April 1, 1930. C. W. NIXON 1,753,092

HANDLE CONTROLLED SLOT CLOSURE

Filed June 21, 1928

Fig. 1.

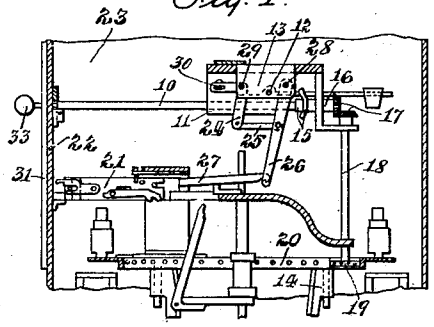


Fig. 3.

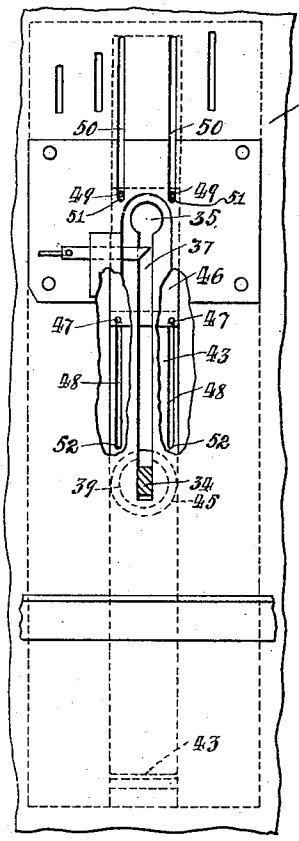


Fig. 4.

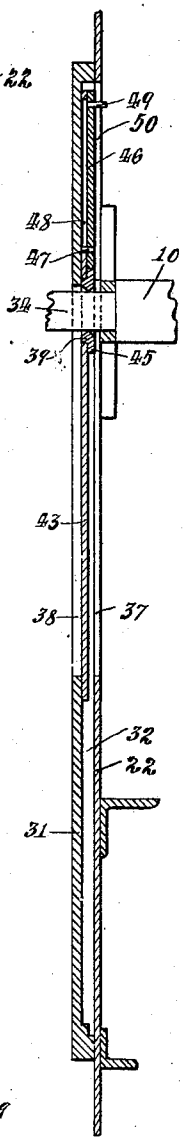


Fig. 2.

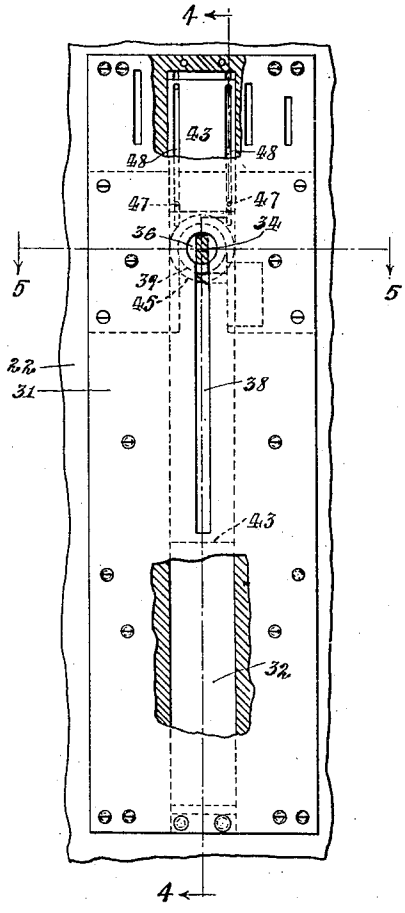
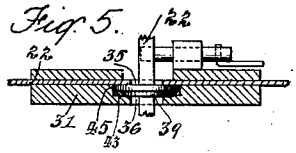


Fig. 5.



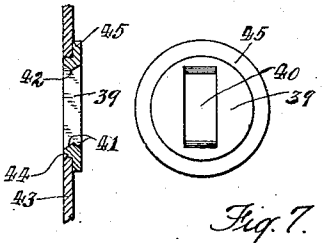


Fig. 6.

