A. J. GILBERT.

CAN FILLING MACHINE.

APPLICATION FILED JAN. 29, 1916.

1,284,310. Patented Nov. 12, 1918

Fig. 2.

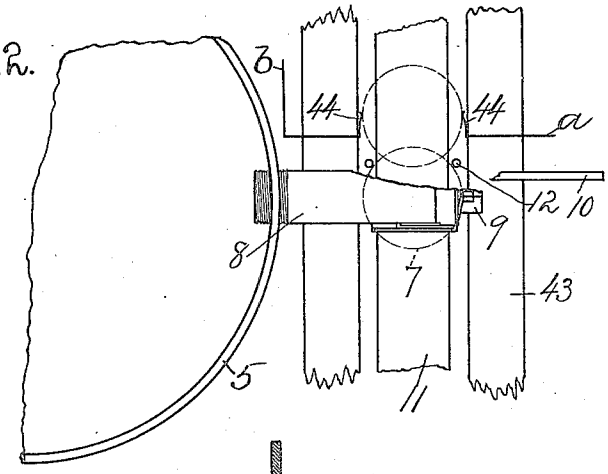
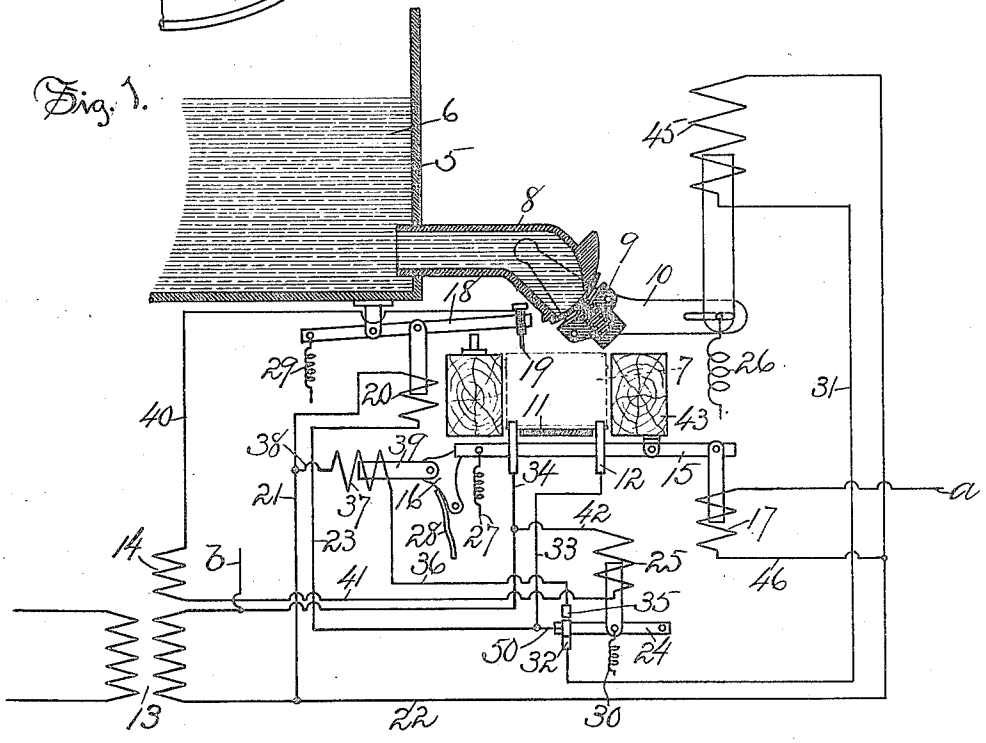


Fig. 1.



WITNESSES:
E. J. Eaton
Louis Lucia.

INVENTOR.
Alfred J. Gilbert
BY
Arthur B. Jenkins,
ATTORNEY.

UNITED STATES PATENT OFFICE.

ALFRED J. GILBERT, OF HARTFORD, CONNECTICUT.

CAN-FILLING MACHINE.

1,284,310. Specification of Letters Patent. Patented Nov. 12, 1918.

Application filed January 29, 1916. Serial No. 75,016.

