Oct. 11, 1949. J. F. WEGELE 2,484,597

CASH DRAWER LOCK AND ALARM

Filed Nov. 28, 1947 2 Sheets-Sheet 1

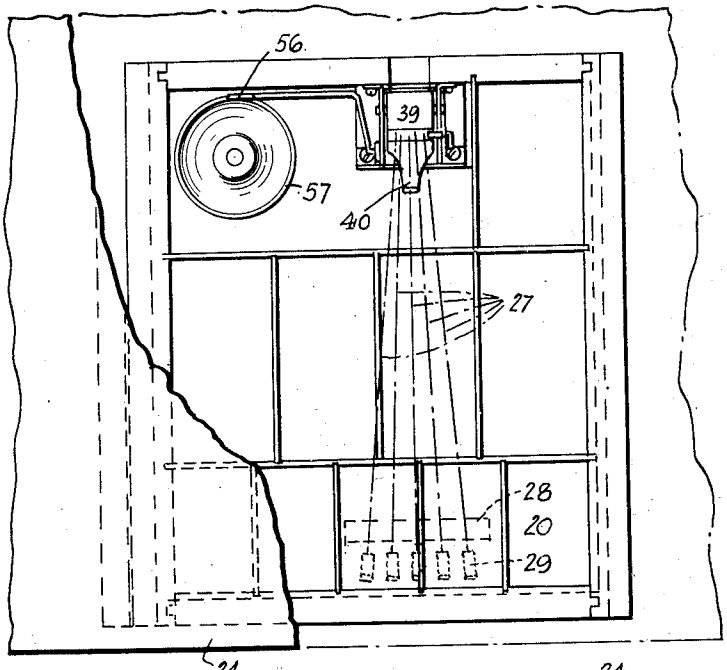


FIG. 1.

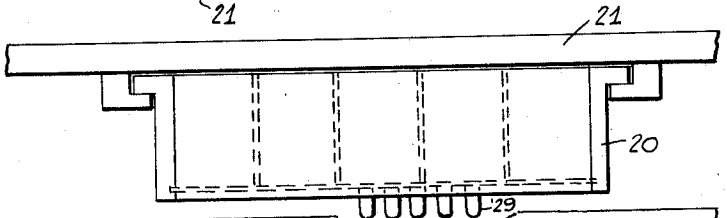


FIG. 2.

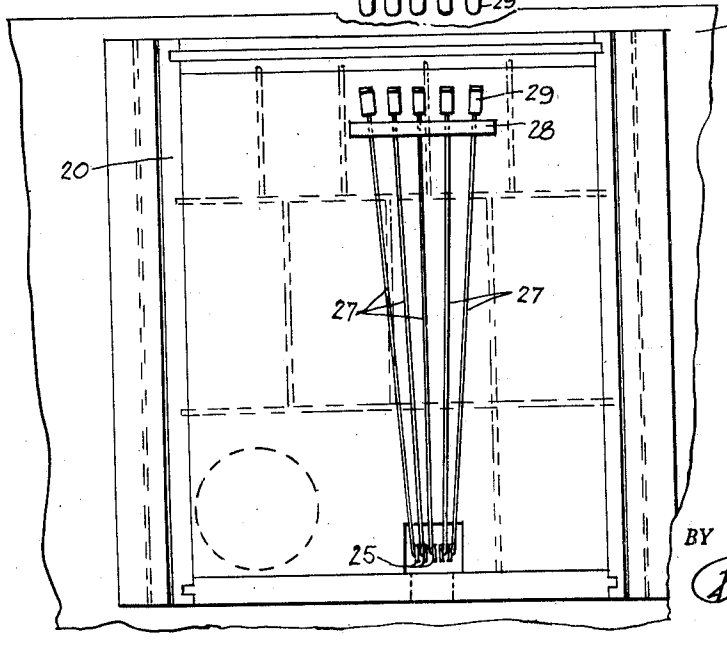


FIG. 3.