Fig. 7.

INVENTOR
CLIFTON W. NIXON
BY
ATTORNEY

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UNITED STATES PATENT OFFICE

CLIFTON W. NIXON, OF NEW YORK, N. Y.

HANDLE-CONTROLLED SLOT CLOSURE

Application filed June 21, 1928, Serial No. 287,154, and in Great Britain July 13, 1927.

This invention relates to a handle controlled slot closure, designed especially for use in connection with vending and change making machines, although not necessarily confined to such use, as it will be recognized that the improvements herein disclosed by way of example are capable of embodiment in machines of other types and perhaps in other relations where it is desirable to keep a casing slot, wherein an operating element is movable, closed at all times, without interfering with the normal and proper functioning of such operating element.

The paramount object of the invention is the provision in connection with a casing and a handle or operating element arranged to operate in a suitable slot or aperture in the casing, of a construction of means whereby to keep the casing slot or aperture closed at all times so that trash and foreign matter cannot be poked therethrough and further so that persons bent upon reprehensible practices cannot through the use of a wire or other instrument injure or molest the interior working parts of the machine.

Another object of the invention is the provision of simple, practical and efficient means of the character described which will be connected with and controlled by the handle or element by which the machine is operated.

More especially, the object of the invention is the provision in connection with a handle mounted to have rotary movement in a circular aperture and sliding movement in a communicating elongated slot, of means for keeping both the circular aperature and the elongated slot closed at all times.

In this application, I have shown and described a handle controlled slot closure shown in my copending application for a vending and change-making machine, Serial No. 197,076, filed by me on June 7, 1927.

Other objects will appear hereinafter.

The invention consists in the details of construction and in the arrangement and combination of parts hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawings forming a part of this specification, and in which:—

Fig. 1 represents a sectional side elevation of a fragment of a vending and change-making machine, showing the adaptation therewith of an operating handle for controlling my slot closure;

Fig. 2 represents a fragmentary elevation of the casing front with the housing structure thereon, showing the slot closure with the operating handle in elevated position, parts of the housing structure being broken away;

Fig. 3 represents an inside elevation of the casing front, showing the slot closure with the operating handle in depressed position therein, parts being broken away;

Fig. 4 represents a vertical sectional view, taken on the line 4—4 of Fig. 2 on a larger scale;

Fig. 5 represents a horizontal sectional view, taken on the line 5—5 of Fig. 2;

Fig. 6 represents a sectional detail, showing the disk rotatably fitted within the front slide plate; and

Fig. 7 represents a detail of the disk detached.

In order clearly to demonstrate the utility and practicability of my invention, I have shown in Fig. 1 a handle 10 mounted to have two distinct movements, viz, rotary movement and pivoting movement. The rear portion of the handle is mounted for rotation in, and extends through a bearing block 11 supported by a fulcrum pin 12 for rocking movement on a fixed frame 13. By turning the handle rotary movement is imparted to a magazine structure 14 through sliding connections 15, short shaft 16, bevel gears 17, shaft 18, and pin wheel 19 which is in driving engagement with ring 20 on the magazine structure. In the present embodiment, the pivoting movement of the handle consists in downward and upward strokes whereby the bearing block is rocked on its fulcrum pin, the downward stroke or depression of the handle being provided in order to advance a carrier structure 21 inwardly from the front 22 of the casing or cabinet 23. This operation is accomplished through bell crank lever

24, link 25, and draw bar 26 which is adapted to cooperate with a pull bar 27 attached to the carrier structure. Draw bar 26 is pivoted at 28 to the frame 13. Bell crank lever 24 is pivoted at 29 to said frame and at 30 with a lost motion connection to the bearing block 11.

