

Feb. 13, 1962

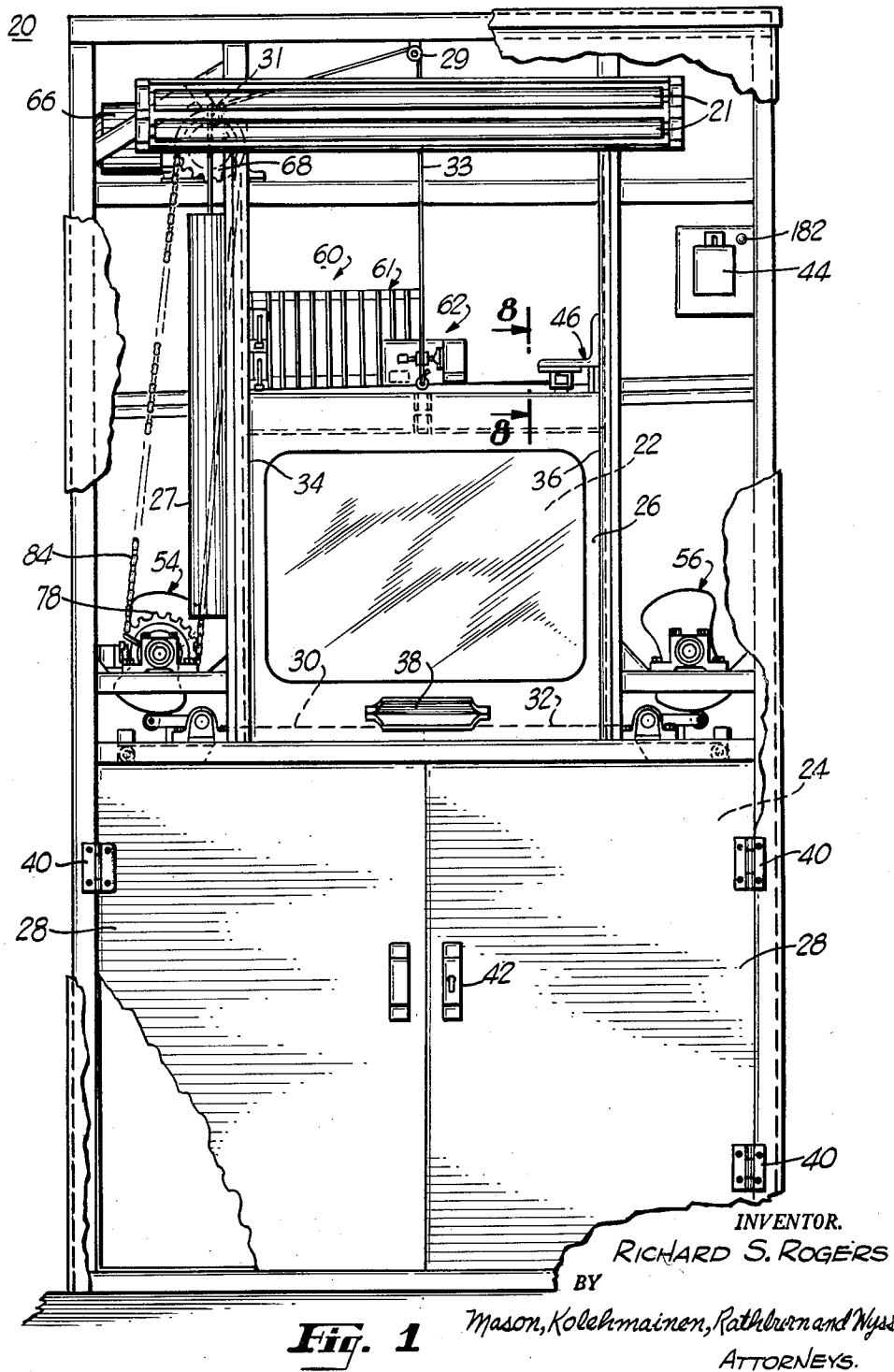
R. S. ROGERS

3,021,050

AUTOMATIC DEPOSITORY

Filed Sept. 4, 1959

6 Sheets-Sheet 1



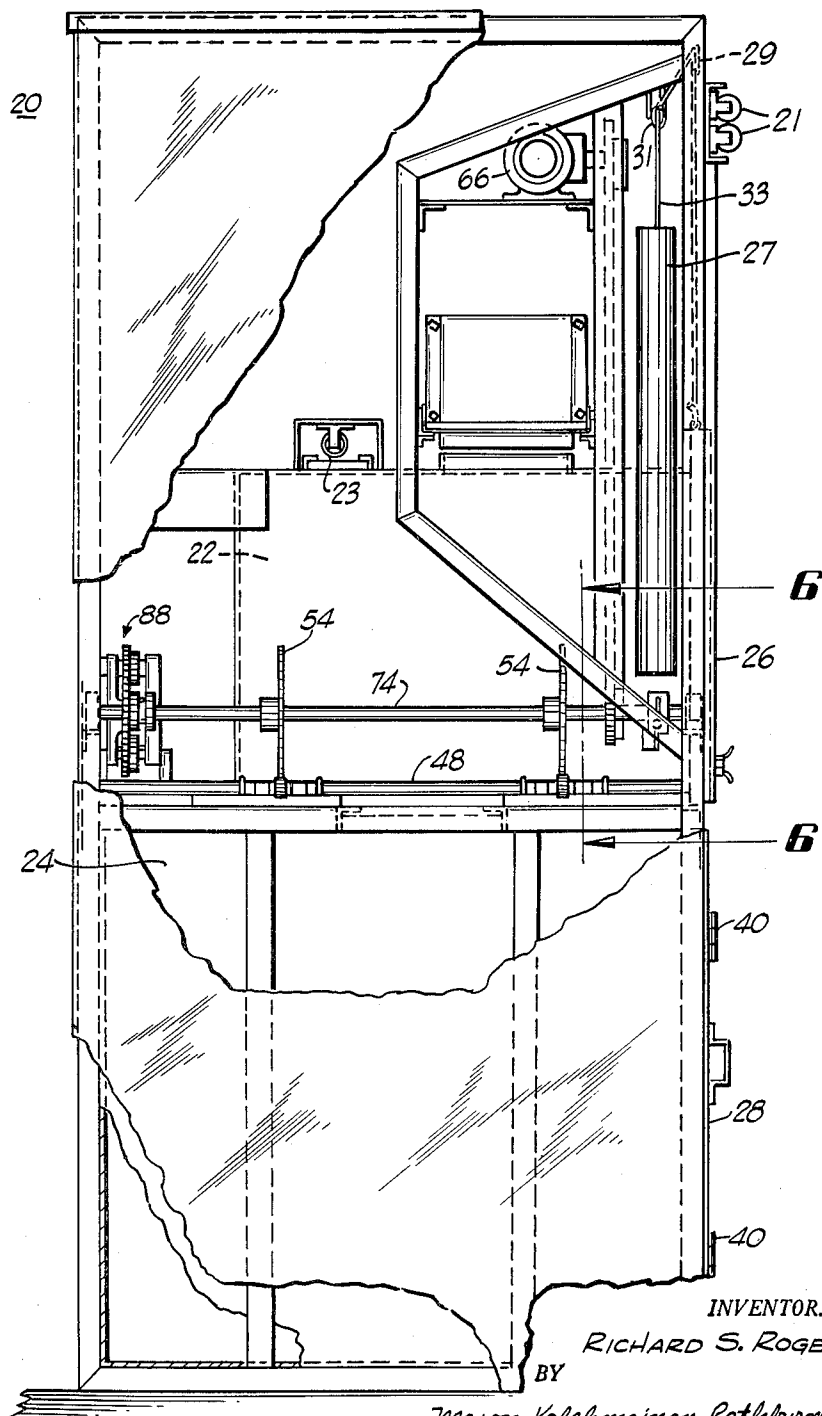
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6 Sheets-Sheet 2



