C. C. HARRIS & N. L. McLEOD.

AUTOMATIC STOP DEVICE.

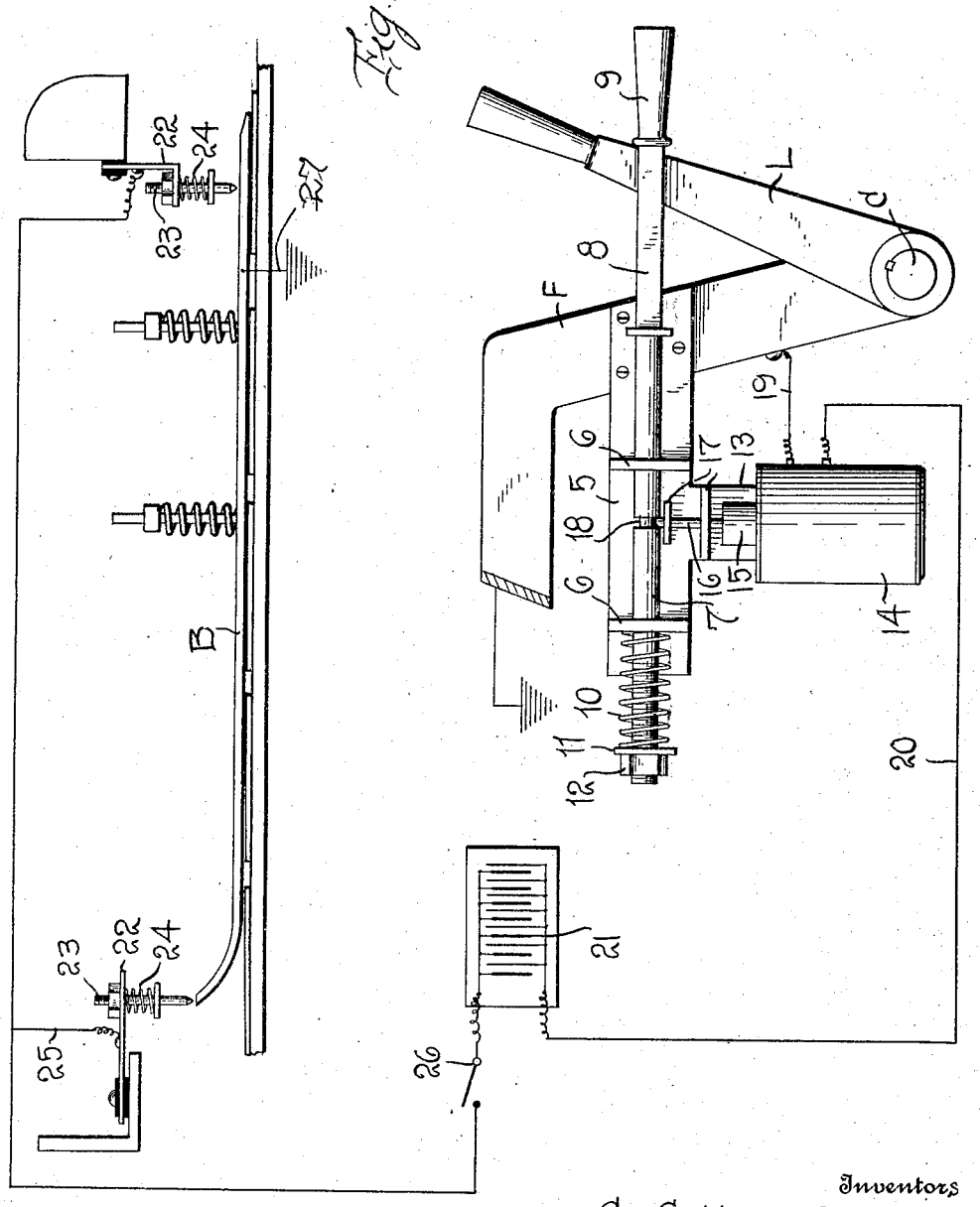
APPLICATION FILED SEPT. 6, 1917.