To all whom it may concern:

Be it known that I, ALFRED J. GILBERT, a citizen of the United States, and a resident of Hartford, in the county of Hartford and State of Connecticut, have invented a new and Improved Can-Filling Machine, of which the following is a specification.

My invention relates to the class of devices above named, and an object of my invention, among others, is to provide a machine in which cans may be automatically filled with material in a rapid and efficient manner.

One form of device embodying my invention and in the construction and use of which the object herein set out, as well as others, may be attained, is illustrated in the accompanying drawings, in which—

Figure 1 is a diagrammatic view illustrating a portion of a machine embodying my invention, and the electrical equipment therefor.

Fig. 2 is a detail view of a portion of the machine illustrating the operation of the parts shown for resetting the can stops.

My invention is illustrated herein as applied to a machine especially applicable for filling cans with soap, although it will be understood that the machine will act equally well in handling material other than soap. I have selected transformers as denoting the head or source of electric energy, it being understood that these are equivalents of batteries, generators or other devices which might be employed with the same results, and my invention is, therefore, not limited to any special means for supplying the electric current, nor to the special arrangement of the wiring and other devices shown herein as these may be changed to a greater or lesser degree without affecting the invention.

In the accompanying drawings the numeral 5 indicates a portion of a tank from which the material 6, as soap in liquid or semi-liquid condition, is drawn to fill the cans 7 (indicated in dotted lines in the figures). The tank is provided with a faucet 8 having a valve 9 of any ordinary construction to control the flow from the tank, this valve having a handle 10 as a means for operating it. A belt 11 is supported underneath the faucet 8 and is operated to carry the cans 7 to a position underneath the mouth of the faucet where they are filled, can stops 12 controlling the movement of the cans with respect to said faucet.

My invention contemplates means for controlling the movements of the cans as they are carried along by the belt so that they will be positioned underneath the faucet for a sufficient time to permit them to be filled, the apparatus also embodying means for opening the faucet and for closing it at the proper time. The electrical arrangement shown herein satisfactorily accomplishes this purpose, the numeral 13 indicating a transformer serving as the head or source for the electricity for part of the apparatus and 14 another transformer or secondary winding to supply another part of the apparatus. The stops 12 are carried by a pivotally mounted bar 15 having one end resting upon a latch 16 and the opposite end being attached to the core or armature of a can stop solenoid 17 that is electrically connected in a manner to be hereinafter described. A filling regulator bar 18 is pivotally mounted, as on a bracket attached to the bottom of the tank 5, and has a contact finger 19 adapted to be located in the cans 7. This bar supports the armature of a filling regulator solenoid 20 that is connected as by means of a wire 21 with a wire 22 extending from the source of electric energy, the other wire 23 of this solenoid being connected with the wire 33 that is also connected by a short wire 50 with the armature 24 of a relay 25, this relay being shown in the form of a solenoid, the core of which is connected with the armature 24. Each of the parts, the handle 10, can stop bar 15, can stop latch 16, filling regulator bar 18 and armature 24 may be operated in one direction as by means of springs 26—27—28—29—30, one end of each of the springs 27, 29 and 30 being attached respectively to said parts and the opposite ends of said springs being attached to stationary parts of the machine. The spring 28 is shown as a leaf spring, one end of which may be attached to a stationary part of the machine and its opposite end pressed against the latch 16.

The wire 22 extends to one terminal of the can filling solenoid 45, the other terminal of said solenoid being connected by a wire 31 with one contact 32 for the armature 24, and when said armature touches this contact the current may flow through the wire 31, contact 32, armature 24, through the short wire

50 and a wire 33 to one of the can stops 12. The other of said can stops is connected by a wire 3. with one terminal of the supply 13.

A contact 35 appurtenant to the armature 24 is connected as by a wire 36 with one terminal of a can stop solenoid 37, the other terminal of which is connected by a wire 38 with the wire 21. The armature 39 of the solenoid 37 is pivotally connected to operate the latch 16. A wire 40 extends from the contact finger 19 to one terminal of the source or secondary winding 14, the other terminal of said winding being connected as by a wire 41 with one terminal of the relay 25, the other terminal of which is connected as by a wire 42 with the wire 34 leading from one of the can stops 12. These can stops and the contact finger 19 are insulated from the bars which support them.