My invention, in its preferred form of construction as illustrated in the accompanying drawing, comprises a housing structure 31 secured in any suitable manner to the casing front 22 upon the outside thereof so as to provide a channelway 32. The handle 22, adjacent its exterior knob 33 and at the region where it has operative passage both in the casing front and in the housing structure thereon, is made with a portion 34 of rectangular form in cross section. Alined circular apertures 35 and 36, provided respectively in the casing front and housing structure thereon, accommodate the handle when it is in elevated position and make provision for the rotation therein of the rectangular portion 34. Vertically extending slots 37 and 38, having open communication at their top ends with the respective apertures 35 and 36 and provided respectively in the casing front and housing structure thereon, make provision for the downward and upward strokes of the handle. The handle can be moved into the slots 37 and 38 only when the narrow or edgewise dimension of the rectangular portion 34 has been alined vertically therewith is best shown in Fig. 2; and said slots 37 and 38 constitute guide means preventing the rotation of the handle during its downward and upward strokes from and to elevated position within the apertures 35 and 36. With this construction and arrangement, it will be understood that the handle, while it is in elevated position within the apertures 35 and 36, cannot be employed for actuating the carrier structure 21; and further that the said handle, during its sliding strokes within the guide slots 37 and 38, cannot be employed for actuating the magazine structure 14.

Closure means, connected to the handle to be operated thereby, are provided to keep the apertures 35 and 36 as well as the guide slots 37 and 38 closed at all times irrespective of the position of the handle. Included in the closure means is a disk 39 having sliding fit within the channelway 32 between the housing structure and casing front and having sliding fit upon the rectangular portion 34. In the disk 39 is a rectangular opening 40 in which is received the rectangular portion 34, and the walls at the ends of said opening 40 are angularly beveled as at 41 to provide for the angular movement of the handle relatively to the disk and also to provide central pointed edges 42 for the sliding of the disk on said rectangular portion 34. By this arrangement, the disk which is of greater diameter than the apertures 35 and 36 turns with the handle on the turning movement thereof and slides on the handle and within the channelway on the pivoting movement of the handle.

Slidably arranged within the channelway 32 is plate 43 having therein a circular opening 44 in which the disk 39 is turnably fitted, said plate in the present instance being of less thickness than said disk which is made with a peripheral flange 45 engaging behind said plate to maintain the same in intimate sliding contact with the inner face of the housing structure. As best shown in Figs. 2 and 4, the slide plate 43 is of a length to extend below the lower ends of the slots 37 and 38 when the handle is in elevated positions.

Also slidably arranged within the channelway 32 behind the slide plate 43 and above the disk flange 45 is a plate 46 which is provided near its lower end with forwardly projecting pins 47 slidably engaging slots 48 in the front plate 43, and near its upper end with rearwardly projecting pins 49 slidably engaging slots 50 in the casing front 22.

When the handle is in elevated position as shown in Figs. 2 and 4, the disk and front slide plate completely close the apertures and slots. With the rotation of the handle for actuating the magazine structure, the disk rotates within and the flange thereof behind, the front plate. The disk and both of the slide plates accompany the handle on its down stroke keeping the apertures and slots completely closed, the rear plate on the engagement of its pins 49 with the lower ends 51 of the slots 50 being arrested while the front plate continues to the full end of the down stroke owing to the sliding connection between the pins 47 and slots 48. Fig. 3 illustrates the positions of the parts when the handle is fully depressed. On the upward stroke of the handle, the rear plate is repositioned along with the front plate after the engagement by the lower ends 52 of the slots 48 with the pins 47. In this manner the apertures and slots are kept closed at all times to prevent any foreign matter from being thrust into the machine and also to prevent by means of instruments or otherwise any tampering with the interior mechanism of the machine.

While I have illustrated and described the preferred form of construction for carrying my invention into effect, this is capable of variation and modification without departing from the spirit of the invention. I, therefore, do not wish to be limited to the precise details of construction set forth but desire to avail myself of such variation and modifications as come within the scope of the appended claims.

Having thus described my invention, what I claim is:—

1. In a machine of the character described, consisting of a retaining structure having an elongated opening in which an operating element is arranged for movement, a plate slidably associated with said retaining structure, and a disk on said operating element having rotary association with said plate, said plate and disk being controlled by said operating element and arranged to keep said opening closed irrespective of the position of said operating element therein.