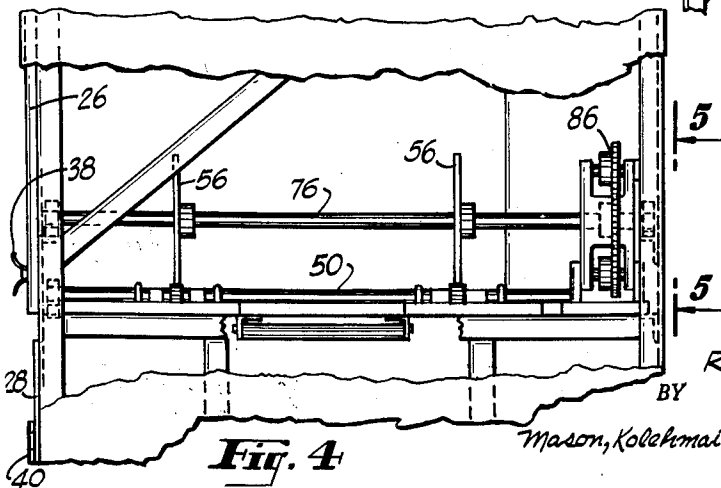
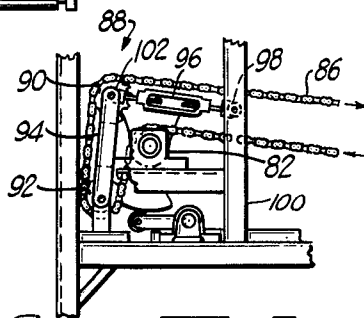
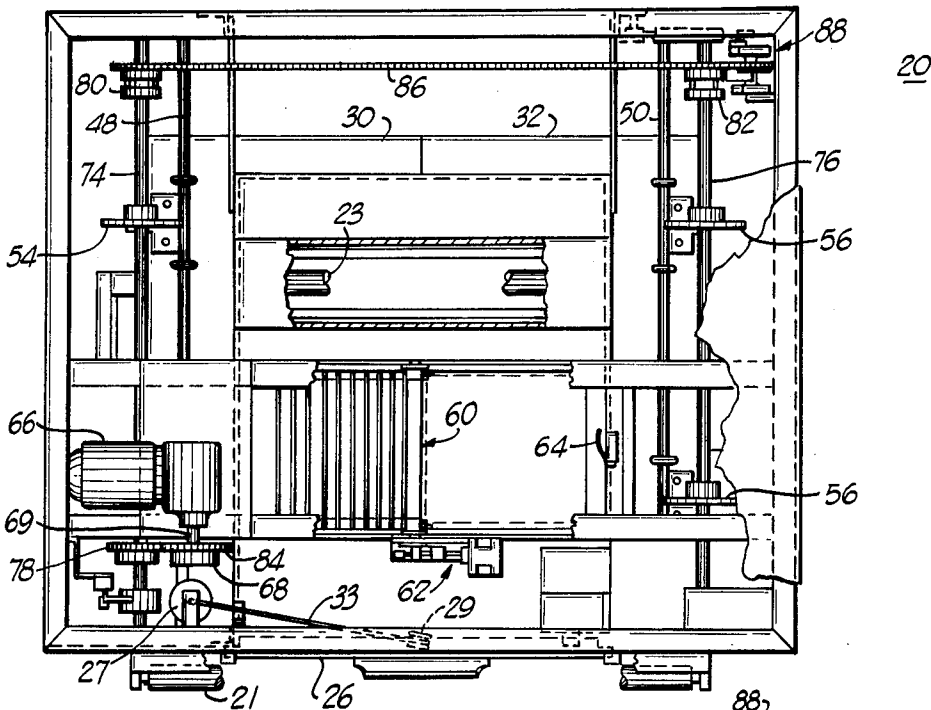
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6 Sheets-Sheet 3



