

Aug. 26, 1930.

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1,774,442

ELECTRICALLY OPERATED DRAWER

Filed April 30, 1928

3 Sheets-Sheet 1

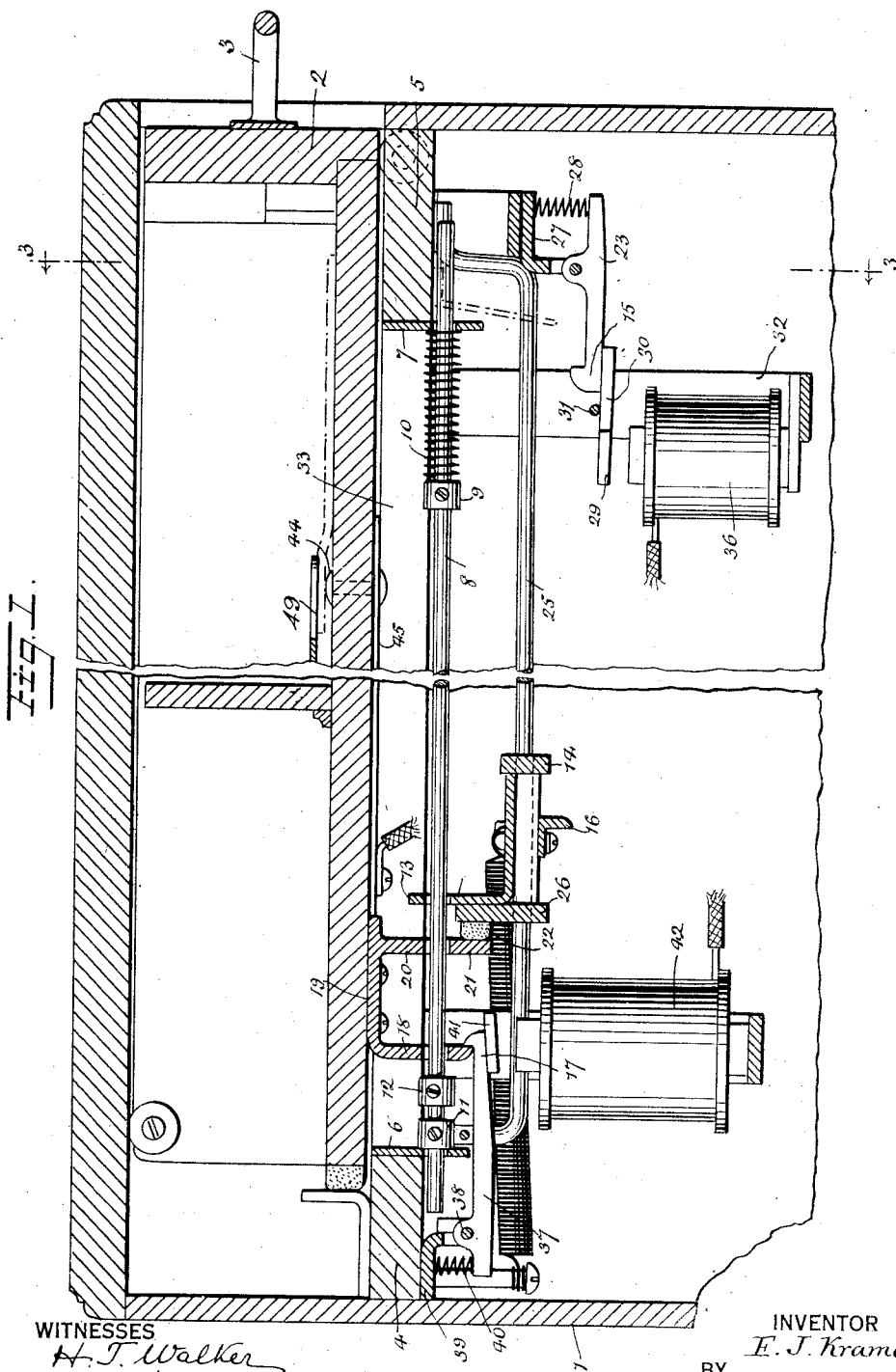


Fig. 1.

