United States Patent [19]

Ishii

[11] **3,708,773**

[45] **Jan. 2, 1973**

[54] **CASH STORAGE DRAWER WITH ELECTRICALLY ACTUATED LATCH MEANS**

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[22] Filed: **Sept. 28, 1971**

[21] Appl. No.: **184,535**

[30] **Foreign Application Priority Data**

Oct. 5, 1970 Japan 45/98134

[52] **U.S. Cl.** **335/254,** 235/11

[51] **Int. Cl.** **H01f 7/08**

[58] **Field of Search** 335/253, 254; 235/10, 11

[56] **References Cited**

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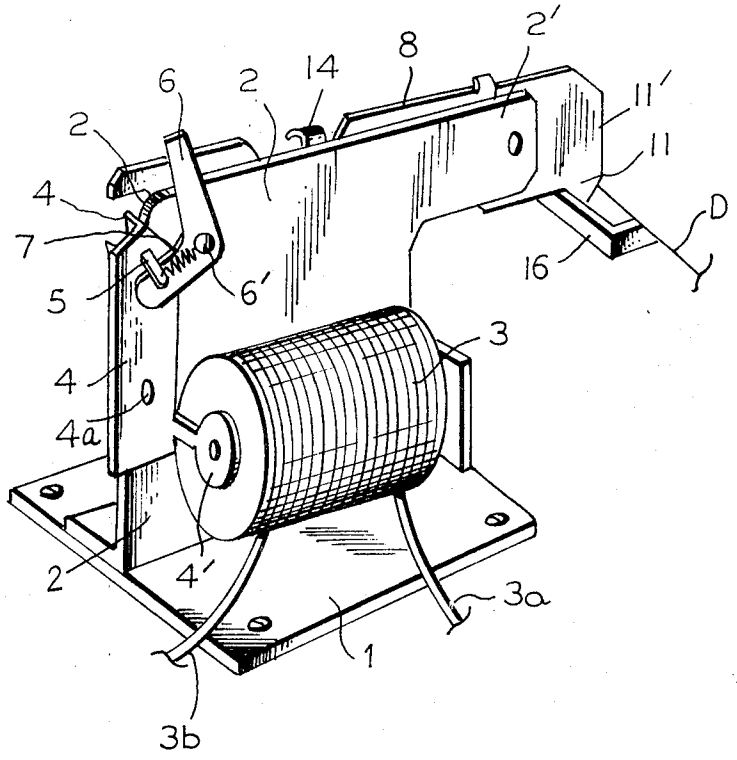
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[57] **ABSTRACT**

Electromagnetically actuated latch means for releasing a cash storage drawer from a housing on operation of a switch to control electric power to electromagnetic means.

1 Claim, 3 Drawing Figures



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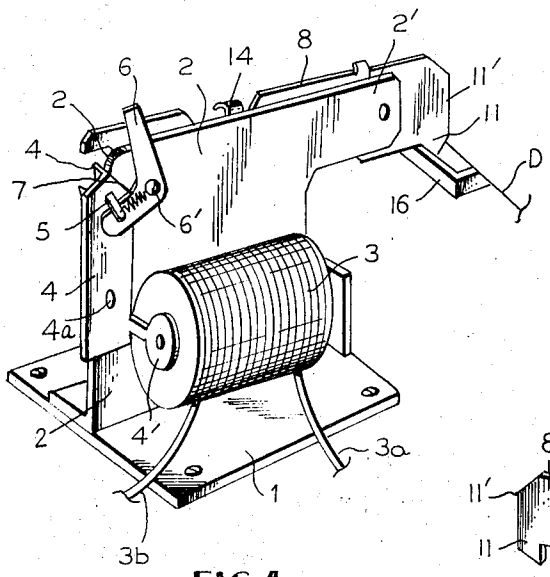


