April 18, 1961 J. F. STIDHAM 2,980,223

OBJECT DEPOSITORY MONITOR

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Fig. 2

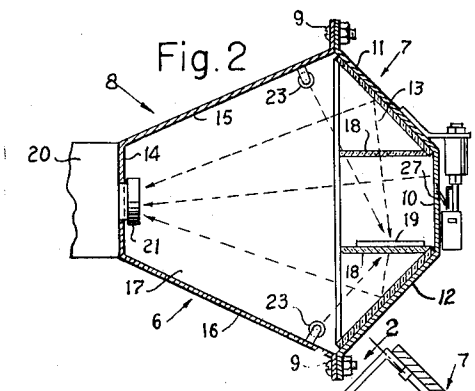


Fig. 1

James Frank Stidham
INVENTOR.

BY Cecil L. Wood

ATTORNEY

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Fig. 3

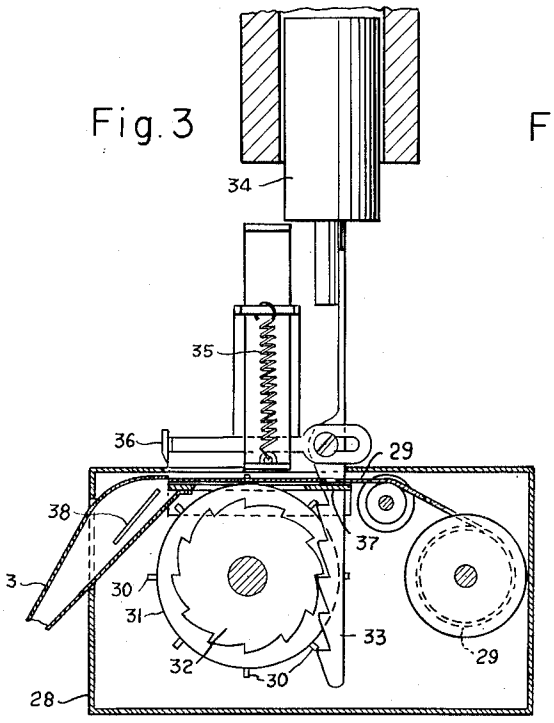
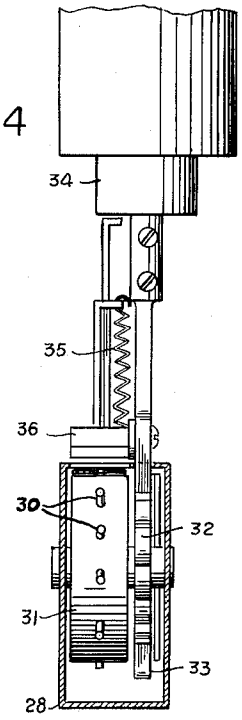


Fig. 4



James Frank Stidham
INVENTOR.