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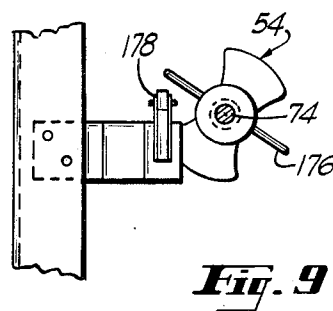
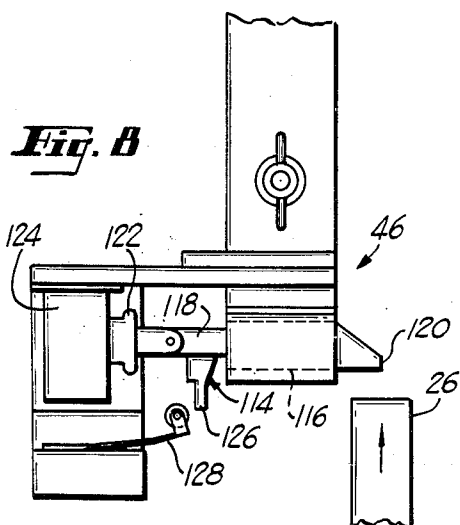
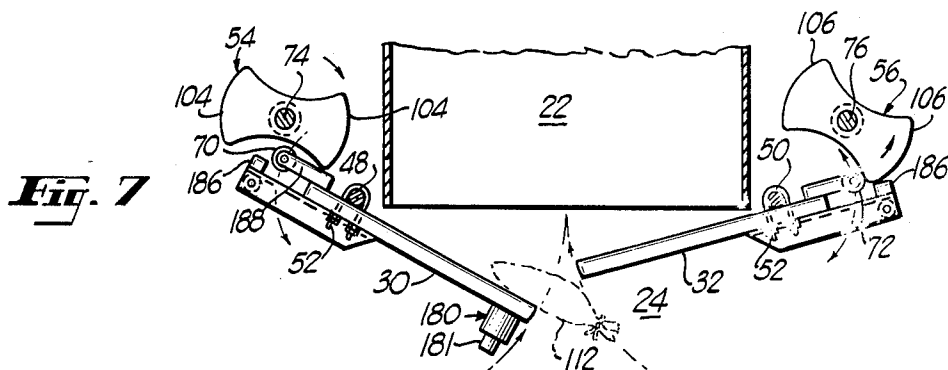
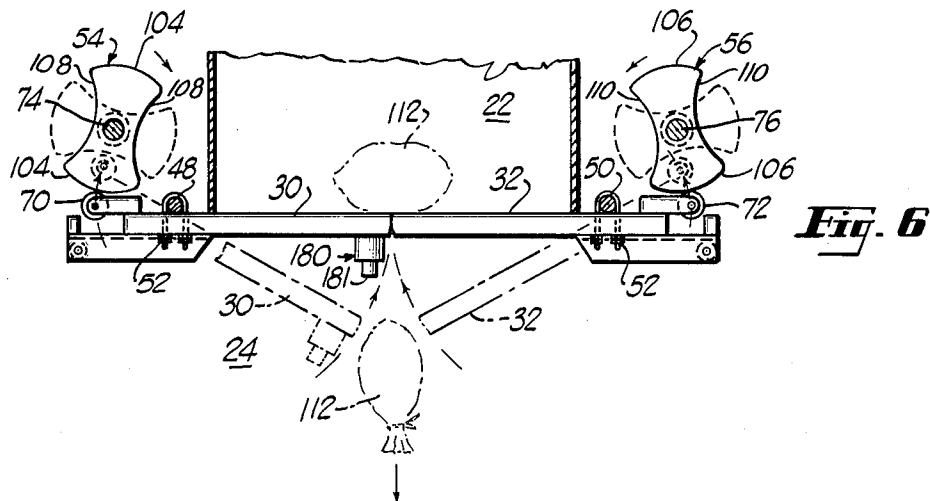
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6 Sheets-Sheet 4