FIG.1

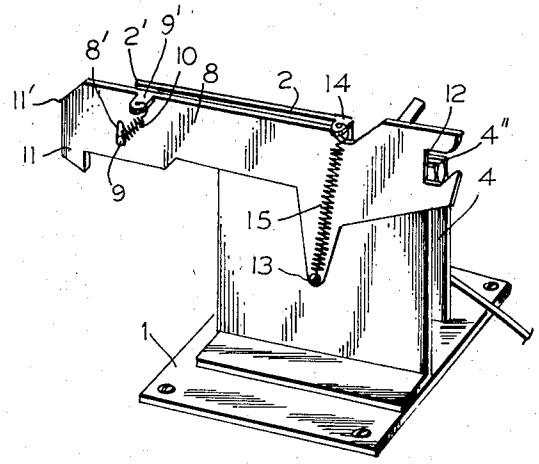


FIG.2

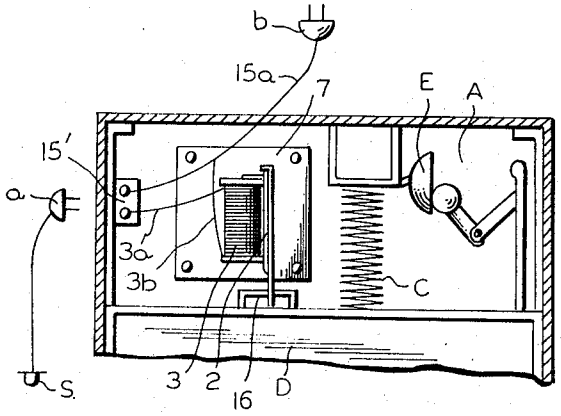


FIG.3

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CASH STORAGE DRAWER WITH ELECTRICALLY ACTUATED LATCH MEANS

DETAILED DESCRIPTION OF THE DEVICE

The present device relates to an improved housing for an electric cash-storage drawer in which a cash-storage box is opened or closed automatically by the operation of electromagnetic means which is provided in the housing and actuated by a switching button.

It is the object of the present invention to provide an improved electric cash drawer which provides safe storage and yet is easy to operate.

These objects are achieved by providing an electric cash drawer.

A preferred embodiment of the present device is illustrated in the accompanying drawing, wherein:

FIG. 1 is a fragmentary perspective view showing the essential parts of the electric cash drawer according to the invention;

FIG. 2 is a perspective view in the opposite direction to FIG. 1; and

FIG. 3 is a fragmentary plan view, partly in section, showing the interior structure of the housing for the electric cash drawer in accordance with the present invention.

As shown in the figures, the electric cash drawer comprises an electrically actuated latch means which has a plate member 1 and a frame member 2 standing upright at substantially the middle portion of said plate member and having an upper portion extending rearwardly to provide a rear projection 2'. Electromagnetic means 3 is mounted on one side of said frame member 2 and a latch member 4 is pivotally mounted on pivot 4*a* on said frame member 2 in such a manner that its side edge portion extends slightly outwardly over the vertical edge of said frame member 2, said latch lock 4 having a lower portion 4' extending outwardly away from frame member 2 so as to make contact with or be spaced away from said electromagnetic means 3. Said latch lock 4 also has an upper hook portion 4'' extending in the opposite direction from lower portion 4' engaged with a corner portion 2' of said frame member 2. Said latch lock 4 is also provided at the upper end thereof with a pin 5 extending in the opposite direction to said hooked portion 4''. An operating lever 6 is pivoted on said frame member 2 on a supporting pin 6' in such a position that it can contact said pin 5. A tension spring 7 extends between said pin 5 and said supporting pin 6' to normally bias said latch lock 4 clockwise in FIG. 1. An arm member 8 is riveted loosely at 9 to the other side of said frame member 2 through a vertically elongated oval slot 8' which is provided at said rear projection 2'. A spring 10 extends between said rivet 9 and a lug 9' which extends laterally from the upper edge of said arm member 8. The rear projection 2' of the arm member 2 is also provided at the lowest edge thereof with a downwardly extending hook portion 11 and further is provided with a bevelled outer upper corner 11'. The arm member 8 is provided at the opposite end from the hook portion 11 with a recessed portion 12 having a substantially C-shaped shape which is engaged with said hook portion 4'' on said latch lock 4. The arm member 8 also has at a suitable point thereon a downwardly extending projection which has a pin 13 at the lowest tip thereof. The frame member 2 has at its upper edge a stop 14 which extends laterally above said arm member 8, and a third spring 15 extends between said pin 13 and said stop 14. The plate member 1 is positioned in the closed end of a housing A, being fixed on the interior bottom surface of said housing A.

A connector 15' is connected electrically to conductive wires 3*a* and 3*b* at the opposite ends of the coil of said electromagnetic means 3, said connector 15' having a receptacle for a plug member *a* which has a two wire cord extending to a button or switch *s*. A two wire power cord 15a extends out of said housing and can be connected to an electric power source by a terminal plug member b.