BY Cecil L. Wood

ATTORNEY

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Fig. 5

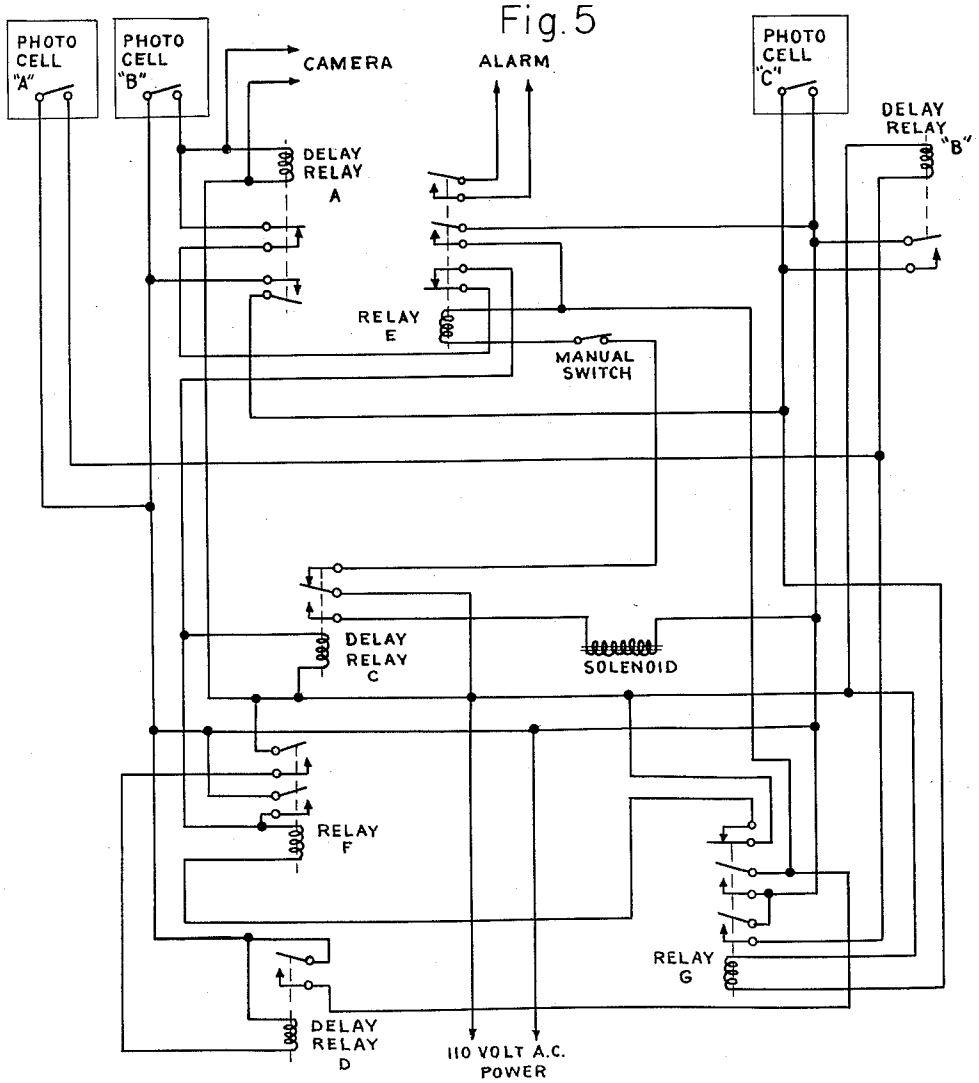
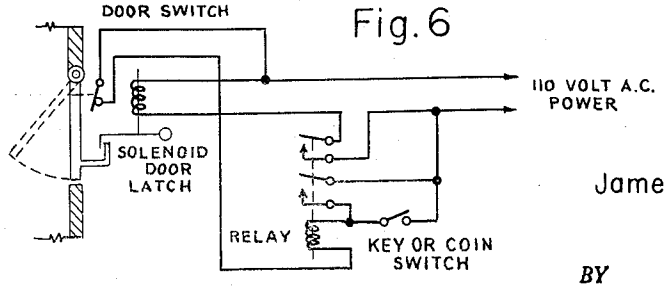


Fig. 6



James Frank Stidham
INVENTOR.

BY Cecil L. Wood

ATTORNEY

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OBJECT DEPOSITORY MONITOR

James Frank Stidham, 820 Sargent St., Fort Worth, Tex.

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4 Claims. (Cl. 194—4)

This invention relates to a night depository monitor, and it concerns more particularly, in apparatus intended for the use of banks and the like in receiving night deposits, and for similar purposes, automatic means for recording each deposit and issuing a receipt therefor.

The principal object of the invention is to provide, in combination with a receiving chute for use in receiving night deposits and the like, automatic means for photographing each parcel as it is deposited in the chute, together with the time and date of the deposit, and at the same time issuing a receipt for the deposit and photographing the receipt.

Another object of the invention is to provide, in apparatus of the type described, means for rendering the receipt issuing mechanism inoperative, and at the same time operating an alarm signal, upon moving an object along the chute in reverse direction, as in withdrawing it from the chute.

Another object of the invention is to provide, in apparatus of the type described, means for operating an alarm signal in response to the presence in the chute of an unmoving or stuck object forming an obstruction therein.