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AUTOMATIC DEPOSITORY

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6 Sheets-Sheet 5

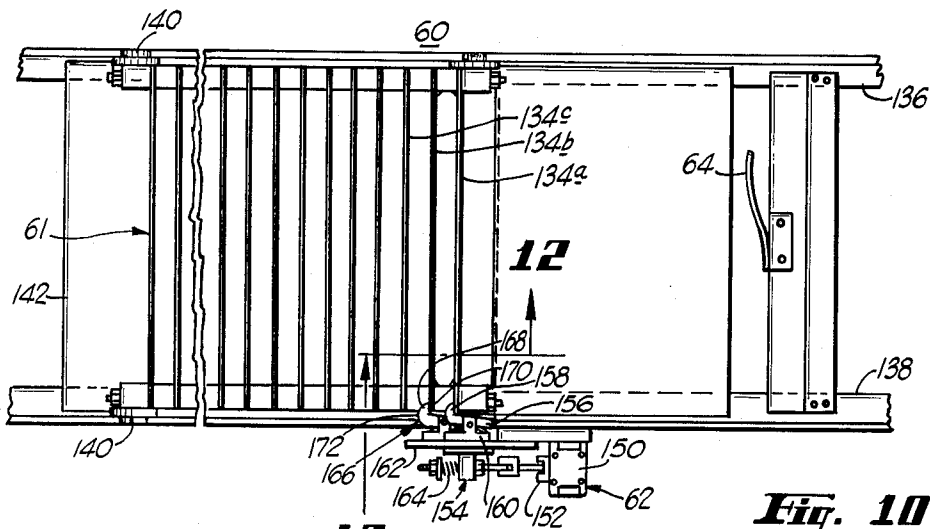


Fig. 10

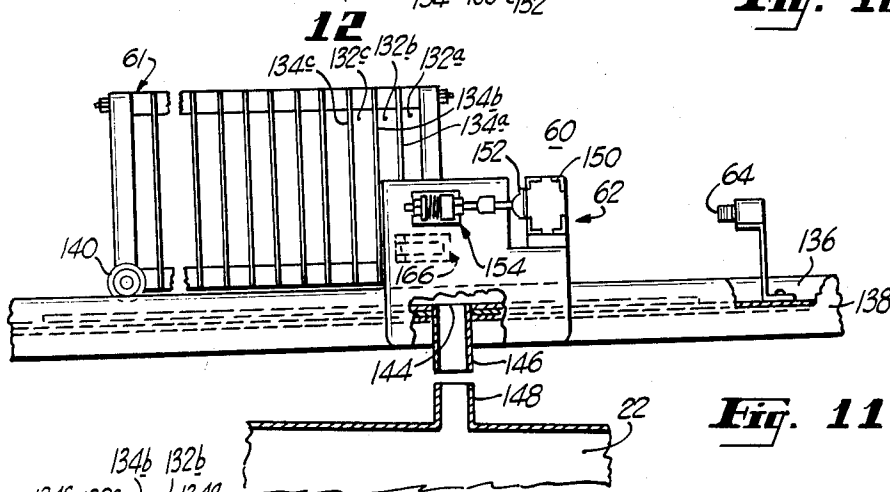


Fig. 11

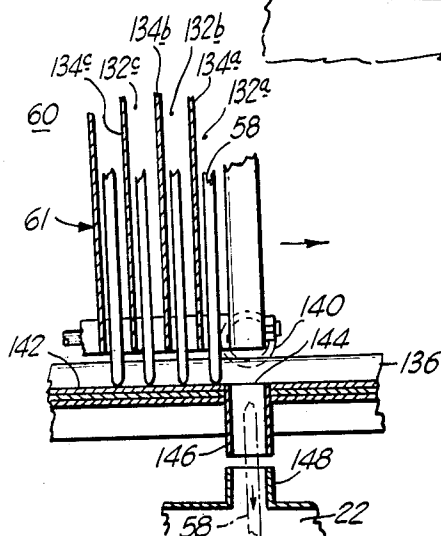


Fig. 12

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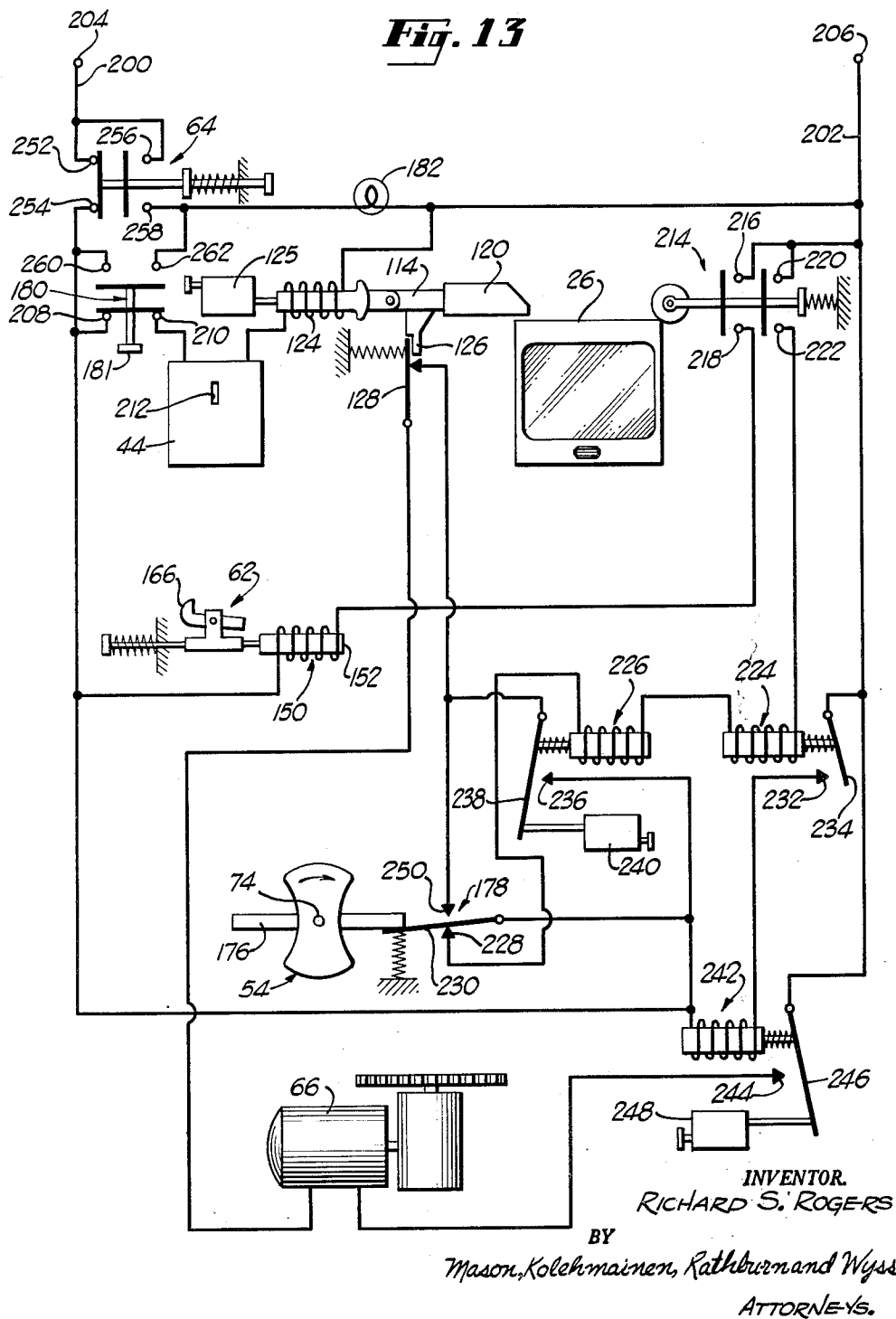
R. S. ROGERS

3,021,050

AUTOMATIC DEPOSITORY

Filed Sept. 4, 1959

6 Sheets-Sheet 6



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3,021,050

AUTOMATIC DEPOSITORY

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Filed Sept. 4, 1959, Ser. No. 838,100

4 Claims. (Cl. 232—43.1)

The present invention relates to an automatic depository and, more particularly, to an automatically operated depository for laundry, dry cleaning, and the like.

The practice in this country with respect to the handling of laundry, dry cleaning and the like has been carried out in two different ways. Generally, the laundry or dry cleaning establishments are located in different cities or portions of these cities and occasionally branch offices are provided. One may bring the clothes, laundry or dry cleaning to the establishment and some time later, when the service organization has performed whatever service is to be performed, one may go back to the establishment and pick up the serviced goods whether it be laundry, dry cleaning, or the like. The other way of handling the operation is for the laundry or dry cleaning establishment to have their own employees go about the surrounding area to pick up the laundry or dry cleaning and, subsequently, to return the same. Obviously, the cost of the laundering or dry cleaning is more expensive with the pick-up and delivery services involved. On the other hand, the operation where the person takes the laundry or dry cleaning to the service establishment and then, sometime later, comes back to pick it up affords numerous problems. In the first place, such service organizations are not located at places which are commonly frequented by customers of other businesses and, secondly, a parking problem is often involved. It would be desirable to provide an arrangement whereby the idea of a pick-up man is eliminated, particularly a pick-up man who goes to each individual home or apartment and picks up the goods and then, subsequently, delivers them after they have been serviced. It will be appreciated that most households today find it necessary to do shopping at a grocery store or the like at very regular intervals and, to this end, grocery stores are distributed throughout all areas so as to be relatively close to their customers. In general, also, such grocery stores have relatively good parking facilities and this is particularly true in the modern chain store age. It would be desirable to provide automatic depositories for laundry or dry cleaning which could be placed in locations such as chain stores which are frequented by members of all households in a particular area with reasonable frequency so that the householders could readily deposit their laundry or dry cleaning in such automatic depository and then the service organization, whether it be a laundry or dry cleaning establishment, could readily pick up at a minimum of expense from such substations the collected laundry or dry cleaning which can then be returned directly to the customer or the customer can pick it up. In connection with such an automatic depository it is essential that the customer may deposit his goods such as laundry or dry cleaning to be serviced with assurance that no one can have access thereto except the service organization once he has deposited it in the automatic depository. Moreover, the automatic depository should make it convenient for him to make such a deposit including filling out the necessary instructions providing his name and address, and the like. Furthermore, the automatic depository should be available to successive customers affording each the necessary privacy and assurance that the deposited articles will be accessible only to the service organization.

Accordingly, it is an object of the present invention to provide a new and improved automatic depository.

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It is another object of the present invention to provide an automatic depository for laundry or dry cleaning which is simple, compact, and foolproof in operation.

Still another object of the present invention resides in the provision of an automatic depository with improved means for storing the deposited goods in a manner so that access is afforded only to the service organization picking up the goods.

It is a further object of the present invention to provide improved means for dispensing necessary articles for the customer in which to deposit the goods to be serviced.

Further objects and advantages of the present invention will become apparent as the following description proceeds and the features of novelty which characterize the invention will be pointed out with particularity in the claims annexed to and forming a part of this specification.

