

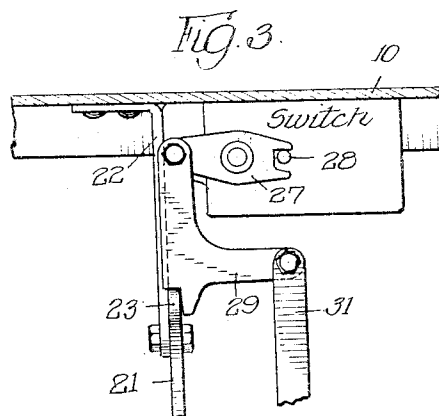
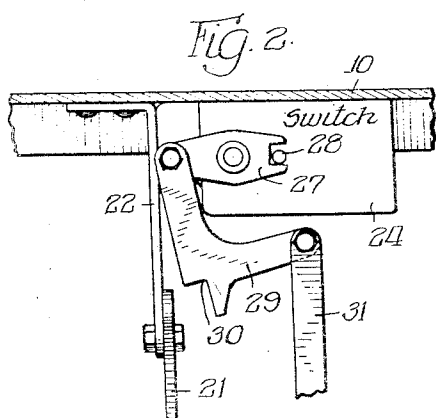
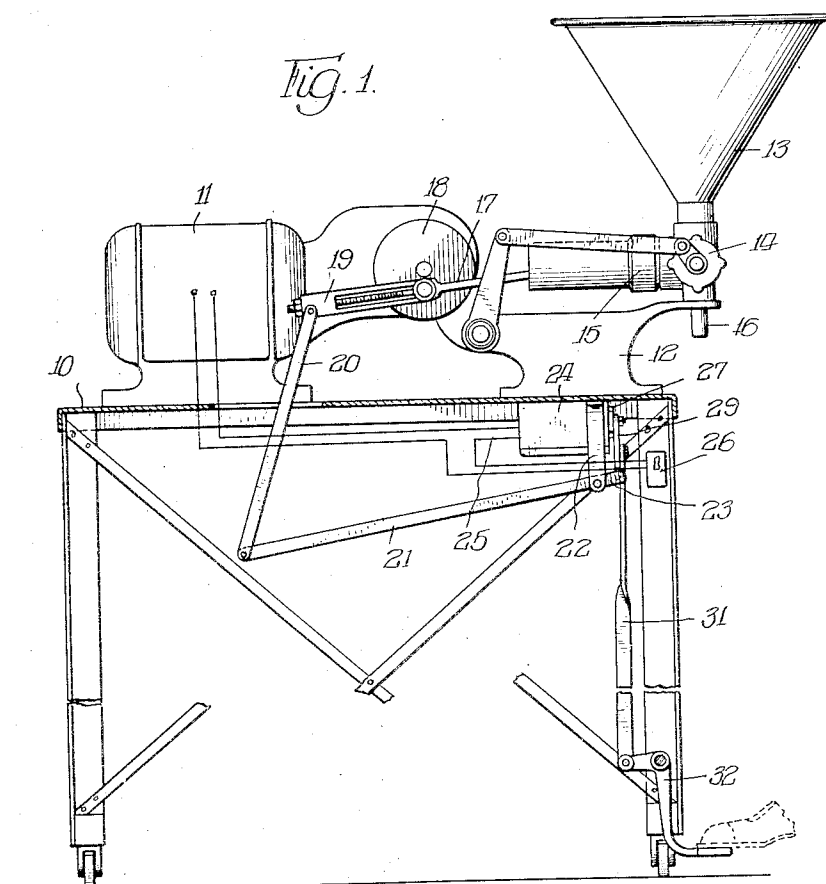
Nov. 16, 1937.

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2,099,253

TRIP MECHANISM FOR FILLING MACHINES

Filed Jan. 25, 1937



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UNITED STATES PATENT OFFICE

2,099,253

TRIP MECHANISM FOR FILLING MACHINES

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Application January 25, 1937, Serial No. 122,109

10 Claims. (Cl. 221-102)

My invention relates to machines of the character described and particularly to means applied thereto for starting and stopping the operating motor and for bringing about a full stroke of the machine prior to the interruption of operation.

