Filed Nov. 10, 1936 2 Sheets-Sheet 2



INVENTOR
CHARLES H. AYARS.
BY
T. B. Shumaker
ATTORNEY

Patented May 16, 1939 2,158,768

UNITED STATES PATENT OFFICE

2,158,768

CAN FILLING MACHINE

Charles H. Ayars, Salem, N. J., assignor to Ayars Machine Company, Salem, N. J., a corporation of New Jersey

Original application November 10, 1936, Serial No. 110,053. Divided and this application December 16, 1936, Serial No. 116,086

12 Claims. (Cl. 226—96)

This invention relates to can filling machinery, and more particularly to devices for automatically closing off all liquid supply to the machine, when the same is stopped.

The object of the present invention is to provide in a can filling machine having means for measuring and supplying a predetermined quantity of liquid to cans, and mechanism for automatically closing off the source of supply of said liquid when the machine is closed down.

Another object of the invention is to provide in a machine such as above described, mechanism which will automatically operate to permit the supply of liquid to the measuring device when the machine is started in operation.

According to the invention, the can filling machine, which has rotary turrets for measuring solid material and rotary turrets operating in a tank for measuring liquid material, and means for directing the same into cans, is provided with means for automatically feeding cans into position to be filled, a conduit for delivering liquid to the liquid tank, and automatic means controlled by the can feeding mechanism for opening said conduit when the machine is in operation and closing the same when the machine is idle. The automatic means may consist of a ball governor operated by gear mechanism connected to the can feeding shaft and controlling a valve located in said conduit.

This invention is a division of my co-pending application Serial No. 110,053, filed November 10, 1936. In that application there is shown in section, the turret members provided with telescopic cups for measuring the discrete solid material, and a tank provided with turret members for measuring predetermined quantities of liquid material, and a funnel casting for directing the measured quantities of solid and liquid materials into cans. The present application deals only with the automatic means for controlling the admission of liquid material for measuring preparatory to being deposited into cans.

The drawings illustrate an embodiment of the invention and the views therein are as follows:

Figure 1 is a top plan view of the can filling machine with certain of the parts omitted,

Figure 2 is a partial side view of the same showing the piping arrangement and governor control for the liquid conduit, and

Figure 3 is a fragmentary horizontal sectional view taken on the line 3—3 of Figure 2.

In the machine shown in the drawings, there is a main driveway 6, provided with clutch means 7 operated by the shipper handle 8. The machine is operated by a belt extending over a pulley 9 and means consisting of a hand wheel 11 is provided for turning the machine by hand, if desired. Of course, while the machine is shown provided with a pulley 9 for belt driving the same, it may be driven by any suitable power. This main shaft 6 operates turret devices 12 and 13 which have telescopic cups for changing the capacities thereof, and these changes are made by the operation of the hand wheels 14 and 16 respectively.

The machine is also provided with a shaft 17 operated through the main shaft 6 for driving a worm or screw 18 which feeds cans to a star wheel 19. These cans are deposited between the angle bars 21 and 22, and are taken by the screw 18 and advanced until they are taken therefrom by the star wheel 19, passed on the table 23 until they contact the rail 24, which directs them from the star wheel 19 and into the star wheel 26, which carries them to a desired point of delivery.

The machine may be provided with a device 27 known as a "no can-no fill mechanism", which prevents the discharge of any material from the measuring cups of the hoppers if there is no can to receive the material therefrom.

The machine may also be provided with a prebrining device 28 operated by the main shaft 6 and can feed shaft 17 for depositing a predetermined quantity of liquid material in the can prior to the discharge of material from the telescopic cups of the turrets. This has been fully explained in my co-pending application Serial No. 110,053 above mentioned.

The liquid measuring turrets 12 operate in a liquid tank 29 and the ball float 31 operating valve mechanism 32 keeps the level of liquid therein to the height indicated by the character "a". This float valve mechanism is supplied to the tank 29 by means of a conduit connecting with a source of supply.

In the present day machines there is also a small conduit 33 extending from a main conduit 30 to the base 34 of the hopper 37, and communicating with the diverging passages 36 which spray liquid into the discrete solid material at the base of the hopper 37 and assist in its passing from the hopper to the measuring cups 38. If, when the machine is shut down, the attendant forgets to shut off the liquid in the small conduit 33, the same will continue to spray liquid into the discrete solid material, and the liquid will run out onto the machine and onto the floor, making it absolutely necessary to clean up the entire machine and the floor, besides wasting large quantities of

liquid. Again, if the valve 32 operated by the ball 31 is defective, the liquid will continue to be fed into the tank 29, and may cause the same to overflow.

In the present invention, the conduit 30 is provided with a union 39 having a nipple 41 into which the conduit 33 fits. The conduit 30 is also provided with a globe valve 42 whose stem 43 is operatively connected with a ball governor 44, which, in turn, is operated from the can feed shaft 17. The mechanism is supported by means of a bracket 46, fastened onto the machine frame "A", and an upstanding arm 45 is provided at its upper end with a collar 47 embracing a nipple 48 which fits into the valve body 42, while its lower end is provided with a ribbed arm 49 having a bearing 51 at its outer end. The can feed shaft 17 has a bracket 52 mounted on the said frame "A", and is provided with a bevel gear 53 which meshes with a bevel gear 54 on the inner end of a shaft 56 mounted in said bracket 52, while its outer end is provided with a bevel gear 57 meshing with a bevel gear 58 on the shaft 59 which operates the ball governor 44.