For a better understanding of the present invention reference may be had to the accompanying drawings in which:

FIG. 1 is a front elevational view of a device embodying the present invention with certain portions thereof cut away;

FIG. 2 is a left side elevational view with reference to FIG. 1, again with certain portions thereof cut away to illustrate details of the present invention;

FIG. 3 is a top plan view of the device of FIG. 1 with certain portions thereof cut away better to illustrate the details of the present invention;

FIG. 4 is a fragmentary right side elevational view with reference to FIG. 1 of an intermediate portion of the device, again with certain portions thereof cut away to more clearly illustrate the invention;

FIG. 5 is a fragmentary view looking in the direction of the arrows 5—5 of FIG. 4;

FIG. 6 is a fragmentary sectional view taken along line 6—6 of FIG. 2 with certain portions of the device eliminated in order to simplify the disclosure, and with the apparatus in a predetermined position;

FIG. 7 is a view somewhat similar to FIG. 6 illustrating an alternate operating position thereof;

FIG. 8 is a greatly enlarged fragmentary view taken on line 8—8 of FIG. 1, assuming that FIG. 1 shows the complete structure and with certain portions thereof eliminated to simplify the disclosure;

FIG. 9 is an enlarged fragmentary view of a portion of FIG. 1 with certain parts thereof omitted in order to simplify the disclosure;

FIG. 10 is an enlarged fragmentary view of a portion of FIG. 3 with certain portions thereof omitted;

FIG. 11 is an enlarged fragmentary view of a portion of FIG. 1 with certain portions thereof shown in section and certain other portions thereof eliminated;

FIG. 12 is a fragmentary view taken on line 12—12 of FIG. 10; and

FIG. 13 is a schematic circuit diagram of the electrical circuit of the automatic depository of the present invention.

Briefly, the present invention is concerned with an automatic depository in which access to a closed receptacle is obtained by depositing a coin in a suitable coin operated device. Upon opening the door following insertion of the coin a suitable bag or container for laundry or dry cleaning is released and suitable additional articles such as a laundry or dry cleaning ticket and a pencil are simultaneously released. The customer is expected to fill out the necessary laundry or dry cleaning ticket with his name and address and an indication of what is being deposited and also any instructions that might be involved. Preferably, the material dispensed permits duplicate deposit slips to be filled out. Upon completing the deposit

the access door is closed whereupon suitable mechanism is actuated to remove the deposited articles from the receptacle in which they were deposited and deposit them in a storage receptacle access to which may only be had by the service organization which will service the deposited articles. The device is arranged so that successive customers may deposit laundry or dry cleaning in a similar manner and when the capacity of the automatic depository is reached means will be actuated to render the device inoperative to take further deposits. The automatic depository is a self contained unit which preferably can be located in high traffic areas such as within chain stores and the like where customers find it necessary to go at frequent intervals for other purposes and can dispose of their laundry or dry cleaning at the same time.

Referring to the drawings, there is illustrated the automatic depository employing the present invention generally designated by the reference numeral 20. The automatic depository 20 is divided into a receiving receptacle or compartment 22 and a storage receptacle or compartment 24 below the receiving compartment 22. An access door 26 opens into the receiving compartment; a pair of service doors 28 open into the storage compartment to permit access thereto. The receiving compartment and storage compartment are separated by a pair of trap doors 30 and 32. The access door 26 is vertically slidable to an open position in a pair of tracks 34 and 36 and contains a handle 38 to facilitate operation thereof. The pair of service doors 28 are each mounted on a pair of hinges 40 and are equipped with a locking means 42 so that they may be opened only by a service or pick-up man who has the necessary key. In order to reduce the effort necessary to raise or lower the access door 26, the door 26 may be counterbalanced by a weight 27 connected to the door over a plurality of pulleys 29 and 31 by means of a rope 33. The weight of the door 26 in this manner is counterbalanced by weight 27 and the access door 26 may be readily opened without undue effort by an operator. The access door 26 may be opened only after a suitable coin has been deposited in a coin controlled device or mechanism 44 which in turn actuates a latch mechanism shown generally as 46 (see FIG. 8) and more fully hereinafter described.

The depository 20 may, if desired, contain suitable illuminating means for purposes of identifying the machine, or advertising, or the like, and which may consist of a pair of fluorescent lamps 21. The receiving receptacle 22 may also contain an illuminating source here shown as a fluorescent lamp 23.

The automatic depository contains a supply of packaging material 58, such as bags or containers suitable for laundry or dry cleaning and any other suitable packaging articles such as a laundry or dry cleaning ticket and a pencil; these packaging materials 58 are stored in a material dispenser shown generally at 60 and including a compartmented rack or carrier mechanism shown generally at 61, and are automatically discharged therefrom through the operation of a rack advancing mechanism shown generally at 62, the operation of which will be more fully described hereinafter. A limit switch 64 is actuated by the rack 60 to render the automatic depository inoperative when the supply of packaging material 58 is exhausted.

Parcels deposited in the receiving compartment are dropped or deposited into the storage compartment through the trap doors 30 and 32. As more clearly seen in FIGS. 6 and 7, the trap doors 30 and 32 are hingedly mounted on a pair of stationary rods 48 and 50 by a plurality of U bolts 52. The position of each of the storage doors 30 and 32 is automatically controlled by at least one face cam 54 and 56, respectively; each cam 54 and 56 contains a pair of lobes or high portions 104 and 106 respectively. The trap doors 30 and 32 are operable in a predetermined time sequence by the face cams 54 and 56 through suitable drive means, here shown

as an electric gear motor 66 (FIG. 3), through a sprocket gear 68 secured to an output shaft 69 of the gear motor 66. The trap doors 30 and 32, being rotatably mounted on the stationary shafts 48 and 50, function as simple beams thereon; the door 30 has a roller or cam follower 70, the movement of which pivots the door 30 from the closed position, as shown in solid in FIG. 6, to an open position, as shown in phantom in FIG. 6; the door 32 also has a roller or cam follower 72 which pivots the door 32 from its closed position, as shown in solid in FIG. 6, to its open position, as shown in phantom in FIG. 6. The rollers 70 and 72 ride on the face of the face cams 54 and 56 respectively and are operated thereby. The face cams 54 and 56 are each respectively secured to a rotatable shaft 74 and 76 which, in turn, has secured thereto one or more sprocket gears 78, 80 and 82. A first drive chain 84 connects the sprocket gear 68 secured to the motor 66 with one of the sprocket gears 78 connected to the shaft 74. A second synchronizing drive chain 86 connects the sprocket gear 80 secured to the shaft 74 and the sprocket gear 82 connected to the shaft 76 in order that the trap doors 30 and 32 be operable simultaneously or in a predetermined sequence. Mechanism, shown generally at 88, may be provided for reversing the direction of rotation of the cams 54 and 56 and for taking up slack on the chain. Such a typical mechanism may include a stationary sprocket gear 92 and a floating sprocket gear 90 connected by a connecting link 94. The floating gear 90 is movable in a direction to tighten or loosen the chain 86 and is adjustable through a turn-buckle 96 which has one end 98 pivotally secured to a stationary member 100 of the depository 20 and which has the other end 102 pivotally secured to the floating sprocket gear 90 and connecting link 94. The mechanism 88 reverses the direction of rotation of the shaft 76 with respect to the shaft 74 so that the shafts 74 and 76 rotate in opposite directions. To this end, it is noted that the bottom section of the chain 86 contacts the bottom of the sprocket gear 80 and that the bottom section of the chain 86 contacts the upper portion of the sprocket gear 82, thereby obtaining the direction reversal. As indicated by the arrows in FIG. 6, the face cam 54 is rotated clockwise and the face cam 56 is rotated counterclockwise.