**1,298,939.**

Patented Apr. 1, 1919.

2 SHEETS—SHEET 1.

Fig. 1




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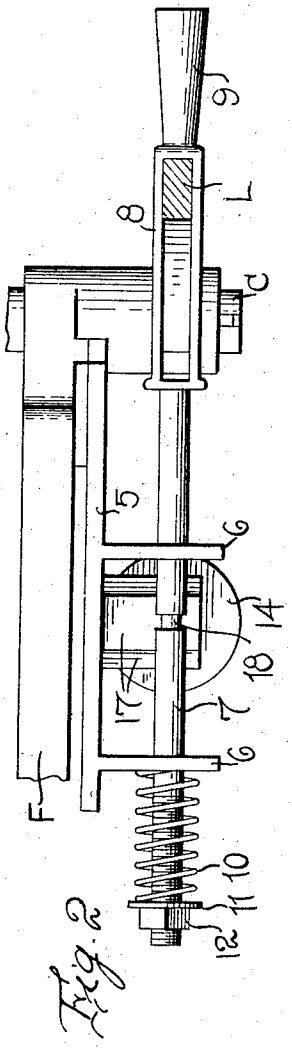



Fig. 2

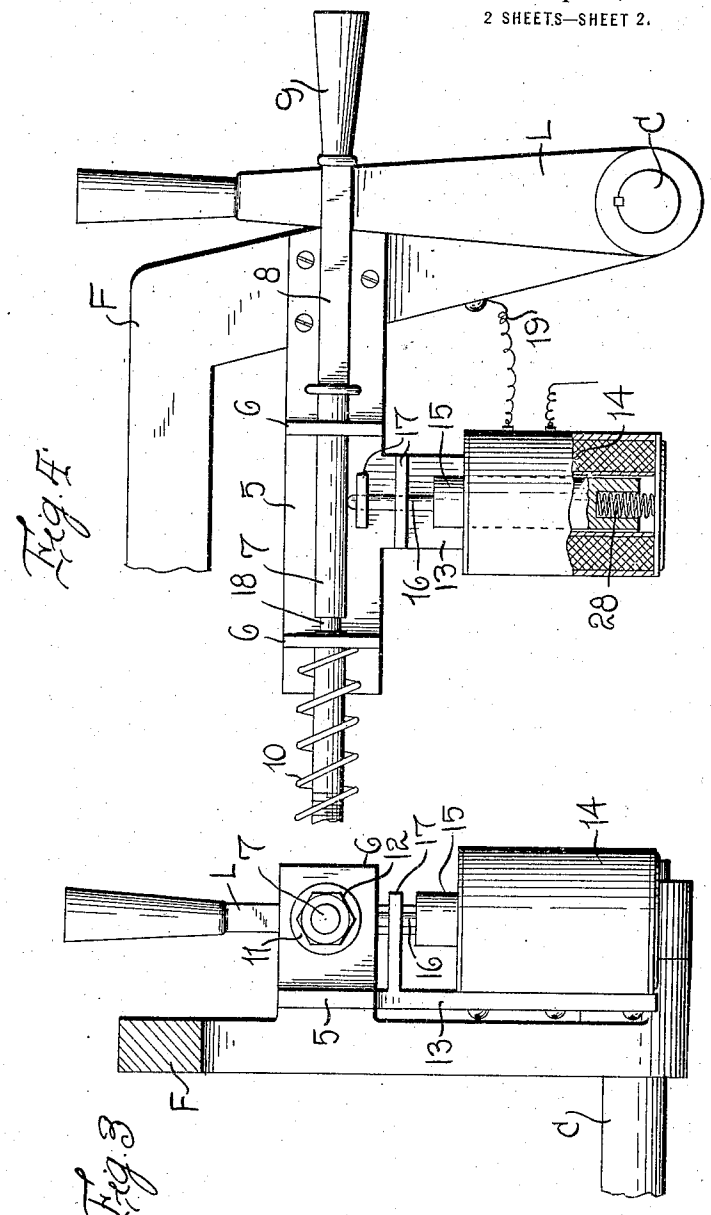



Fig. 1

Fig. 3

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# UNITED STATES PATENT OFFICE.