When the shipper handle 8 is moved to operate the clutch to connect the main driveway 6, the can feeding mechanism comprising the worm 18 is operated through the can feed shaft 17, and this shaft, through the bevel gears 53, 54, 57 and 58 will operate the ball governor 44, so as to throw the balls 44' outward, pulling down the valve stem 43, and opening the globe valve 42, so as to permit liquid to pass through the conduit 30 to the valve 32 where, unless the ball float 31 has closed the said valve, the liquid will flow into the tank 29. Liquid will also flow from the conduit 30 up through the small conduit 33 and spray through the passages 36 at the base of the hopper.

When the machine is shut down by operating the shipper handle 8, the balls 44' of the ball governor 44 will fall, pushing the valve stem 43 upward and closing the valve, so that no liquid can flow through said globe valve 42, thereby effectively closing off the supply to the tank 29 and to the small conduit 33. This mechanism will eliminate the necessity of manually closing the small conduit 33, and in case of leakage of the valve 32, will prevent the liquid from the conduit 30 entering the tank 29.

Of course, the mechanism herein illustrated and described may be modified and changed in various ways without departing from the invention herein set forth and hereafter claimed.

The invention is hereby claimed as follows:

1. A can filling machine for depositing measured quantities of solids and liquid into cans, comprising mechanism for feeding cans to be filled, a container for the solids, a container for the liquid, a conduit leading from said liquid container to a source of supply, and means associated with said conduit and operated by said can feeding mechanism for automatically opening said conduit when the machine is started and for closing same when the machine is stopped.

2. A can filling machine for depositing measured quantities of solids and liquid into cans, comprising mechanism for feeding cans to be filled, a container for the solids, a container for the liquid, a conduit leading from said liquid container to a source of supply, and governor controlled valve means associated with said conduit and operated by said can feeding mechanism for automatically opening said conduit when the machine is started and for closing same when the machine is stopped.

3. A can filling machine for depositing measured quantities of solids and liquid into cans, comprising mechanism for feeding cans to be filled, a container for the solids, a container for the liquid, a conduit leading from said liquid container to a source of supply, and a valve in said conduit, a valve stem, and a ball governor rotated through the operation of said can feeding mechanism and adapted to move said stem and valve to open said conduit when the machine is operated and close same when the machine is stopped.

4. A can filling machine for depositing measured quantities of solids and liquid into cans, comprising mechanism for feeding cans to be filled, a container for the solids, a container for the liquid, a conduit leading from said liquid container to a source of supply, a valve in said conduit, a valve stem, and a ball governor rotated by gear mechanism associated with said can feeding mechanism and adapted to move said stem and valve to open said conduit when the machine is operated and close same when the machine is stopped.

5. A can filling machine for depositing measured quantities of solids and liquid into cans, comprising mechanism for feeding cans to be filled, a container for the solids, a container for the liquid, a conduit leading from said liquid container to a source of supply, a conduit for supplying liquid to lubricate said solid material, and means operated by the can feeding mechanism for automatically closing off the supply of liquid in said conduits when the machine is stopped.

6. A can filling machine for depositing measured quantities of solids and liquid into cans, comprising mechanism for feeding cans to be filled, a container for the solids, a container for the liquid, a conduit leading from said liquid container to a source of supply, a conduit for supplying liquid to lubricate said solid material, and valve means operated by the can feeding mechanism for automatically closing off the supply of liquid in said conduits when the machine is stopped.

7. A can filling machine for depositing measured quantities of solids and liquid into cans, comprising mechanism for feeding cans to be filled, a container for the solids, a container for the liquid, a conduit leading from said liquid container to a source of supply, a conduit for supplying liquid to lubricate said solid material, and governor controlled means operated by the can feeding mechanism for automatically closing off the supply of liquid in said conduits when the machine is stopped.

8. In a machine for feeding measured quantities of liquid into cans and provided with a can feeding mechanism, a rotatable shaft associated with said can feeding mechanism and a liquid container, a conduit for supplying liquid to said container, a valve in said conduit, and mechanism connecting said valve with said shaft and including a governor, said governor being adapted to open said valve on the rotation of said shaft to permit liquid to flow into said container and to close said valve when said shaft is stopped.

9. In a machine for feeding measured quantities of liquid into cans and provided with a can feeding mechanism, a rotatable shaft associated with said can feeding mechanism and a liquid container, a conduit for supplying liquid to said

container, a valve in said conduit, a stem on said valve, and a governor directly connected to said valve stem, and connecting said shaft to open said valve on the rotation of said shaft to permit liquid to flow into said container and to close said valve when said shaft is stopped.

10. A can filling machine for depositing measured quantities of solids and liquid into cans, comprising mechanism for feeding cans to be filled, a container for the solids, a container for the liquid, a conduit leading from said liquid container to a source of supply, a conduit for supplying liquid to lubricate said solid material, and governor control valve means operated by the can feeding mechanism for automatically closing off the supply of liquid in said conduits when the machine is stopped.

11. A can filling machine for depositing measured quantities of solids and liquid into cans, comprising mechanism for feeding cans to be filled, a container for the solids, a container for the liquid, a conduit leading from the liquid container to a source of supply, a valve in said conduit, another conduit connecting said first conduit at a point between said valve and said liquid container and adapted to supply liquid to the solids container for lubricating the solid material, and mechanism connecting said valve with the can feeding mechanism for automatically closing off the supply of liquid in said conduits when the machine is stopped.

12. A can filling machine for depositing measured quantities of solids and liquid into cans, comprising mechanism for feeding cans to be filled, a container for the solids, a container for the liquid, a conduit leading from the liquid container to a source of supply, a valve in said conduit, another conduit connecting said first conduit at a point between said valve and said liquid container and adapted to supply liquid to the solids container for lubricating the solid material, and mechanism including a ball governor connecting said valve with the can feeding mechanism for automatically closing off the supply of liquid in said conduits when the machine is stopped.

CHARLES H. AYARS.