WITNESSES

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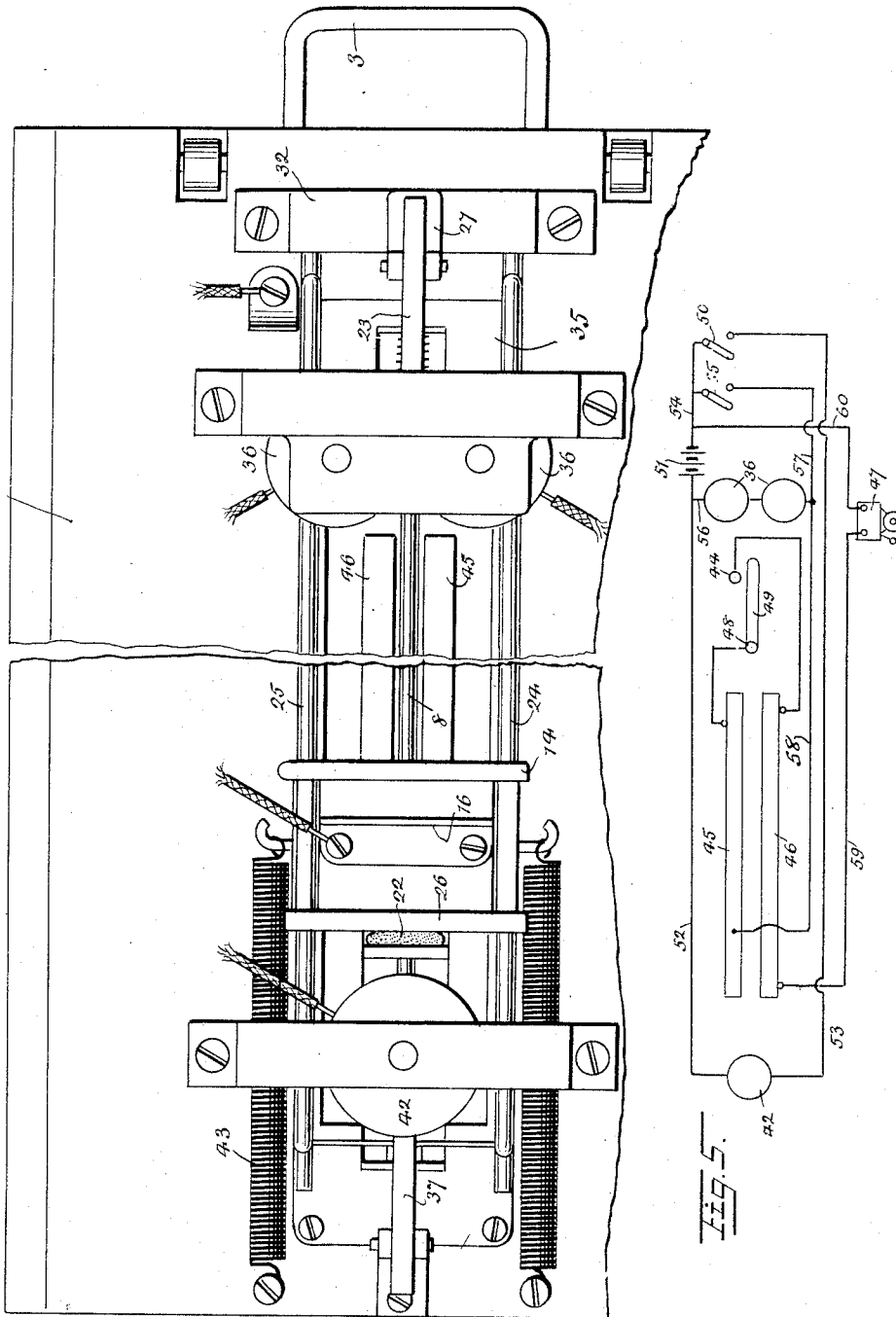
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3 Sheets-Sheet 2

Fig. 2.



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Fig. 3.