When the rollers 70 and 72 respectively engage the lobes or high portions 104 and 106 of cams 54 and 56, respectively, the doors 30 and 32 are biased into the closed position; when the rollers 70 and 72 are adjacent to a recessed portion 108 and 110 respectively of cams 54 and 56, the doors 30 and 32 are free to swing downwardly into an open position. The doors 30 and 32 may be balanced to swing downwardly due to their own weight when the rollers 70 and 72 are not in contact with the lobes 104 and 106; if desired, the doors 30 and 32 may be balanced so as to swing downwardly due to the weight of a deposited parcel 112, here shown as a laundry bag. While the doors 30 and 32 may be balanced so as to close by their own weight, if desired, they are, however, provided with a positive closure as cams 54 and 56 continue their rotation bringing the lobe sections 104 and 106 into contact with the rollers 70 and 72.

The trap doors 30 and 32 are opened and closed in proper timed relation after the closing of the access door 26. FIG. 9 illustrates a switch actuating mechanism to control the position of the trap doors 30 and 32. A switch actuating arm 176 is secured to the shaft 74 in a fixed relation with the cam 54 and therefore in a fixed relation with the position of the trap doors 30 and 32. The switch actuating arm 176 actuates a limit switch 178 having a pair of normally open and a pair of normally closed contacts, the function of which is more fully hereinafter described.

It may be desirable to provide means to prevent further deposit of parcels in the depository 20 if the storage compartment 24 is full. To this end, a snap switch 180

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is actuated if the underside of the trap door 30 strikes parcels during its downward movement, due to a full storage compartment. Under such a full condition, the limit switch 180 will actuate a warning signal light 182 and also render the depository inoperative, as more fully described hereinafter.

The cams 54 and 56 may be arranged to open and close the doors somewhat sequentially as illustrated in FIG. 7. The cam 54 is advanced slightly from the cam 56 so that the trap door 30 is opened and closed slightly ahead of the trap door 32. The parcel 112 will then drop more gently from the receiving compartment 22 into the storage compartment 24, being deflected from the door 32 onto the door 30 and thence to the storage compartment 24. Such an arrangement may be desirable where the parcels are to be deflected to one side or the other of the storage compartment 24.

FIG. 7 also illustrates intermediate positions of the cams 54 and 56. Just prior to full opening of the doors, as illustrated by the door 32, the lobe 106 of the cam 56 holds the door 32 in a partially open position by abutting against a surface follower 186 just after the lobe 106 has passed out of contact with the follower 102. In a similar manner, as the doors begin to rise, the doors are initially raised by the contact of the lobes 104 and 106 of the cams 54 and 56 with a flat follower surface 188. Continued rotation of the cam 54 would, of course, bring the lobe 104 in contact with the roller 70 and thereby hold the door 30 in a fully closed position.

The access door 26 is normally locked or latched by latch mechanism 46 and may be unlocked or unlatched by the insertion of a coin in the coin controlled device 44. Referring now specifically to FIG. 8, the operation of the latch mechanism 46 will be described. The latch mechanism 46 includes a latch bolt 114 slidable in a slot 116 in a stationary portion 117 of the depository 20. The latch bolt 114 includes a shank portion 118 and a latch portion 120. The shank portion 118 is connected to an armature 122 of a solenoid or electromagnet 124 which serves to actuate the latch bolt 114 and retracts the latch portion 120 out of the path of vertical movement of the access door 26 when the solenoid 124 is energized, in a manner hereinafter described. The latch bolt 114 contains a switch activating portion 126 which acts against a normally closed limit switch 128 to open the switch when the latch portion 120 is in a retracted position. The solenoid 124 is of the time delay type; that is, once the solenoid 124 has been energized to move the armature 122 and retract the latch portion 120 of the latch bolt 114, then the flow of electrical energy to the solenoid 124 may be discontinued, and the latch portion 120 will remain retracted for a sufficient period of time as, for example, by a dashpot 125, so that, in normal operation, the customer or operator would have sufficient time to open the access door 26 without interference by the latch portion 120. If desired, however, the latch bolt 114 may be positively held open by a mechanical or electrical device; the latch bolt 114 then being released by the opening or closing of the access door 26.

Packaging material 58 is dispensed from a material dispenser above the receiving compartment of the depository to provide the necessary bags or containers and other articles. Referring now to FIGS. 10 to 12, there is illustrated the material dispenser shown generally at 60 for dispensing the packaging material 58. The material dispenser 60 comprises a compartmented rack or carrier 61 containing a plurality of compartments referred to collectively as 132 and illustrated individually as 132a, 132b, 132c, etc. The compartments 132 are formed by a plurality of separators referred to collectively as 134 and illustrated individually as 134a, 134b, 134c, etc. The compartments 132 contain the aforementioned packaging material 58. The carrier 61 is movable along a pair of tracks 136 and 138 and may be provided with a plurality of wheels 140 which ride on the track and which facili-

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tate movement of the carrier 61 on the tracks 136 and 138. The tracks 136 and 138 are inclined slightly to the vertical so that the carrier 61 is biased toward one end of the track due to gravity. As illustrated in FIG. 11, the tracks 136 and 138 slope downwardly to the left and the carrier 61 is therefore biased to the left by gravity. The packaging material 58 rests against a bottom surface or plate 142 and slides therealong during movement of the carrier 61. The plate 142, however, contains a transverse slot 144 of sufficient width and length that the packaging material 58 will drop through the slot 144 due to its own weight when the packaging material 58 moves across the slot 144 on the plate 142. A connecting conduit 146 aligns with the slot with a second connecting conduit 148 which communicates at its other end with the top of the receiving compartment or receptacle 22 so that the packaging material 58 which is moved across the slot 144 drops through the slot 144 and through the conduits 146 and 148 into the receiving receptacle 22, as illustrated in phantom in FIG. 12, from whence it may be removed by the operator.

The rack advancing mechanism 62 is provided for the purpose of advancing the carrier 61 so that the compartments 132 are sequentially aligned over the slot 144 to dispense the packaging material 58 contained in the aligned compartment 132 through the slot 144 into the receiving compartment 22. The rack advancing mechanism 62 is operable to advance the carrier 61 along the tracks 136 and 138 in proper timed relation after the insertion of a coin in the coin controlled mechanism 44. The rack advancing mechanism 62 includes a solenoid or electromagnet 150 having an armature 152 connected to a latch mechanism 154. The latch mechanism 154 includes a latch member 156 biased toward the separators 134 and having a surface 158 adapted to engage the separators 134. The latch member 156 is secured to a latch slide 160 which is adapted to move substantially horizontally in a latch plate 162. The latch slide 160 and latch member 156 are biased in the opposite direction from the normal movement of carrier 61 by a spring 164; as illustrated in FIGS. 10 to 12, the latch slide 160 is biased to the left. A second latch mechanism 166 includes a latch member 168 biased toward the separators 134 and containing a separator engaging surface 170.