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CASH DRAWER LOCK AND ALARM

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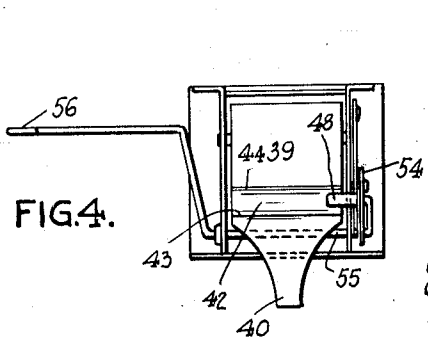


FIG.4.

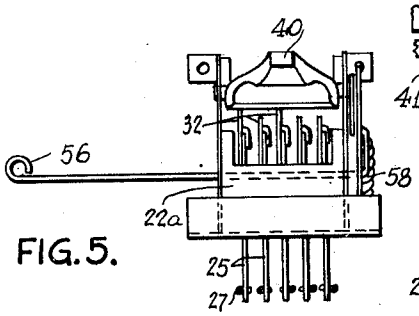


FIG.5.

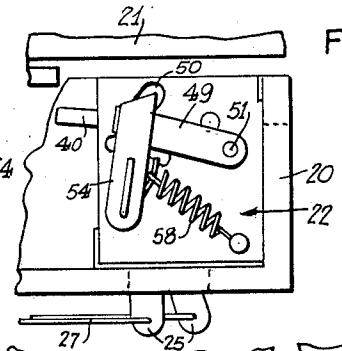


FIG.8.

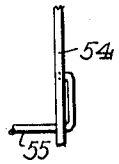


FIG.9.

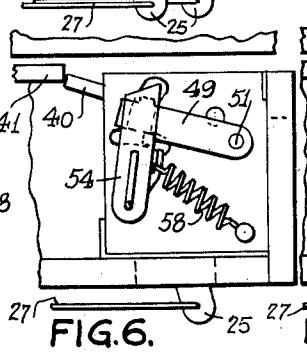


FIG.6.

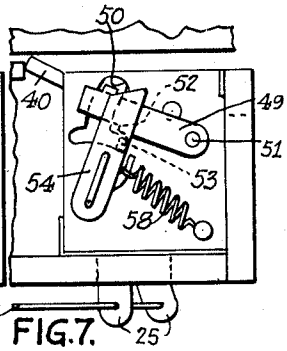


FIG.7.

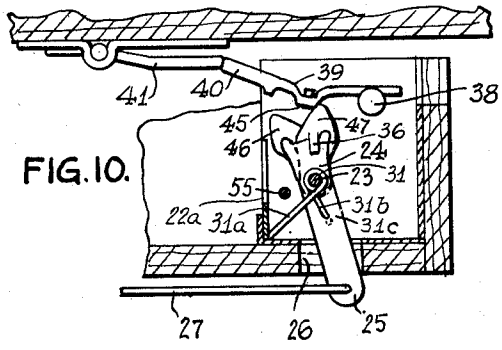


FIG.10.

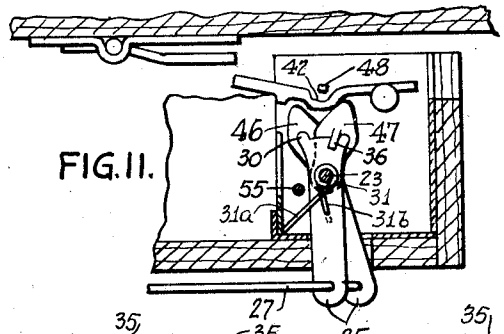


FIG.11.

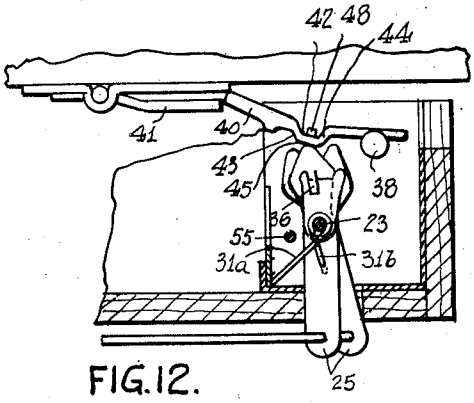


FIG.12.