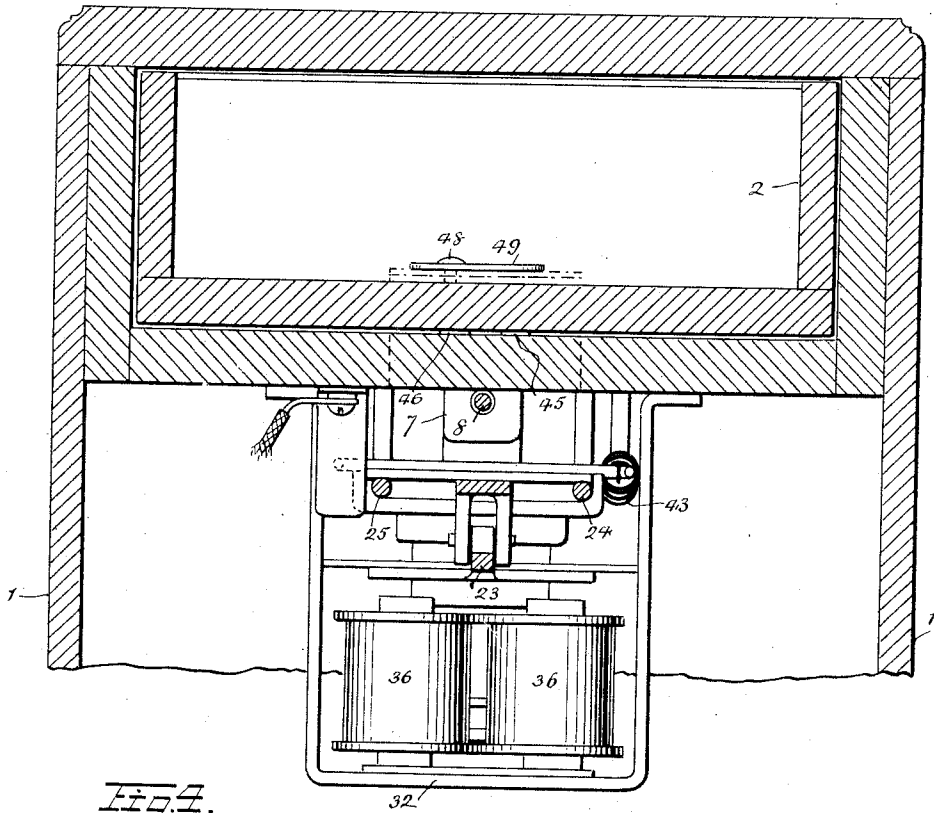
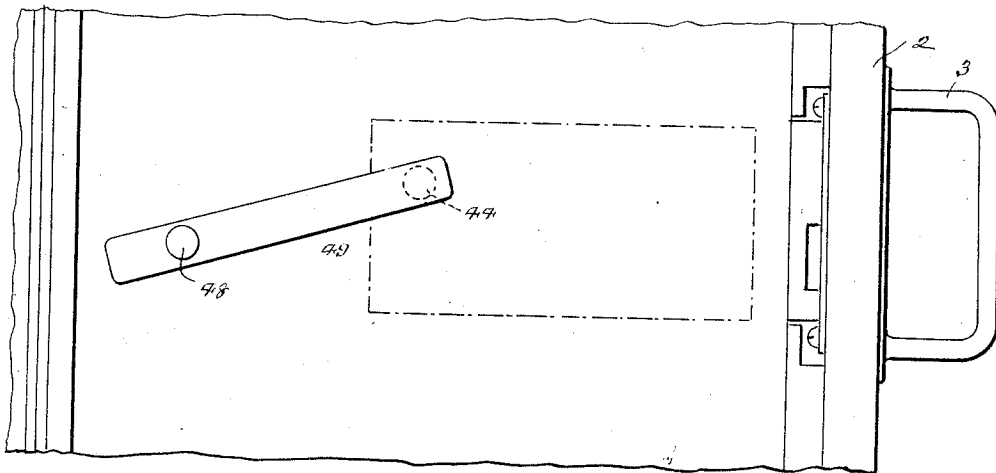


Fig. 4.