2. In a machine of the character described, consisting of a retaining structure having an elongated opening in which an operating element is arranged for movement, a pair of extensibly connected plates slidably associated with said structure, one of said plates having connection with said operating element and both of said plates being constructed and arranged to be controlled by said operating element and to keep said opening closed irrespective of the position of said operating element therein.

3. In a machine of the character described, the combination with a casing and a handle for operating the machine movable in communicating circular and elongated openings in the casing, of closure means slidably associated with said casing and connected with said handle to be controlled thereby for keeping said communicating circular and elongated openings closed irrespective of the position of said handle.

4. The combination with a casing wall having therein a circular opening and a therewith communicating elongated opening, of an operating handle mounted to have rotary movement in said circular opening and pivoting movement in said elongated opening; and closure means associated with said casing wall and connected with said handle to be controlled thereby for keeping said circular and elongated openings completely closed irrespective of the movement or position of said handle.

5. In a machine of the character described, the combination with two casing walls forming a channelway and having therein circular openings and therewith communicating slots, of an operating handle for the machine mounted to have rotary movement in the circular openings and pivoting movement in the slots; and closure means slidable in said channelway and supported by said handle to be controlled thereby for keeping said circular openings and slots completely closed irrespective of the movement or position of said handle.

6. The combination with a vending machine or the like, of a retaining structure provided with an aperture and a therewith communicating slot; an operating element mounted to have rotary movement in said aperture and sliding fit in said slot; and means associated with said retaining structure and controlled by said handle for keeping said aperture and slot closed.

7. In a machine of the character described, a retaining structure having therein an aperture and a therewith communicating slot; an operating element mounted to have rotary movement in said aperture and sliding fit in said slot; means for closing said aperture and slot comprising a slide plate arranged in the structure and receiving said operating element; and a disk having sliding fit on said operating element and rotary fit in said slide plate.

8. A machine of the character described, consisting of a retaining structure having therein an aperture and a therewith communicating slot; a handle for operating the machine mounted to have rotary movement in said aperture and sliding fit in said slot; means for keeping said aperture and slot closed comprising a pair of extensibly connected slide plates arranged in the structure, one of which receives said handle; and a disk having sliding fit on said handle and rotary fit in said handle receiving slide plate.

9. In a machine of the character described, a retaining structure having therein an aperture and a therewith communicating slot; a handle for operating the machine having an angular portion adapted to rotate in said aperture and to have sliding fit in said slot; a plate slidably arranged in said structure; and a disk having sliding fit on the angular portion of said handle and rotary fit in said plate, said disk having a flange engaging said plate to maintain the latter in closing relation to said aperture and slot.

10. In a machine of the character described, a retaining structure having therein an aperture and a therewith communicating slot; a handle for operating the machine having an angular portion adapted to rotate in said aperture and to have sliding fit in said slot; a plate slidably arranged in said structure and closing said aperture and slot; and a disk having sliding fit in said structure, rotary fit in said plate, and having an angular opening slidably receiving the angular portion of said handle, the ends of the angular opening in said disk being of angular form to provide for the angular movement of said handle relatively to said disk.

11. In a machine of the character described, a retaining structure having therein an aperture and a therewith communicating slot; a handle for operating the machine arranged to rotate in said aperture and to have sliding fit in said slot; a plate slidable in said structure for closing said aperture and slot; a disk having sliding fit in said structure, rotary fit in said plate, and sliding fit on said handle; and a second closure plate in the structure having a pin and slot connection with said first plate and with said structure.

12. In combination, a retaining structure

having a channelway therein; a handle extending across said channelway and mounted to have rotary and pivoting movements in openings in said structure; a plate slidably arranged in said channel way and closing said openings; and a disk having sliding fit in said channelway and on said handle and further having rotary fit in said plate.

In testimony whereof, I have signed my name to this specification.

CLIFTON W. NIXON.