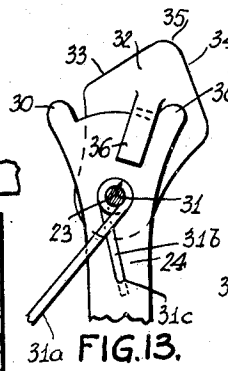


FIG.13.

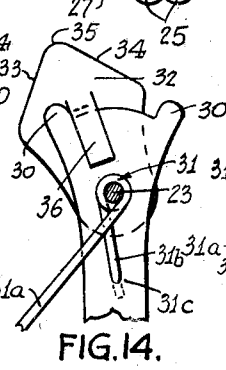


FIG.14.

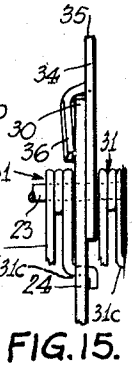


FIG.15.

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2,484,597

CASH DRAWER LOCK AND ALARM

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Application November 28, 1947, Serial No. 788,475

4 Claims. (Cl. 70—88)

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This invention relates to new and useful improvements in locks for cash drawers and has especial reference to those in which manual keys beneath the drawer are, in combination, operated to release the drawer, and in which an alarm is set off if the wrong keys are operated.

An object of the invention is to provide an extremely simple, rugged, economically manufactured device in which the parts are simple, strong, and will not easily get out of alinement ever after long use.

A further object is to provide a simple device in which the parts are reduced to a minimum for the sake of economy.

A still further object is to provide a simple compact device which can be easily made separately and economically and quickly installed in most any drawer.

Further and more specific objects, features, and advantages will more clearly appear from the detailed specification hereinafter set forth especially when taken in connection with the accompanying drawings which illustrate a present preferred form which the invention may assume and which form part of the specification.

In the briefest and most general terms, the invention involves a series of keys manually operable and connected to a series of cams disposed in a casing beneath a pivoted kick-plate. Some of the cams are adjusted so that the kick-plate rests thereon and others are adjusted so that they have to be advanced into engagement with the plate. An alarm mechanism is associated with the plate and is held inoperative as long as the plate is in a normal position in line with a stop member on the drawer support, but when any cam is advanced by the operator into contact with the plate the plate is lifted and the alarm mechanism is released to sound off. When the cams on which the plate rests are advanced they are thereby moved away from the plate and allow it to drop to get out of the way of the stop member whereby the drawer may be pulled out.

The present preferred form which the invention may assume is illustrated in the drawings, of which:

Fig. 1 is a plan view of the drawer and the lock, with a portion of the supporting shelf removed.

Fig. 2 is a front view of the drawer showing the operating combination keys.

Fig. 3 is an inverted plan view of the device.

Fig. 4 is a plan view of the lock casing.

Fig. 5 is a front elevation of said casing.

Fig. 6 is a right-side elevation of the casing

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showing the kick plate in normal operative position.

Fig. 7 is a similar view showing the kick plate in an abnormal but still operative position with the bell latch released.

Fig. 8 is a similar side elevation of the casing showing the kick plate dropped to inoperative position wherein the drawer can be pulled out.

Fig. 9 is a detail of the bell wire and latch plate.

Fig. 10 shows how the operating cams hold the kick plate in normal operative position.

Fig. 11 shows how the cams are moved to allow the plate to drop and release the drawer for opening.

Fig. 12 shows how the cam may move the plate to an abnormal but still operative position to sound the alarm bell.

Fig. 13 shows a cam in position on its lever to release the kick plate when operated.

Fig. 14 shows a cam in position on its lever to lift the kick plate to abnormal position when operated, and sound the alarm; and,

Fig. 15 is an end elevation of a lever with a cam clipped thereon.