The invention will be readily understood by referring to the following description and the accompanying drawing, in which:

Figure 1 is a sectional elevational view, taken on a median line, of a receiving chute having applied thereto apparatus embodying the invention;

Figure 2 is a sectional view taken on the lines 2—2 of Figure 1;

Figure 3 is a sectional view, on an enlarged scale, of the receipt issuing apparatus;

Figure 4 is a sectional view taken at right angles to the view shown in Figure 3;

Figure 5 is an electrical diagram of the recording and receipt issuing apparatus; and

Figure 6 is an electrical diagram of means for releasably latching an access door positioned at the inlet end of the chute.

Referring to the drawing, the numeral 1 designates an outside wall of a building. The wall 1 has openings therein for a receiving chute 2, for use in receiving night deposits and the like, and a receipt discharge chute 3 for the discharge of receipts for each deposit as issued. An access door 4, the operation of which is controlled as hereinafter described, is pivotally connected to the wall 1, adjacent the inlet end of the chute 2, whereby it may be swung open. A receptacle 5 is placed below the discharge end of the chute 2, in position to receive parcels as deposited in the chute 2.

A housing 6 is positioned intermediate the ends of the chute 2. The housing 6 is formed in two sections, numbered 7 and 8, which are removably connected to each other by bolts 9.

The section 7 is formed integrally with the chute 2, and has an intermediate wall portion 10, which is coextensive with one of the side walls of the chute 2, an

upwardly inclined wall portion 11, a downwardly inclined wall portion 12, and a pair of end walls 13. Each of the inclined wall portions 11 and 12 is a continuation of the intermediate wall portion 10. Each of the end walls 13 is connected to the top and bottom of the chute 2 and extends above and below it.

The section 8 has an intermediate wall portion 14, which is positioned opposite the intermediate wall portion 10, upwardly and downwardly inclined wall portions 15 and 16 which are positioned opposite the inclined wall portions 11 and 12, respectively, and a pair of end walls 17.

A pair of transparent plates 18 are positioned in the section 7 in alignment with the top and bottom, respectively, of the chute 2. As shown in Figure 2, a parcel 19 is supported from movement along the lowermost plate 18.

A camera 20 has its lens 21 positioned in the intermediate wall portion 14 of the section 8. A pair of mirrors 22, which are attached to the inner surfaces of the inclined wall portions 11 and 12 of the section 7, are adapted to present reflected images of the top and bottom surfaces of the parcel 19 to the lens 21. A pair of lamps 23 are attached to the inclined wall portions 15 and 16 of the section 8 for illuminating the top and bottom surfaces of the parcel 19.

As shown in Figure 1, a clock 24 and a calendar 25 are positioned in the intermediate wall portion 10 of the section 7, opposite the lens 21 of the camera 20.

A receipt issuing device as hereinafter described, capable of dispensing receipts identifying each deposit by number or other indicia, is mounted on the outer surface of the section 7 adjacent the intermediate wall portion 10. A slot 26 is formed in the intermediate wall portion 10 opposite a receipt in position to be dispensed, and an inclined mirror 27 is attached at its upper edge to the intermediate wall portion 10, above the slot 26, and extends outwardly and downwardly therefrom. The mirror 27 is adapted to present a reflected image of the receipt to the lens 21 of the camera 20.

As shown in Figures 3 and 4, the receipt dispensing device includes a housing 28 having a roll of printed and numbered receipts 29 rotatably mounted therein. The rolled receipts 29 have holes punched therein at spaced intervals for engagement, respectively, by a plurality of radially extending, circumferentially spaced spokes 30 attached to the periphery of a feed roll 31. The feed roll 31 is attached to and turns with a ratchet wheel 32, which is acted upon by a rack bar 33. The rack bar 33 is mounted for reciprocating movement relative to the ratchet wheel 32, and is movable in an upward direction upon energizing a solenoid 34 which is operatively connected thereto. The rack bar 33 is acted upon by a tension spring 35 whereby it is urged downwardly upon deenergizing the solenoid 34. A knife 36 is adjustably mounted on the rack bar 33, and co-acts with a plate 37, which supports the receipts to be dispensed above the feed roll 31, to clip a receipt 38 from the roll upon the downward stroke of the rack bar 33. The receipt 38 is discharged through the discharge chute 3. The arrangement is such that the receipt 38 is first photographed, then advanced beyond the knife 36, and thereafter cut off and discharged through the chute 3.