CHARLES C. HARRIS AND NORMAN L. McLEOD, OF SEATTLE, WASHINGTON.

## AUTOMATIC STOP DEVICE.

1,298,939. Specification of Letters Patent. Patented Apr. 1, 1919.

Application filed September 6, 1917. Serial No. 189,973.

*To all whom it may concern:*

Be it known that we, CHARLES C. HARRIS and NORMAN L. McLEOD, citizens of the United States, residing at Seattle, in the county of King and State of Washington, have invented certain new and useful Improvements in Automatic Stop Devices, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to an improved automatic stop device for machines and has for its primary object to provide means more particularly designed for use in connection with can body forming machines, which will instantly and automatically stop the operation of the machine when an imperfect blank is fed thereto, or an abnormal condition occurs in the feeding of the blank.

It is a more particular object of the invention to provide a movable element operatively engaged with the clutch shifting lever, whereby the operation of the machine is controlled, and electromechanical means for holding said part against movement when the clutch lever is in operative position, said means having a circuit closed upon an abnormal movement of the blank holder.

It is another important object of our invention to provide a device for the above purpose which is simple and inexpensive in its construction, may be applied to can body forming machines now upon the market, and is automatically set for operation when the clutch lever is moved to position to start the machine in operation.

With the above and other objects in view, our invention consists in the novel features of construction, combination and arrangement of parts to be hereinafter more fully described, claimed and illustrated in the accompanying drawings, in which,

Figure 1 is a side elevation, the clutch lever being in operative position, the circuit for the stop motion device being diagrammatically illustrated;

Fig. 2 is a top plan view;

Fig. 3 is an end elevation; and

Fig. 4 is a side elevation, partly in section, showing the relative positions of the parts after the stop device has operated.

In Fig. 1 of the drawings, we have shown a blank holder B with which the can body forming machine is provided. The blank metal sheets for the cans are placed in a suitable receiver and are fed out by mechanical means (not shown), one at a time, beneath the blank holder B. This blank holder is provided for the purpose of holding the sheets absolutely flat as they move over the bed plate, and said blank holder is mounted for vertical movement, being normally pressed downwardly upon the metal sheet by a suitable means. Thus, if a faulty sheet or a defective operation takes place, or two sheets should be fed at the same time beneath the blank holder, said blank holder will be raised. Likewise, if a sheet should buckle or twist or some foreign material be carried thereby beneath the blank holder, the same vertical movement of the latter would occur.

L designates the clutch shifting lever which is fixed upon the clutch shaft C suitably mounted in the machine frame indicated at F. When this shaft is rocked or rotated, the clutch is thrown to its effective or ineffective position. A bracket plate or casting 5 is fixed to the frame F and is provided with spaced bearing arms 6, in each of which an opening is formed. A rod 7 is loosely mounted in the openings in said bearing arms for longitudinal movement, and this rod is integrally connected at one of its ends to an elongated, horizontally disposed loop 8 through which the upper end of the clutch shifting lever L extends. The loop 8 terminates at one of its ends in a suitable handle 9. Upon the opposite end of the rod 7, a coil spring 10 is arranged, said spring bearing at one of its ends against one of the arms 6 and at its other end against a washer plate 11 which may be adjusted by the nut 12 threaded on said rod, whereby the tension of the spring can be suitably regulated. The bracket casting 5 is formed with a depending arm 13 upon which a solenoid 14 is mounted. The solenoid core 15 has a longitudinally extending pin or stem 16 formed upon its upper end, movable through coinciding openings in the spaced lugs 17 formed upon the bracket casting 5. The rod 7 is provided with an annular groove 18 to receive the upper end of this pin. One terminal of the winding of the solenoid is connected by a wire 19, through the frame of the machine, to the ground, and the other terminal of said coil is connected by the wire 20 to one side of the battery 21.

