

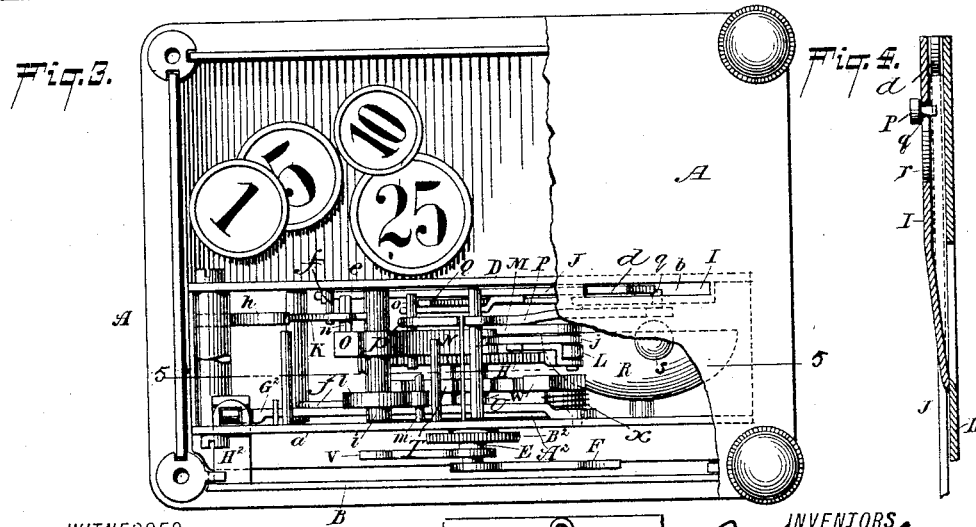
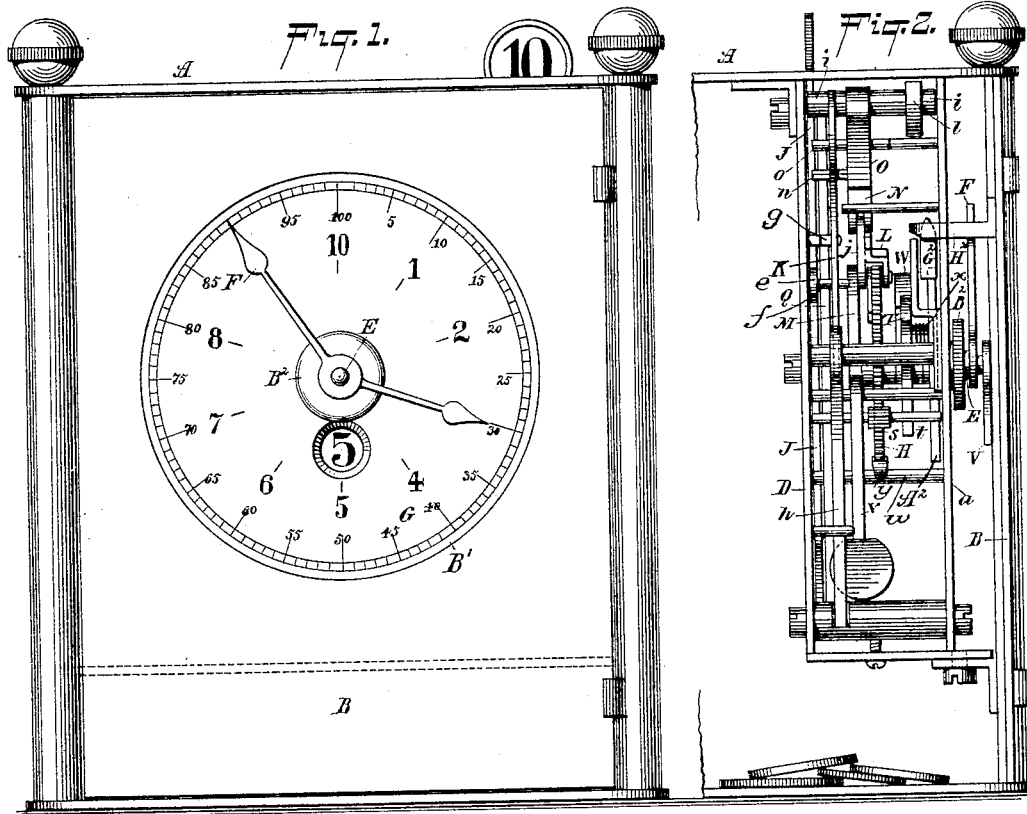
(No Model.)

2 Sheets—Sheet I.

R. B. COOLEY & S. M. BALZER.
AUTOMATIC REGISTERING BANK.

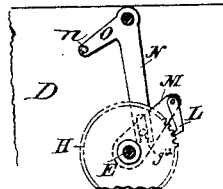
No. 454,556.

Patented June 23, 1891.



WITNESSES:
William Goebel.
C. R. Bourne.

Fig. 11.