The operation of the apparatus above described is controlled by photoelectric cells A, B and C, each of which is capable of being actuated upon interrupting a beam of light traversing the chute 2. The photoelectric cell A is positioned between the wall 1 and the housing 6, and preferably is of a type in which the light beam is capable of being interrupted by an object positioned at any point in the chute 2 above the housing 6. The photoelectric cell B is positioned adjacent the upper end

of the housing 6, and the photoelectric cell C is positioned adjacent the lower end of the housing 6.

Referring to the electrical diagram shown in Figure 5, the operation of the apparatus is as follows:

Upon actuation of photoelectric cell B, by movement of a parcel along the chute 2, the camera is operated whereby a photograph is made of the parcel, together with the date, time and receipt. At the same time photoelectric cell C is set to operate when actuated. Upon actuating photoelectric cell C, by movement of the parcel along the chute 2, the solenoid is first energized and thereafter de-energized, whereby the receipt is issued, as above described.

If photoelectric cell C is actuated before photoelectric cell B, an alarm signal device will be operated. The alarm signal is locked in by relay E, and must be cut off manually.

Photoelectric cell B, when actuated, operates the camera as above described, and also actuates delayed action relay C, which switches the current from photoelectric cell C from the alarm circuit to the solenoid which operates the receipt mechanism.

Photoelectric cell A, operating through delayed action relay B, is capable of operating the alarm signal device when an obstruction occurs in the mouth of the chute 2, and persists for a predetermined time interval. The alarm signal is locked in by relay E, and must be cut off manually.

If a parcel stops in front of photoelectric cell B, delayed action relay A is actuated, which after a predetermined time interval actuates relay E to operate the alarm signal.

If a parcel stops in front of photoelectric cell C, delayed action relay B is actuated, which after a predetermined time interval actuates relay E to operate the alarm signal.

Upon actuation of photoelectric cell B, by movement of a parcel along the chute 2, delayed action relay F is actuated, and unless photoelectric cell C is actuated also, within a predetermined time interval, relay G is actuated, which in turn actuates relay E to operate the alarm signal.

Referring to the electrical diagram shown in Figure 6, the access door 4 is capable of being unlatched by operation of a solenoid. The solenoid is energized upon closing a circuit which includes a relay and a switch operable either by a key or by a coin inserted in a slot. One of the contacts of the relay is connected in the circuit which includes the coil thereof, so that the relay remains energized until the access door 4 is opened. The circuit is broken by a switch operable upon opening the door 4.

The circuits shown in Figures 5 and 6 preferably are connected to the same power source, to insure that the apparatus of Figure 5 is operating when the access door 4 is opened.

The invention may be modified in various ways without departing from the spirit and scope thereof.

What is claimed is:

1. An object depository monitor, or the like, comprising a chute having a transparent section intermediate its ends, a housing arranged on said transparent section, a pair of angularly disposed mirrors in said housing arranged on opposing sides of said transparent section capable of reflecting an image of each side of an object traversing said chute, a camera in said housing focused on said mirrors to photograph the said images, a receipt dispensing mechanism on said chute opposite said camera, having an angularly disposed mirror thereon reflecting an image of a receipt dispensed by said mechanism to be photographed by said camera, a dispensing chute for said receipt dispensing mechanism, and electronic means in said object chute actuated by an object traversing the same for operating said receipt dispensing mechanism and said camera.

2. The structure of claim 1, and means responsive to the movement of an object along the object chute in a reverse direction, as in withdrawing an object from the chute, for operating an alarm signal.

3. The structure of claim 1, and means responsive to the presence in the object chute of an unmoving or stuck object, forming an obstruction therein, for operating an alarm signal.

4. The structure of claim 1, and a calender and a clock in the transparent section of said chute, within the focus of said camera, adapted to show the date and time of a deposit to be photographed by said camera.

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