In the operation of filling machines it is essential that means be provided for stopping and starting a motor and this has commonly been accomplished by means of a hand operated switch. However, the use of a hand switch involves several difficulties particularly that of uncertainty of stopping the motor at an exact point corresponding to the completion of a filling cycle. It will be understood that in the operation of filling machines of the type described, a cylinder and piston are employed in connection with a hopper for the material to be filled, and a valve, synchronized with the piston movement, adapted to alternately connect the hopper space with the cylinder and with the filling nozzle. Unless the motor is stopped at a point corresponding to the completion of the filling cycle, a cycle may be begun and partially completed, leaving the material to be filled either in the cylinder or partly ejected therefrom through the nozzle. By the mechanism here disclosed I provide for stoppage of the motor at the point where the piston has completed its forward or ejecting movement.

The simple mechanism by which the desired result is accomplished is illustrated in the accompanying drawing, in which,

Fig. 1 is a side elevation, partly in section, through filling apparatus to which my improvement has been applied;

Fig. 2 is an enlarged fragmentary view showing the operating mechanism in normal or continuously operating position; and

Fig. 3 shows the mechanism in its shut-off position.

A conventional filling machine includes a table 10, an electric motor 11 and a frame 12. On the frame is mounted a hopper 13 and a three-way valve 14 provides for communication alternately between the hopper, a cylinder 15 and a filling nozzle 16. A piston within the cylinder is moved by a pitman 17 operated by a crank disc 18, the pitman having an extension 19 to which a link 20 is connected. The link extends downward through an opening in the table top and is connected to an operating bar 21 fulcrumed for oscillation on a bracket 22, the projecting end 23 of the bar constituting the means for actuating a spring switch 24, the details of which are not shown herein, but are of well-known construction.

The wires 25, from the switch to the motor, have a hand switch 26 interposed therein for permanently interrupting the current when the machine is to be idle.

The switch is provided with an operating arm 27, the movement of which is limited in both directions by a pin 28. Connected to the free end of the arm 27 is a rocker or L-shaped arm 29 having a notch 30 therein. A link 31 extends downward from the free end of the rocker 29 to a treadle 32 in the form of a bell crank adapted for foot operation. It will be noted that the movement of the crank is extensive relative to the movement required to operate the switch. This is compensated by so pivoting the operating bar 21 that the arm at one end is very long and at the switch-operating end is very short. In that manner the required reduction of movement is brought about.

The operation is as follows:

Assuming the switch 26 to be closed when the operator wishes to start the machine, pressure is applied to the treadle which results in rocking the arm 29 on its pivot and removing the notch from engagement with the operating end 23 of the bar 21; thus the spring in the switch 24 acts to close the circuit and the motor will function to operate the filling machine. This operation will continue as long as the parts are retained in the position of Fig. 2. When, however, the foot pressure is released the arm 29 will swing by gravity into a position so that the notch 30 may engage with the end 23 of the bar whenever the crank has turned and moved the end to the proper position, further turning of the crank resulting in the exertion of a thrust on the rocker arm 29 with consequent actuation of the switch and stoppage of the motor. By properly proportioning the respective parts, the mechanism will come to a complete stop at a point where the piston is in its extreme forward position corresponding to a completion of a filling cycle; that is to say, the point of stoppage should be where the three-way valve 14 has just closed the passage from the cylinder to the filling nozzle. On restarting, the parts will then be in a position corresponding to the beginning of a new cycle.

The mechanism is of extreme simplicity and has no parts likely to become out of order. Such mechanism is, furthermore, adapted for use in connection with all sorts of mechanism in which the parts should be interrupted in operation only at the completion of a cycle. I do not, therefore, wish to be limited except as indicated in the appended claims.