The housing A has a spring C therein which has a suitable resilient force and is fixed to the rear wall of said housing A. A cash-storage drawer D, which is slidable in housing A, has a rear wall portion with a horizontally extending stop 16 which can be engaged by the hook portion 11 of said arm member 8 when said cash-storage drawer D is pushed all the way into said housing A. A signaling means such as a bell E can be provided in housing A to ring when the drawer starts to be withdrawn.

In operation, the terminal plug member b is connected electrically to a suitable source of electric power, and the first plug member *a* is connected to the connector 15'. It will be understood that the button or switch means s at the terminal of the plug member *a* is located at a suitable position in relation to the cash drawer D. It is also assumed that the drawer D is fully inserted into the housing A so that the horizontally extending stop 16 on the rear wall of the drawer D is in engagement with the hook portion 11 of the arm member 8, whereby the spring C is kept in a compressed condition by the drawer D. The recessed portion 12 of the arm member 8 is now in engagement with the upper hook portion 4'' of the latch lock 4. When the button or switch s, which is connected to the plug member *a* through the conductive wire, is depressed manually, the electromagnetic means is energized and the lower portion 4' of the latch lock 4 is brought into contact with the electromagnetic means 3, thus pivoting the latch lock 4, whereby the hooked portion 4'' is released from the foremost end of the frame 2 and is moved in a downwardly inclined direction. This engages the recessed portion 12 on arm member 8, and the hook portion 11 at the rearmost end of the arm member 8 moves upwardly out of engagement with stop 16, with the result that the drawer D is released. As soon as the drawer D, which has been locked by the engagement of the stop 16 with the hook portion 11 to thereby compress the spring C, is released, the drawer D is automatically forced forwardly by the spring C. Thus the drawer opens so that any cash therein is accessible.

On release of button *s*, electric current ceases to flow through electromagnetic means, so that the latch lock 4 is moved away from the electromagnetic means 3 by the spring 7 and is biased into its initial position where it is positioned vertically on the frame 2. Arm member 8 is also urged by the spring 15 to its horizontal position. Next, upon insertion of the drawer D into the housing A, the drawer D by the manual pushing force compresses the spring C. Then the stop 16 on the rear wall of the drawer D abuts the bevelled edge 11' of the

hooked portion **11** on the arm member **8** and urges the hooked portion **11** upwardly against the action of the spring **10** at the oval slot **8'**, whereby the arm member **8** is easily and smoothly brought into engagement at one end with the stop **16** and at the other end with the hook portion **4''** on the latch lock **4**.

In the present device, the above-mentioned operational cycle is repeated each time button s is depressed. The button or switch s connected to the plug member *a* can be placed out of sight of others and operated as the occasion arises by the operator's hand or foot so that the present device ensures safe and effective operation of the cash-storage drawer.

What is claimed is:

1. An electric cash drawer comprising a housing having a closed end, a cash storage drawer having a rear wall and slidable within said housing, a spring in the closed end of said housing engaged and compressed by the rear wall of said drawer when said drawer is pushed into said housing, and an electrically actuated latch means in the closed end of said housing comprising a plate member on the bottom of the closed end of said housing, a frame member standing upright at substantially the middle portion of said plate member and having an upper portion extending rearwardly to provide a rear projection, electromagnetic means mounted on one side of said frame member, a latch lock pivotally mounted on said one side of said frame member with a side edge portion extending slightly outwardly over the vertical edge of said frame member, said latch lock having a lower portion which extends outwardly from said frame member so as to make contact with or be spaced away from said electromagnetic means, said latch lock also having an upper hooked portion extending in the opposite direction from said lower portion and engaged with a corner portion of said frame member, said latch lock having a pin extending in the opposite direction from said hook portion, an operating lever pivoted on said frame member to make contact with said pin, a tension spring between said pin and said supporting pin for normally biasing said latch lock so said lower portion is spaced from said electromagnetic means, an arm member riveted loosely on the other side of said frame member, a further spring extending between said rivet and the upper edge of said arm member, said arm member also having a downwardly extending hook portion on one end thereof and a bevelled outer edge above said hook portion, said arm member further being provided at the other end thereof with a recessed portion having a substantially C-shaped configuration engaged with said hook portion on said latch lock, said arm member further having a downwardly extending projection having a pin at the lowest tip thereof, said frame member having a stop on its upper edge which extends laterally over said arm member, a third spring extending between said pin and said stop, supply means connected to and including switch means adapted to be positioned adjacent said housing for convenient operation by an operator, having a horizontally extending stop on the rear wall portion thereof which engages with the hook portion on said arm member when said cash-storage drawer is fully inserted in said housing.

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