The bracket members 22 are suitably mounted upon the machine frame adjacent to the opposite ends of the blank holder B

and insulated from said frame. In these bracket members, contact pins 23 are mounted and yieldingly urged by the springs 24 toward the ends of the blank holder. The bracket members 22 are connected by wires 25 to the opposite side of the battery 21, and the circuit through said battery may be opened or closed by a suitable switch 26. The blank holder B is likewise connected to the ground by the wire 27.

In the practical operation of the device, assuming that the machine is in operation and the parts set in the positions shown in Fig. 1, the switch being closed, it will be readily seen that if an imperfect blank is fed to the machine or the blank buckles or twists, or some other abnormal condition exists, the blank holder B will be raised into engagement with the contacts 23. The circuit will thus be closed through the blank holder, the pins 23, wires 25, the battery 21 and wire 20 to the solenoid, and from the solenoid through the machine frame to the ground. Thus, the solenoid core will be moved to disengage the pin 16 from the groove 18, thereby releasing the rod 7. The spring 10 will immediately expand and move the rod 7 to the position seen in Fig. 4 so that the lever L which is engaged in the outer end of the loop 8, will be thrown over to a vertical position, thereby rotating the shaft C and shifting the clutch to which the shaft is operatively connected, to an ineffective position. In this manner, the operation of the machine is instantly stopped so that the possibility of injury to its parts is thereby obviated. When the machine is again started in operation, the movement of the clutch lever pulls the rod 7 outwardly so that the core pin 16 will again engage in the groove 18, the solenoid core being normally forced upwardly by the coil spring indicated at 28, which is engaged with the lower end of the core. Also, the stop motion device may be set independently of the clutch lever by pulling outwardly upon the handle 9.

From the foregoing description, taken in connection with the accompanying drawings, the construction and manner of operation of the device will be clearly and fully understood. It will be appreciated that by a very simple arrangement of parts, we have succeeded in producing means for instantly stopping the operation of the machine upon the feeding of a defective blank thereto which might result in the breakage of the parts of the machine if its operation was permitted to continue. The invention may be manufactured at relatively small cost and readily applied to can making machinery now in general use.

While we have shown and described the preferred form and construction of the various parts, it is to be understood that the same are susceptible of considerable modification therein and we, therefore, reserve the privilege of adopting all such legitimate changes as may be fairly embodied within the spirit and scope of the invention as claimed.

Having thus fully described our invention, what we desire to claim and secure by Letters Patent is:

1. In combination with the clutch shifting lever and the movable blank holder, of an axially shiftable rod having a loop on one end in which said lever is engaged, the lever being movable with respect to said loop to its inoperative position, a spring urging the rod in one direction to move the lever to an inoperative position, a solenoid having a core provided with means to co-act with said rod and hold the same against movement under the action of the spring, and a circuit for the solenoid automatically closed upon an abnormal movement of the blank holder, whereby said rod is released and moved by the spring to throw the clutch lever to an inoperative position.

2. In combination with the clutch shifting lever and the movable blank holder, an axially shiftable rod having a loop on one end through which said lever extends, the lever being movable with respect to said loop to its inoperative position, a spring to urge the rod in one direction and move the lever to an inoperative position, said rod being provided with a circumferential groove, a solenoid having a core provided with means to engage in said groove and hold the rod against movement under the action of said spring, said rod being shifted to its set position by the movement of the clutch lever to an operative position, and a circuit for the solenoid including spaced contact members adapted to be engaged by the blank upon an abnormal movement thereof, whereby the circuit is closed and the rod released for movement under the action of said spring.

In testimony whereof we hereunto affix our signatures in the presence of two witnesses.

CHARLES C. HARRIS,
NORMAN L. McLEOD.

Witnesses:
FRED E. HAMILTON,
DOLORES SUTTON.

**Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."**