The operation of the rack advancing mechanism 62 will now be explained. When the solenoid 150 is energized, in a manner more fully hereinafter described, the armature 152 is drawn into the solenoid 150; as illustrated in FIGS. 10 and 11, the armature 152 is moved to the right. The movement of the armature 152 to the right moves the latch slide 160 containing the latch member 156 to the right. Due to the engagement of the surface 158 with the separator 134a, the carrier 31 is advanced a distance of one compartment to the right moving the packaging material 58 over the slot 144 in the plate 142 and permitting the packaging material 58 to be discharged by gravity into the receiving receptacle 22. At the same time, the separator 134c has also advanced one station, moving the latch member 168 out of its path of travel due to the engagement of its edge with a camming surface 172 on the latch member 168; separator 134c is now in engagement with the separator engaging surface 170 of latch member 168 and the carrier 61 is held against movement back down the inclined tracks 136 and 138. When the solenoid 150 is de-energized, the latch slide 160 moves to the left, the latch member 156 being deflected away from the separator 134b, which has now advanced to the position illustrated for separator 134a, due to the engagement of an edge of separator 134b with a camming surface 174 on the latch member 156. At the completion of the return movement of the latch member 156, the camming surface 174 has moved beyond the edge of the separator 134b and the latch member returns to the position illustrated in FIG. 10; the separator engaging surface 158 of latch member 156 being in a position to engage separator 134b upon the next

energization of the solenoid 150 to thereby repeat the advancement of carrier 61. When the carrier 61 has traveled its maximum forward distance, so that there is no packaging material 58 remaining in the material dispenser 60, the forward end of the carrier 61 bears against the limit switch 64 to render the depository inoperative for receiving further deposits and to light the warning signal light 182, as more fully hereinafter described.

In operation, an operator deposits a coin in the coin controlled mechanism 44 which releases the latch to the access door 26. The access door 26 may then be opened whereupon the suitable packaging material 58 is discharged into the receiving compartment 22. The operator may remove the packaging material 58, package his articles such as laundry or dry cleaning into a parcel, and, if desired, fill out the necessary laundry or dry cleaning ticket, which may be included in the packaging material 58, with the operator's name and address and indication of what is being deposited and any other instructions which might be involved, and the parcel 112 is then deposited into the receiving compartment. The access door 26 to the receiving compartment 22 is then closed. The trap doors 30 and 32 will open, as heretofore described, and the deposited parcel 112 will drop into the storage compartment 24. The trap doors 30 and 32 then close and the depository has completed its operating cycle. The deposited parcel 112 remains in the storage compartment 24 awaiting removal by the service or pick-up man through the service doors 28. The signal light 182 will indicate the condition of the depository when it is out of packaging material 58, or when the storage compartment of the depository is full, and at the same time the depository will be rendered inoperative for further cycling in the event that these conditions exist.

FIG. 13 illustrates somewhat schematically an electrical system which will function to perform the desired sequence of operation. The circuit is illustrated with the electrical system in a non-energized position. The system includes a pair of power lines 200 and 202, each having a terminal 204 and 206, respectively, adapted to be connected to a source of alternating current voltage (not shown). A first operating series loop is connected across lines 200 and 202 and comprises a series circuit including the limit switch 180, the coin controlled mechanism 44, and the solenoid 124. The limit switch 180 has a first pair of normally closed contacts 208 and 210 in the series circuit. When the proper coin is deposited in a coin slot 212 of the coin controlled mechanism 44, the series circuit including the limit switch 180, the coin controlled mechanism 44, and the solenoid 124, is momentarily energized. The energization of the solenoid 124 causes the latch bolt 114 to move to the left out of the path of upward travel of the access door 26, and, at the same time, the switch actuating portion 126 of the latch bolt 114 opens the normally closed limit switch 128. The solenoid 124 has a time delay closing so that the latch bolt 114 is held in a retracted position for a sufficient period to permit the operator to open the access door 26 by moving it upwardly. Once the door 26 has been opened, the latch portion 120 of the latch bolt 114 is held in a retracted position by the door 26 and the limit switch 128 is therefore held in an open position so long as door 26 is open.

Opening door 26 actuates a switch 214 which has two pairs of normally open contacts 216, 218 and 220, 222. The respective pairs of contacts 216, 218 and 220, 222 are held in a closed position so long as the access door 26 is open. The first pair of contacts 216 and 218 are serially connected with the rack advancing mechanism 62, and more specifically, form a series circuit with the solenoid 150 of the rack advancing mechanism 62, whereby upon closing, energize the solenoid 150 and draw the armature 152 to the right, causing the latch mechanism 154 to advance the rack or carrier 61 (FIG. 10) to thereby discharge the packaging material 58 into the receiving com-

partment 22 from whence it may be removed by the operator through the open door 26.

Simultaneously with the closing of the circuit to the rack advancing mechanism 62, a second series circuit is formed connecting across the lines 200 and 202 the pair of contacts 220 and 222 of the switch 214, a first relay or solenoid 224, a second relay or solenoid 226, and a pair of contacts 228 and 230 of the limit switch 178. The relays 224 and 226 are thereby energized, closing their respective pairs of contacts 232, 234 and 236, 238. The relay 226 has a time delay mechanism 240, such as a dashpot, which results in a short time delay in the opening of the contacts 236 and 238 after deenergization of the second relay 226. The contacts 232 and 234 of the first relay 224 close upon deenergization of relay 224.

Energization of the first relay 224 and closure of its contacts 232 and 234 results in energization of a third relay 242 which is serially connected with the contacts 232 and 234 across the lines 200 and 202. The third relay 242 has a pair of contacts 244 and 246, normally open, which close upon energization of the relay 242. The third relay 242 is also equipped with a time delay device 248 such as a dashpot, but having a longer time delay than the device 240 on the second relay 226; the function thereof is hereinafter more fully described.