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ELECTRICALLY OPERATED DRAWER

Application filed April 30, 1928. Serial No. 274,105.

This invention relates to an electrically operated drawer for use in banks or financial institutions of any kind, and has for an object to provide a construction wherein substantially an ordinary drawer is presented and associated with means for locking the drawer both in an open and closed position with connections for actuating the locking means so as to move the same to an unlocked position.

Another object of the invention is to provide a drawer adapted to be closed by a spring or other means, and also to provide locking means capable of being moved by electro-magnets to open positions, the electro-magnets being actuated from a distant point.

A further object, more specifically, is to provide a drawer wherein a switch is arranged at the bottom of the drawer normally held open by some of the money or other papers in the drawer, the switch being associated with an alarm mechanism whereby when all the papers have been withdrawn from the drawer the switch will close the circuit of the alarm mechanism.

In the accompanying drawings,—

Figure 1 is a longitudinal vertical sectional view through a drawer and associated parts disclosing an embodiment of the invention; Figure 2 is a bottom plan view of the drawer operating mechanism shown in Figure 1, part of the drawer being shown in connection therewith;

Figure 3 is a transverse sectional view through Figure 1 approximately on the line 3—3;

Figure 4 is a fragmentary top plan view of the front part of the drawer shown in Figure 1, the same illustrating the switch embodying certain features of the invention;

Figure 5 is a diagram of the wiring for the magnet and associated parts shown in Figures 1 to 3.

Referring to the accompanying drawings by numerals, 1 indicates a casing or cabinet of any kind, and 2 a drawer. This drawer may be of any desired kind operated by a suitable pull 3. The cabinet or casing 1 may be of any desired type so as to support the drawer in proper manner. The supporting means for the drawer includes a rear supporting bar 4 and a front supporting bar 5. Brackets 6 and 7 are secured in any desired manner to the supporting bars 4 and 5, said brackets having apertures for accommodating the sliding rod 8. This rod is provided with an adjustable stop 9 for confining the spring 10 which surrounds the rod at one point and bears against abutment 9 and against bracket 7 for resiliently and normally holding the rod 8 in the position shown in Figure 1 with the adjustable stop 11 pressing against bracket 6. An adjustable stop 12 is also secured to the rod 8 and spaced a short distance from stop 11. When the drawer 2 has been pulled to an open position in the usual manner, the guiding bracket 13 carried by the carriage 14 will move along the rod 8 and engage stop 9. When the drawer 2 is fully opened, bracket 13 will move stop 9 against the action of spring 10 until the hook 15 moves over and interlocks with the stop 16 whereby carriage 14 and associated parts are held at a point near the front of the cabinet. This movement of the stop 9 and rod 8 causes the front face of stop 12 to be nearer the front of the cabinet than the hook 17 whereby drawer 2 may be closed but not locked in a closed position as the stop 12 engages the guiding bracket 18 carried by the drawer 2. The bracket 18 is provided with a base 19 rigidly secured to the bottom of drawer 2, and said base is provided with an integral extension 20 having an aperture for accommodating rod 8 and an abutment portion 21 against which the resilient bumper 22 strikes when the catch 23 including hook 15 is released. The carriage 14 may be built up of many pieces or formed of one solid piece, but must be provided with openings or passageways for receiving guiding bars 24 and 25 and with a plate 26 for carrying the bumper 22. The bracket 13 and also the abutment or catch bracket 16 are secured to the carriage 14 by screws or other means. Near the front of the cabinet is arranged a bracket 27 on which is pivotally mounted the catch 23, which catch is held in a given position by the spring 28. An armature 29 is connected to the catch