The cans are carried by the belt between guides 43, and in their movement, after being filled, they pass between can stop setting contacts 44, one of which is connected as by wire *a* with the can stop solenoid 17, the other terminal of said solenoid being connected by a wire 46 with the wire 22. The other contact 44 is connected by a wire *b* with the wire 34 extending from one of the terminals of the transformer 13.

The operation of the device is as follows:

The parts being in the position shown in Fig. 1, a can is moved by the belt 11 against the can stops 12 that hold it from further movement. This completes an electrical circuit through the can and an electric current, therefore, flows from the transformer 13 through wire 34, can stop 12, the can, the other can stop 12, wire 33, wire 23, solenoid 20, wire 21, and wire 22 to the transformer. This energizes the solenoid 20 drawing its core downwardly, moving the bar 18, and lowering the contact finger 19 into the mouth of the can. This establishing of the circuit through the can also causes the electric current to flow from the wire 33 through the armature 24, contact 32, and wire 31 to the can filling solenoid 45 and from thence by wire 22 to the transformer 13. This energizes the solenoid 45 raising the handle 10 and opening the faucet permitting the liquid soap 6 to run into the can 7.

The liquid rises in the can until it comes in contact with the finger 19 and an electric circuit is now established with said contact through the soap contents of the can and an electric current flows from the source or secondary winding 14 through the wire 40, contact finger 19, soap contents of the can, a can stop 12, wires 34 and 42 to one terminal of the relay 25 through said relay and from the other terminal thereof by wire 41 to the other terminal of the winding 14. This energizing of the relay 25 draws the armature 24 away from the contact 32 and into engagement with the contact 35. This breaking of the electric circuit through the contact 32 destroys the energy in the solenoid 45 and the spring 26, therefore, pulls the handle 10 downwardly closing the faucet. Contact of the armature 24 with the contact 35 establishes a circuit so that the electric current will flow through wire 36 to one terminal of the can stop solenoid 37 and from the other terminal through wires 38, 21 and part of wire 22 to the transformer 13. This energizing of the solenoid 37 withdraws the latch 16 from the can stop bar 15 and the latter is pulled downwardly by the spring 27 releasing the stops from engagement with the can and the latter takes up its movement under the influence of the belt 11.

When the cans are moved into engagement with the setting contacts 44 a circuit is established between said contacts and the electricity flows from the transformer 13 through a portion of the wire 34, wire *b*, contact 44, cans and other contact 44, wire *a*, solenoid 17 and wire 46 and a part of the wire 22 to the transformer. This energizing of the solenoid 17 turns the can stop bar 15 on its pivot and raises the can stops into the position shown in Fig. 1, in which position the spring 28 forces the can stop latch 16 into engagement with the bar to retain the stops in this position. The action of the belt 11 carries the cans past the setting contacts 44, the making of the circuit at this point being of short duration, and as soon as the circuit is broken the solenoid 17 is deënergized so that there will be no resistance to pivotal action of the bar 15 to remove the stops 12 from the path of movement of the cans when said bar shall be released by the latch 16.

While I have shown and described herein a satisfactory form of device embodying my invention this may be departed from to a greater or lesser degree and yet be within the spirit and intent of the invention, as it will be found that the electrical devices especially may be varied to a considerable degree to obtain the same results.

I claim—

1. A filling member, a member for controlling the supply from said filling member, a carrier movably mounted underneath said filling member to convey receptacles thereto, said carrier being movable independently of the receptacles thereon, means for stopping the movement of said receptacles underneath the filling member, and means connected with said stopping means to actuate said controlling member.

2. A filling member, a member for controlling the supply from said filling member, a carrier movably mounted underneath the filling member to convey receptacles thereto, said carrier being movable inde-

pendently of the receptacles thereon, means for stopping the movement of said receptacles underneath the filling member, and a connection between said stopping means and filling member to operate the latter.