I claim:

1. In a device of the class described, the combination with mechanism providing for reciprocating motion, of a motor for driving said mechanism, a motor switch, link mechanism connected to said switch and to said reciprocating mechanism, said link mechanism including a rocker, and means for shifting said rocker and breaking the link connection whereby to permit said switch to close.
2. In a filling machine, the combination with a crank and a motor for operating the same, of a switch for interrupting said motor, links for changing the rotating motion of the crank to oscillating motion at the switch, an L-shaped rocker adapted normally to provide a connection between the link mechanism and said switch, and foot operated means for swinging said rocker and breaking the connection between link mechanism and the switch.
3. In a filling machine, the combination with a crank and a motor for operating the same, of a switch for interrupting said motor, links between the crank and switch for providing oscillating motion at the switch, an L-shaped rocker adapted to function as an insertable connecting link between the aforementioned links and the switch.
4. In a filling machine, the combination with a crank and a motor for operating the same, of a switch for interrupting said motor, link mechanism between the crank and switch for providing oscillating motion at the switch, an L-shaped rocker adapted to function as an insertable connecting link between the link mechanism and the switch.
5. In a filling machine, the combination with a crank and a motor for operating the same, of a switch for interrupting said motor, links between the crank and switch for providing oscillating motion at the switch, an L-shaped rocker adapted to function as an insertable connecting link between the aforementioned links and the switch, and lever means operated by a pedal for rotating said rocker out of operable connection between the link mechanism and the switch.
6. In a filling machine, the combination with a crank and a motor for operating the same, of a switch for interrupting said motor, link mechanism between the crank and switch for providing oscillating motion at the switch, an L-shaped rocker adapted to function as an insertable connecting link between the link mechanism and the switch, lever means operated by a pedal for rotating said rocker out of operable connection between the link mechanism and the switch, said switch being normally arranged to maintain a closed circuit, and the rotation of said L-shaped rocker into the link mechanism being normally arranged to open the circuit.
8. In a filling machine, the combination with a crank and a motor for operating the same, of a switch for interrupting said motor, link mechanism between the crank and switch for providing oscillating motion at the switch, an L-shaped rocker adapted to function as an insertable connecting link between the link mechanism and the switch, lever means operated by a pedal for rotating said rocker out of operable connection between the link mechanism and the switch, said switch being normally arranged to maintain a closed circuit, and the rotation of said L-shaped rocker into the link mechanism being normally arranged to open the circuit.
9. In a filling machine, the combination of motor driven filling mechanism, a motor switch, means operated by the motor for actuating the switch and stopping the machine, and foot-operated means for preventing the actuation of the switch by said motor means.
10. In a filling machine, the combination of motor driven filling mechanism, a motor switch, means operated by the motor for actuating the switch and stopping the machine at the completion of a filling cycle, and foot-operated means for preventing the actuation of the switch by said motor means.

anism between the crank and switch for providing oscillating motion at the switch, an L-shaped rocker adapted to function as an insertable connecting link between the link mechanism and the switch, and lever means operated by a pedal for rotating said rocker out of operable connection between the link mechanism and the switch.

7. In a filling machine, the combination with a crank and a motor for operating the same, of a switch for interrupting said motor, links between the crank and switch for providing oscillating motion at the switch, an L-shaped rocker adapted to function as an insertable connecting link between the aforementioned links and the switch, lever means operated by a pedal for rotating said rocker out of operable connection between the link mechanism and the switch, said switch being normally arranged to maintain a closed circuit, and the rotation of said L-shaped rocker into the link mechanism being normally arranged to open the circuit.

8. In a filling machine, the combination with a crank and a motor for operating the same, of a switch for interrupting said motor, link mechanism between the crank and switch for providing oscillating motion at the switch, an L-shaped rocker adapted to function as an insertable connecting link between the link mechanism and the switch, lever means operated by a pedal for rotating said rocker out of operable connection between the link mechanism and the switch, said switch being normally arranged to maintain a closed circuit, and the rotation of said L-shaped rocker into the link mechanism being normally arranged to open the circuit.

9. In a filling machine, the combination of motor driven filling mechanism, a motor switch, means operated by the motor for actuating the switch and stopping the machine, and foot-operated means for preventing the actuation of the switch by said motor means.

10. In a filling machine, the combination of motor driven filling mechanism, a motor switch, means operated by the motor for actuating the switch and stopping the machine at the completion of a filling cycle, and foot-operated means for preventing the actuation of the switch by said motor means.

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