23 by a suitable arm 30, and this arm normally rests on the pin 31. A substantially U-shaped frame 32 is secured in any desired manner to the respective supporting sections 33 and 34 of members 4 and 5. All these members, viz., members 4, 5, 33 and 34 may be of one piece of material or separate pieces connected together to provide a support on which drawer 2 may slide. In any event an opening 35 must be provided through which the bracket 18 and other parts may extend. The frame 32 supports in any desired manner a pair of electro-magnets 36 which, when energized, attracts armature 29 and therefore swings catch 23 against the action of spring 28 for releasing hook 15 in case the same is interlocked with the lug or abutment 16. Adjacent the rear of the cabinet there is provided a catch 37 having a hook 17, said catch being pivotally mounted at 38 on a suitable bracket 39 and urged in a given position by a spring 40. An armature 41 is rigidly secured to the catch 37 near hook 17, said armature being adapted to be attracted by the electro-magnet 42 when said magnet has been energized. This magnet is sufficiently strong to overcome the action of spring 40, so that when this magnet is energized hook 17 is pulled away from the bracket or abutment 18, thus releasing the drawer 2 whereby it may be pulled manually to an open position. In usual operation of the drawer, the same is pulled open to such an extent as to cause the lug or abutment 16 to interlock with hook 15. After this has been done the drawer may be closed, but it will not be locked closed, as the adjustable stop 12 will prevent the bracket 18 from moving sufficiently rearwardly to interlock with hook 17. At any time the magnets 36 may be energized and when this occurs hook 15 will be moved to an unlocked position whereby stop or abutment 16 will be disengaged and carriage 14 released. This occurs regardless of whether the drawer is open completely, partially open or closed. If the drawer is closed and the carriage 14 released from hook 15 as just described, said carriage will quickly move under the action of the respective springs 43 toward the rear of the cabinet and will cause bumper 22 to strike abutment 21 and force this abutment and bracket 18 and associated parts further to the rear. This movement is sufficient to cause the bracket 18 to pass hook 17, whereupon this hook will interlock with bracket 18 and thereby the drawer will become locked. As soon as the carriage 14 has been released from hook 15 bracket 13 will naturally move away from the stop 9, whereupon spring 10 will move rod 8 toward the rear, so that the adjustable stop 12 will be out of the way when bracket 18 reaches the rear. Preferably both sets of the magnetic members 36 and 42 are operated from a distance, particularly in banks and other financial institutions, thus permitting someone at a distance to shut the drawer and lock the same in case of highwaymen attempting to hold up the teller. Also, by this arrangement the teller cannot open the drawer at any time without the action of the cashier or other party at a distance. In addition to this means for closing and locking the drawer, means have been provided for causing an alarm to be sounded when all of the bills or other papers have been removed from drawer 2. As indicated in Figures 1, 3 and 4 there is provided a contact pin 44 which extends through the bottom of the drawer 2, as shown in Figure 1, so that the lower end may be electrically connected with the conductor 45. A second conductor 46 is arranged parallel with the conductor 45 and extends to a point near the plate 19. Suitable wires are connected to the conductors 45 and 46 near plate 19 and thence extend to a source of current and to an alarm, as for instance, bell 47. Contact pin 48 also extends through the bottom of drawer 2, said contact acting as a clamping bolt for the contact blade 49 and also as a conductor for electrically connecting blade 49 with the conductor 46. Blade 49 is of resilient metal and has a tendency to press against the contact 44 so as to close the circuit at this point, the remaining part of the circuit being permanently closed. When the drawer is in use a piece of paper is inserted between contact 44 and blade 49 so as to open the circuit. This paper may be money, valuable documents or in fact any piece of paper, though usually it is a bank note or other piece of money. In case a burglar or highwayman should attempt to rifle the drawer he would naturally grasp all the money in the drawer and remove the same. This would cause the bill between blade 49 and contact 44 to be pulled out of position, and consequently blade 49 would immediately engage contact 44 and bell 47 would be operated, thus giving the desired alarm and at the same time releasing catch 23. A diagram is shown in Figure 5 illustrating the circuit of the electro-magnetic members 36 and 42 and also the circuit of the blade 49 and contact 44. From this circuit it will be seen that the electro-magnet 42 may be energized when the switch 50 is closed, said switch being preferably at a distance from the drawer 2. When this switch is closed current will pass from the battery or other source of current 51 onto wire 52 and thence through the windings of magnet 42 and return wire 53 to switch 50 and through switch 50 to wire 54 which is connected to the opposite side of the source of current 51. When it is desired to energize the magnets 36 switch 55 is closed and current will pass to wire 52, wire 56, windings of magnets 36, wire 57, switch 55 and wire 54