Referring now merely to the specific form of the invention which has been presented in the drawings as an example of one embodiment of the invention, it will be seen that the invention is adaptable to a drawer or movable member **20**, which is slidable beneath a supporting shelf or counter **21**. On the bottom of the drawer at the back thereof is fastened a lock casing **22** between side walls of which is horizontally disposed a shaft **23** on which are individually pivoted a series of levers **24** the lower ends of which **25** extend down through an opening **26** in the bottom of the drawer. The lower end of each lever is connected to a draw-wire or connection **27** which extends forward through a perforated bar **28** fixed to the forward undersurface of the drawer and has on its end a finger pull or key **29**. In the form shown in the drawing there are five levers **24**, five wires **27** and five keys **29** which, as will be explained, afford thirty-two different combinations to be used in unlocking the drawer to one who knows the one which is set at any given time.

The levers **24** are normally held in the position shown in Fig. 10 by the tension springs **31**, the free legs **31***a* of which rest against the front wall **22***a*, while the other ends **31***b* of the said springs **31** are secured to the levers **24** as at **31***c*. The springs **31** are incidently utilized as spacers between the five levers **24**.

As shown in Figs. 13 to 15 each lever **24** has an upper curved surface with limiting end pro-

jections 30. Near the upper end of each lever 24, the cam element 32 is pivoted on the shaft 23, the cams 32 having sloping surfaces 33 and 34 diverging downwardly from a high point 35. A clip or spring finger 36 struck from the cam elements firmly grips the sides of the levers 24 to hold the cam element firmly in any set position as it may be swung along the top of the levers between the stops 30. The surface 33 of the cam may be called the front surface and the surface 34 the rear surface for purposes of differentiation. In Fig. 13 the cam is against the rear stop 30 for reasons to be explained.

In the operation of the keys by hand to release the drawer, these levers 24 and their associated cam elements are swung back and forth. They are swung back by the manipulation of the fingers 29 and forth by the return action of springs 37 connected to each lever at one end and to the casing 22 at the other in well known manners.

Disposed above the series of cam elements 32 and pivotally supported within the casing 22 on a horizontally axis 38 at its rear end is a kick-plate 39 the front end of which 40 is adapted in one position to encounter a striker or stop plate 41 supported from the underside of the shelf 21 just in front of the casing 22 whenever the drawer is pulled forward without working the proper key combination. This kick-plate may be provided with a downwardly disposed rib 42 affording front and rear sloping surfaces 43 and 44 and a relatively flat bottom surface 45 which are engaged by the respective cam elements depending upon the position assumed by said cams at one time or another. If any cam is disposed forwardly on its lever as shown at 46 in Fig. 11, then it is obvious that when its finger or key is operated, it will move rearwardly and pass beneath the bottom of the kick-plate and lift it to its uppermost position shown in Fig. 12. On the other hand if the cam element is disposed to the rear of its lever as shown in Fig. 11 at 47, it will hold the kick-plate in its normal operative position therein shown and a pull on the key associated with it will move it away from the plate and allow the plate to drop a little and thus clear the front end 40 away from the striker bar 41 whereby the drawer may be pulled forward. The position shown in Fig. 12 to which the kick-plate is moved is called the abnormal operative position because while it still is blocked by the bar 41 it is above the normal position shown in Fig. 10. This abnormal position when reached causes the ringing of an alarm bell as will now be explained.

Naturally the formation of the rib 42 by pressing the plate in an offset manner forms a corresponding depression on its upper face and in this depression a finger 48 laterally extending from a stop plate 49 normally lies when the plate 39 is in normal position. This finger extends through a slot 50 in the adjacent wall of the casing 22. The stop plate 49 is pivoted on a pin 51 in the wall of the casing. The stop plate 49 has an under cut shoulder 52 which, when the stop plate and its finger are down as shown in Fig. 6 and the finger is resting in the depression of the kick-plate 39, is engaged by a latch pin or stud 53 on the side of a latch bar 54. This bar is pivoted on an axis or wire 55 extending through between the walls of the casing and having on its outer end an intergral arm 56 which acts as a striker arm to engage an alarm bell 57 under conditions to be set forth. The other end

of the pivot wire 55 is bent around as shown in Fig. 9 to engage the side of latch arm or plate 54 and thus supports the arm and also acts as its pivot element. This of course simplifies and economizes the construction. A spring 58 is connected between the latch arm 54 and a fixed point on the casing 22 to bias the arm as shown.