3. A filling member, a member for controlling the supply from said filling member, a carrier movably mounted underneath the filling member to convey receptacles thereto, said carrier being movable independently of the receptacles thereon, means for stopping the movement of said receptacles underneath the filling member, and a connection between said stopping means and filling member to open and close the latter.

4. A filling member, a member for controlling the supply from said filling member, a carrier movably mounted underneath the filling member to convey receptacles thereto, said carrier being movable independently of the receptacles thereon, receptacle stops, means for moving said stops into and out of the path of movement of the receptacles, and means connected with said stops to operate the filling member.

5. A filling member, a member for controlling the supply from said filling member, a carrier movably mounted underneath the filling member to convey receptacles thereto, said carrier being movable independently of the receptacles thereon, a receptacle stop movable into and out of the path of movement of receptacles on said carrier, and a connection between said filling member and said stop to open the filling member in the stopping position of said stop.

6. A filling member, a carrier movably mounted underneath the filling member to convey receptacles thereto, said carrier being movable independently of the receptacles thereon, receptacle stops movably mounted to prevent movement of the receptacles, means for holding the said stops in their stopping position, and a connection between said stops and holding means for effecting operation of the former by movement of the latter.

7. A filling member, a member for controlling the supply from said filling member, a carrier movably mounted underneath the filling member to convey receptacles thereto, said carrier being movable independently of the receptacles thereon, a receptacle stop, a connection between the stop and supply controlling member for operating the latter, said connection including a movable member, and a connection between said stop and said movable member for operating the latter to operate the supply controlling member.

8. A filling member, a member for controlling the supply from said filling member, a carrier movably mounted underneath the filling member to convey receptacles thereto, said carrier being movable independently of the receptacles thereon, means to stop the movement of a receptacle underneath said filling member, and an operative connection between said stopping means and said supply controlling member to operate the latter.

9. A filling member, a member for controlling the supply from said filling member, a carrier movably mounted underneath the filling member to convey receptacles thereto, said carrier being movable independently of the receptacles thereon, stops to engage the receptacles and prevent their movement, and an operative connection between said stops and supply controlling member to operate the latter.

10. A filling member, a member for controlling the supply from said filling member, a carrier movably mounted underneath the filling member to convey receptacles thereto, means for stopping the movement of the receptacles underneath the filling member, said stopping means being operatively connected with said supply controlling member, an amount controlling member mounted to be located in the receptacles, and an operative connection between said amount controlling member and said stopping means for operating the former.

11. A filling member, a member for controlling the supply from said filling member, a carrier movably mounted underneath the filling member to convey receptacles thereto, stops to engage the receptacles, said stops being operatively connected with said supply controlling member, an amount controlling member mounted to be located in the receptacles, and a connection between said amount controlling member and said stops for operating the former.

12. A filling member, a member for controlling the supply from said filling member, a carrier movably mounted underneath the filling member to convey receptacles thereto, stopping members movably mounted to stop the movement of a receptacle underneath said filling member and to permit movement of the receptacle from such position, amount controlling means movably mounted to be located in the mouth of the receptacles, and operative connections between said stopping member and said supply controlling means, and between said stopping member and said amount controlling means in the filling position of the receptacles.

13. A filling member, a member for controlling the supply from said filling member, a carrier movably mounted underneath the filling member to convey receptacles thereto, stopping members movable into and out of the path of movement of said receptacles, an amount controlling member movably mounted to be located in the mouth of the receptacles, and operative connections between

said stopping members and said supply controlling member, and between said stopping members and said amount controlling member in the filling position of the receptacles.

14. A filling member, a member for controlling the supply from said filling member, a carrier movably mounted underneath the filling member to convey receptacles thereto, stopping members movably mounted to stop the movement of receptacles underneath the filling member, a connection between said stopping members and supply controlling member and including a shifting member, an amount controlling member movably mounted to be located in said receptacles, and an operative connection between said stopping members and said amount controlling member to move said shifting member to permit operation of said supply controlling member.

15. A filling member, means for controlling the supply from said filling member, a carrier movably mounted underneath the filling member to convey receptacles thereto, stopping members mounted to move into the path of movement of said receptacles, an operative connection between said stopping members and said supply controlling member and including a shifting member, an amount controlling member movably mounted to be located in said receptacles, and an operative connection between said stopping members and said supply controlling member to move said shifting member to effect operation of said supply controlling member.