back to the battery 51. When the blade 49 is engaging contact 44 current will pass from battery 51 to wire 52 and thence to wire 56, magnet 36, conductor 58, conductor 45, contact pin 48, blade 49, contact 44, conductor 46 and wire 59 to the bell mechanism 47 and thence through wire 60 back to wire 54 and from this wire back to battery 51. As the current flows in this circuit the magnets 36 release catch 23 at the same time as bell 47 rings whereby springs 43 will quickly close the drawer. When an authorized person desires to remove all the contents from drawer 2 he merely swings the blade 49 to one side as illustrated in Figure 5, thus opening the circuit.

What I claim is:—

1. An electrically operated drawer, comprising a drawer member having a pair of depending brackets, means for slidably mounting said drawer so that it may slide in and out, means for normally holding the drawer member closed, said means including a reciprocating carriage formed with a member adapted to strike one of said brackets for closing said drawer when the carriage is moved in one direction, a spring acting to move the carriage for closing said drawer member, and a spring pressed hook coacting with one of said brackets, an electrically operated member for causing said hook to be moved to a non-functional position, and means near the front of the drawer for holding said carriage against functioning while allowing the drawer to be moved in and out freely.

2. In an electrically operated drawer, a drawer member, a bracket extending from said drawer member, a carriage, means for slidably supporting the carriage, said carriage having a bracket extending into the path of movement of the first-mentioned bracket, a spring-actuated catch near the front of the drawer for engaging and locking the carriage in one position, springs connected to the carriage for moving the carriage to a second position, said springs causing said carriage to strike the first-mentioned bracket for moving the drawer structure to a closed position, an electro-magnetic member for moving said catch to an open position for releasing said carriage, a spring-pressed catch for engaging the first-mentioned bracket against movement in one direction, and electrically operated means for moving said catch to an open position.

3. A device of the character described, comprising a drawer member, a cabinet for the drawer member, said drawer member being adapted to be pulled to an open position manually, a bracket secured to said drawer member provided with an abutment, a sliding carriage independent of said abutment moved by the abutment to a position near the front of the cabinet when the drawer is fully

opened, a catch near the front of the cabinet positioned to interlock with part of the carriage for holding the carriage near the front of the cabinet, springs connected with said carriage positioned to pull the carriage back to the starting point when said catch has been released, a magnetically-operated means for releasing said catch whereby said springs will move said carriage back to the starting point and said carriage will engage said abutment and move the abutment and drawer back to their starting point whereby the drawer is closed, means positioned to interlock with said bracket for locking said drawer closed, and magnetically-operated means for releasing the last-mentioned means.

4. A device of the character described, comprising a cabinet, a drawer positioned in said cabinet adapted to be moved inwardly and outwardly, a member connected with the bottom of said drawer provided with a bracket and an abutment, a sliding carriage normally pressing against said abutment, a spring acting to normally hold said carriage against said abutment whereby when said drawer is pulled to a fully opened position, said carriage will be moved to a position near the front of the cabinet, a catch positioned to interlock with part of the carriage when the drawer is moved to a fully opened position, whereby the carriage is prevented from moving the drawer to a closed position, said drawer being capable of being manually closed, a hook for normally locking the drawer closed, means actuated by said abutment for preventing the locking of the drawer closed when the carriage is held by said catch and an electrically-operated member for releasing said catch, and means including a source of current and a switch at a distant point for causing said electrically-operated member to function.

5. In an electrically closed drawer, a drawer structure, spring means for closing the drawer structure, means for normally holding the drawer structure open, electrically-operated means for releasing said holding means, a lock for locking the drawer closed, a switch arranged in the drawer and adapted to be normally maintained open by some of the papers in the drawer, and a circuit for said switch, said circuit including a source of current and said electrically-operated means.

Signed at Minersville, in the county of Schuylkill, and State of Pennsylvania this 23rd day of April, A. D. one thousand nine hundred and twenty eight.

FRANK J. KRAMER.