The gear motor 66 which operates the storage doors 30 and 32 is serially connected across the lines 200 and 202 in a series circuit with the contacts 244 and 246 of the third relay 242, limit switch 128, and a pair of contacts including a contact 250 and the contact 230 of the limit switch 178. As the contacts 250 and 230 of the limit switch 178 are normally open, they are shunted by the contacts 236 and 238 of the second relay 226. So long as the door 26 is held open, no current will flow in the gear motor circuit since the limit switch 128 is held open by the switch actuating portion 126 of the latch bolt 114. However, after the parcel has been deposited in the receiving chamber 22 and the receiving door 26 is closed, the time delay of the solenoid 224 is sufficiently short that the latch bolt 114 will move to the right, the switch actuating portion 126 thereof disengaging the limit switch 128 and permitting the limit switch 128 to return to its normally closed position. Simultaneously, the circuits to the solenoids 224 and 226 will be broken by switch 214 and the switches will become deenergized; however, due to the time delays of the second and third relays 226 and 242, a series circuit will be formed with the gear motor 66 and including the third relay 242, the second relay 226, and the limit switch 128. The gear motor 66 will now operate turning the shaft 74 in a clockwise direction opening the circuit between the contacts 228 and 230 of limit switch 178 and simultaneously closing the contacts 250 and 230 of the limit switch 178. The rotation of shaft 74, of course, actuates the storage doors 30 and 32 through the cam system hereinbefore described. The time delay of opening of the contacts 236 and 238 of the second relay 226 is long enough to permit the relay to be shunted by contacts 250 and 230 of limit switch 178 to maintain the circuit to the gear motor 66. Once the contacts 250 and 230 of limit switch 178 have closed, the contacts 236 and 238 of the second relay 226 may open without affecting the continued operation of the gear motor 66. The time delay of the third relay 242 is sufficiently long to hold the contacts 244 and 246 in a closed position until after the doors 230 and 232 have completed their opening and closing operation.

The gear motor 66 will continue running until the other end of the switch actuating arm 176 comes in contact with limit switch 178, thereby separating the contacts 250 and 230 and breaking the circuit to the gear motor 66. As the contacts 236 and 238 of the second relay 226 are also open, the circuit to the gear motor 66 is open and the gear motor will stop, thereby stopping the doors 30 and 32 in their closed position. Simultaneously with the opening of the contacts 250 and 230, the actuating arm

176 will cause the limit switch 178 to close the contacts 228 and 230 thereby completing the cycle of operation for the first and second relays 224 and 226. Once the gear motor 66 has stopped due to the proper positioning of the switch actuating arm 176, the time delay mechanism 248 of the third relay 242 may operate to break the circuit, thereby completing the cycle of operation for the gear motor 66.

Several safety features are incorporated into the electrical circuit. First, if the material dispenser 60 is emptied of packaging material 58, the carrier 61 will advance to the right sufficient to actuate the limit switch 64. Limit switch 64 contains a pair of normally closed contacts 252 and 254 and a pair of normally open contacts 256 and 258. The pair of normally closed contacts are serially connected in line 200 so as to control the power to the depository. When the limit switch 64 is actuated by the carrier 61, the electrical contact in line 200 between contacts 252 and 254 is broken, thereby shutting off the power supply to the depository. Simultaneously with the shutting off of the power supply, a circuit is made between contacts 256 and 258 of limit switch 64 and the warning signal light 182 is connected across lines 200 and 202 indicating to a prospective operator that the depository is inoperative.

Another feature in the disclosed circuit includes the snap switch 180 which is actuated when the storage compartment 24 is full. When the trap door 30 opens and the storage compartment is full, an actuator 181 of the switch 180 bears against the parcels in the storage compartment 24 and actuates the switch 180. If the switch 180 is actuated, the normally closed contacts 208 and 210 are opened thereby breaking the circuit to the coin controlled mechanism 44 and the solenoid 124, and a second pair of normally open contacts 260, 262 are closed, lighting the warning signal light 182 and thereby notifying a prospective operator that the depository is inoperative. The switch 180 may be reset manually when the storage compartment 24 is emptied by a pick-up or service man.

Another feature of the circuit is that the contacts 228 and 230 of the limit switch 178 operate to prevent reenergization of the relays 224 and 226 during opening and closing of the trap doors 30 and 32 until after the opening and closing cycle of the trap doors has been completed.

From the above description it will be apparent that the receiving compartment 22 and the storage compartment 24 are separated by a movable wall portion in the form of trap doors 30 and 32 which are pivotally mounted. It should be understood that this movable wall portion instead of comprising a pair of trap doors 30 and 32 as illustrated may comprise a single pivotally supported member in the form of an arcuate support which, upon the closing of access door 26, is rotated through 360° by motor 66 so as to effectively unload whatever is deposited therein into storage compartment 24. With this arrangement the arcuate support may be connected to a rotatable shaft which, through suitable crank means, is rotated by motor 66. Thus, when the term "trap door means" is used in this application it is intended to cover any type of movable wall means between the compartments 22 and 24.

While particular embodiments of the invention have been shown by way of illustration, many changes and modifications will occur to those skilled in the art. It is to be understood that the claims annexed to and forming a part of this specification cover any such modifications as fall within the true spirit and scope of the invention.

What is claimed as new and is desired to be secured by Letters Patent of the United States is:

1. An automatic depository comprising a receiving receptacle for receiving parcels, a storage receptacle below said receiving receptacle for storing said parcels, access means to said receiving receptacle for depositing a parcel in said receiving receptacle, coin operated means for opening said access means, means for storing packaging material in said depository, means operatively associated with said opening means for automatically dispensing said packaging material into said receiving receptacle in sequence with the operation of said access means from where it may be removed while said access means is open, closure means between said receptacles, means for automatically opening said closure means after said access means is closed thereby permitting any parcel in said receiving receptacle to drop into said storage receptacle, and means in said depository for permitting removal of parcels from said storage receptacle.

2. An automatic depository for the depositing of parcels comprising a receiving compartment, a storage compartment below said receiving compartment, an access door to said receiving compartment, at least one pivotally mounted trap door between said compartments, a cam, cam following means secured to said trap door and operable by said cam to open and close said trap door, driving means operably connected to said cam, means for operating said driving means and actuated by the closing of said access door so that said trap door is automatically opened and closed after said access door is closed whereby any parcels in said receiving compartment are dropped into said storage compartment, and door means operatively associated with said storage compartment providing for removal of parcels therefrom.

3. An automatic depository as defined in claim 2 above and including means for rendering said depository inoperable when said storage compartment is full of parcels.

4. An automatic depository for the depositing of parcels comprising a receiving compartment, a storage compartment below said receiving compartment, a material dispenser including packaging material to be dispensed, a plate having a transverse slot communicating with said receiving compartment, track means, a rack containing a plurality of compartments, each compartment containing said packaging material to be dispensed, said rack being movable along said track to slide said material along said plate, a normally locked access door to said receiving compartment, coin operated means for unlocking said access door so that said door can be opened, means operable in sequence with the operation of said access door after a coin is inserted into said coin operated means for advancing said rack along said plate a distance of one compartment so as to sequentially align a compartment of said rack with said slot whereby the material in said aligned compartment is dispensed through said slot into said receiving compartment, means for closing said access door, a trap door between said compartments, means for automatically opening and closing said trap door after said access door is closed, and means for removing parcels from said storage compartment.

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