It will be clear from the above description that we have a series of cam elements separately operable by manual means and separately settable with respect to their supports which are the levers 24. On the top of this series of cams a pivoted plate is adapted to rest. When a cam is disposed with its high point just beyond the point of contact with the plate, and then is moved in the operable direction it will move away from the plate and allow it to drop. The plate has a portion which is disposed normally in line with a stop member when the cam is disposed as just above mentioned. Therefore when the cam moves away from the plate this portion of it drops and allows the drawer to be opened.

When the cam is disposed on its lever with its high point disposed physically prior to the point of contact with the plate, then normal movement of the cam in the operative direction will advance the high point to lift the kick-plate from normal position to an abnormal position, while still in line with the stop member. A linkage is associated with the plate and with an alarm bell-clapper and is operated when the plate is moved upward from normal position so as to sound the alarm. A member of this linkage rests upon the plate so that the linkage is not operated when the plate drops away from normal since a latch member in the linkage holds it in set position until the plate is lifted above normal position.

In selecting a combination from the series of keys, certain ones are selected and the came related thereto are set to hold the plate in normal position as above mentioned. The cams on the others are disposed with their high points in the mentioned prior position. Therefore when the combination of keys are operated the plate will drop and release the drawer, but if any key not so selected is operated its cam will move forward and lift the plate and set off the alarm. When the plate is thus lifted the finger 48 is lifted since its rests on the plate 39 and this lifts the bar 49 removing the shoulder 52 from the pin 53 and allowing the spring 58 to pull the latch member 54 and operate the bell arm 56 or clapper to strike the bell 57.

Thus we have a series of cams associated with a plate disposed thereover, certain of said cams adapted to be set to support the plate in a normal position and to be moved away from it to allow it to drop, and other cams to be set to be moved forward and lift the plate above normal position to sound an alarm when said latter cams are operated.

While the invention has been described in detail and with respect to a present preferred form which it may assume, it is not to be limited to such details and form since many changes and modifications may be made in the invention without departing from the spirit and scope of the invention in its broadest aspects. Hence it is desired to cover any and all forms and modifications of the invention which may come within the language or scope of any one or more of the appended claims.

I claim:

1. In combination with a movable drawer and a support having a stop member fixed thereto,

a kick-plate on the drawer, cam means having a high point and with the high point disposed prior to the point of contact with the plate, manual means to move the cam and advance the high point into contact to lift the plate, an alarm mechanism, means to hold the alarm mechanism in inoperative condition when the plate is in normal position, and means to release the alarm mechanism when the plate is lifted by the said cam.

2. In a drawer lock mechanism, a kick-plate having a normal position, a stop plate having a finger resting on the kick-plate in normal position, an alarm mechanism, means on the stop plate to latch the alarm mechanism when the stop plate is in a normal position, said stop plate releasing the alarm mechanism when it is lifted by the raising of the kick-plate.

3. In a drawer lock mechanism, a pivoted lever having an upper edge, end stops at opposite ends of said edge, a cam plate pivoted to said lever, a spring clip on said cam plate firmly gripping said lever, said cam plate adapted to be adjusted between said stop members, said clip holding the cam plate in any adjusted position.

4. In a drawer lock, a pivoted cam member having a high point, a lever on which said cam

plate is adjustable, a kick-plate adapted to be held in a normal operative position by the cam as it rests thereon when the high point is beyond the point of contact, said cam adjustable on the lever to set the high point prior to the point of contact, means to swing the cam in a given direction to bring the high point under the plate and lift it to an abnormal operative position, a finger resting on said kick-plate, a stop plate connected to said finger and having a shoulder, a rock arm having a pin and adapted to be held by a spring in position with the pin against the shoulder, an alarm element connected to said rock arm, said shoulder being lifted away from the pin when the kick-plate is lifted by the cam whereby the alarm mechanism is moved by the spring to sound an alarm.

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REFERENCES CITED

The following references are of record in the file of this patent:

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