16. A filling member, a member for controlling the supply from said filling member, a carrier movably mounted underneath the filling member to convey receptacles thereto, means for stopping the receptacles underneath the filling member to receive material therefrom, a member to control the location of said stopping member, an operative connection between said stopping member and supply controlling member and including a shifting member, a connection between said stopping member and shifting member to move the latter to render the supply controlling member ineffective, and a connection between said shifting member and member for controlling location of the supporting member to operate the latter.

17. A filling member, a member for controlling the supply from said filling member, a carrier movably mounted underneath the filling member to convey receptacles thereto, stopping members movable into the path of said receptacles, a member for holding said stops in said path, an operative connection between said stops and said supply controlling member and including a shifting member, a connection between said stops and shifting member to move the latter to render the supply controlling member ineffective, and a connection between said shifting member and holding member to operate the latter.

18. A filling member, a member for controlling the supply from said filling member, a carrier movably mounted to convey receptacles thereto, stopping members, a movably mounted support for said stopping members, means for retaining said support with the stopping members in the path of movement of the receptacles, and an operative connection between said stopping members and said retaining member to effect release of the latter and thereby movement of the stop from the path of movement of said receptacles.

19. A filling member, a member for controlling the supply from said filling member, a carrier movably mounted underneath the filling member to convey receptacles thereto, stops comprising contacts to engage the receptacles and prevent their movement, and an electrical connection between said stops and supply controlling member to operate the latter.

20. A filling member, a member for controlling the supply from said filling member, a carrier movably mounted underneath the filling member to convey receptacles thereto, stops to engage the receptacles, said stops being electrically connected with said supply controlling member, a filling contact movably mounted to enter the receptacles, and a connection between said contact and stops for operating the former.

21. A filling member, a carrier movably mounted underneath the filling member to convey receptacles thereto, means for stopping movement of said receptacles, a movably mounted contact to enter said receptacles, and a connection between said contact and stopping means to withdraw the latter from the path of movement of the receptacles.

22. A filling member, a member for controlling the supply from said filling member, a carrier movably mounted underneath the filling member to convey receptacles thereto, stopping members movable into and out of the path of movement of said receptacles, a contact movable into the mouth of the receptacles, and connections between said stopping members and said supply controlling means, and between said stopping members and said contact in the filling position of the receptacles.

23. A filling member, a member for controlling the supply from said filling member, a carrier movably mounted underneath the filling member to convey receptacles thereto, stopping members movable into the path of said receptacles, a connection between said stopping members and supply controlling member and including a shifting member, a contact movable into said receptacles, and an electrical connection between said

stopping members and contact member to move said shifting member to cause operation of said supply controlling member.

24. A filling member, a member for controlling supply from said filling member, a carrier movably mounted underneath the filling member to convey receptacles thereto, stopping members movable into the path of said receptacles, a member for holding said stops in said path, an electrical connection between said stops and said supply controlling member and including a shifting member, a connection between said stops and shifting member to move the latter to cut out the supply controlling member, a connection between said shifting member and holding member to operate the latter, and a connection between said stops and holding member to operate the latter by movement of the former.

25. A filling member, a carrier movably mounted underneath said filling member to convey receptacles thereto, means for stopping movement of the receptacles underneath said filling member while permitting movement of the carrier, means for removing said stopping means from the path of said receptacles, and means actuated by movement of receptacles to reset said stopping means.

26. A filling member, a carrier movably mounted underneath said filling member to convey receptacles thereto, stops movable into the path of the receptacles to hold them against movement, means for actuating the stops to withdraw them from the path of the receptacles, and means actuated by the movement of the receptacles to effect resetting of said stops.

27. A filling member, a carrier movably mounted underneath said filling member to convey receptacles thereto, stops movable into the path of the receptacles to hold them against movement, means for withdrawing the stops from the path of movement of the receptacles, and contacts located in the path of movement of the receptacles and electrically connected with means to effect resetting of said stops.

ALFRED J. GILBERT.