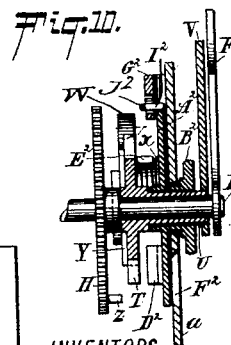
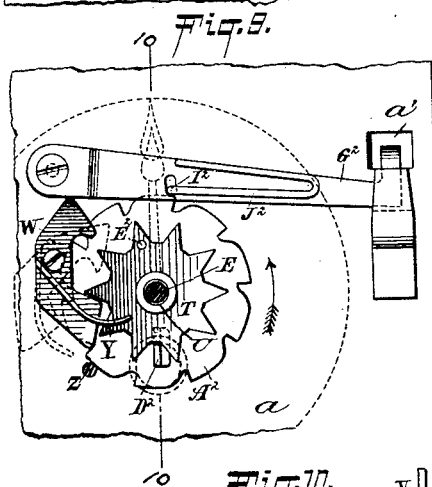
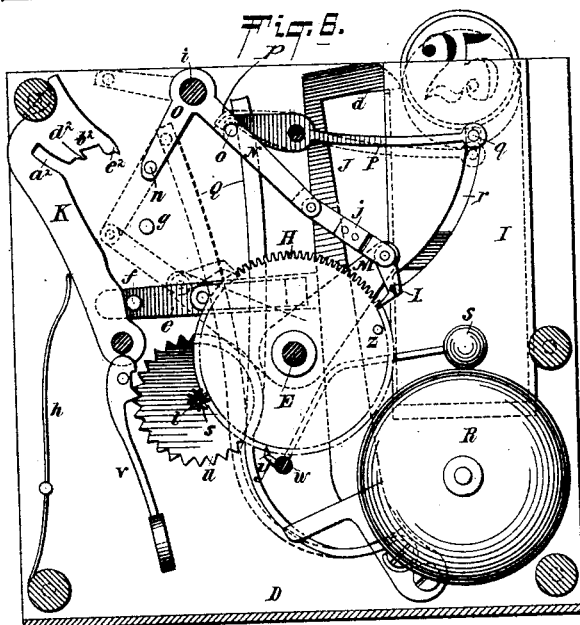
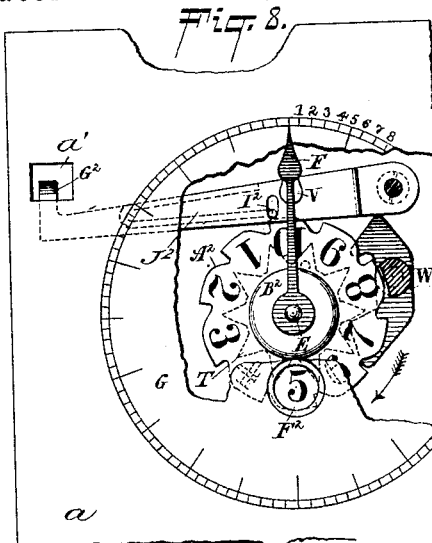
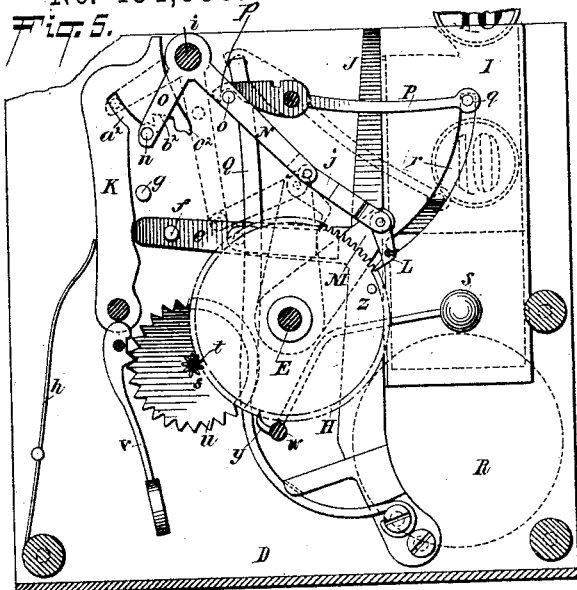


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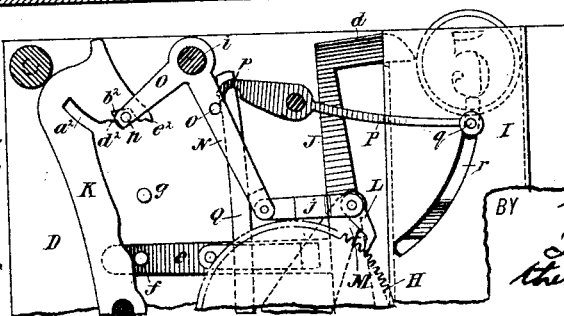
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UNITED STATES PATENT OFFICE.

RALPH B. COOLEY, OF BROOKLYN, AND STEPHEN M. BALZER, OF NEW YORK, N. Y.; SAID BALZER ASSIGNOR TO SAID COOLEY.

AUTOMATIC REGISTERING-BANK.

SPECIFICATION forming part of Letters Patent No. 454,556, dated June 23, 1891.

Application filed January 16, 1891. Serial No. 377,968. (No model.)

To all whom it may concern:

Be it known that we, RALPH B. COOLEY, a resident of Brooklyn, Kings county, New York, and STEPHEN M. BALZER, a resident of New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Automatic Registering-Banks, of which the following is a specification.

The object of our invention is to provide a toy registering-bank wherein coins of different values can be passed through a single slot, and in which the value of each coin passed into the bank will be indicated, and wherein also the total value of all the coins in the bank will be indicated at all times.

Another object is to provide means to permit the door of the bank to open automatically when a predetermined amount of money has been placed in the bank and another object is to provide means to regulate the amount of money at which the bank will open.

The invention consists in the novel details of improvement and the combinations of parts that will be more fully hereinafter set forth, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming part hereof, wherein—

Figure 1 is a side elevation of a bank embodying our invention. Fig. 2 is a side elevation of the mechanism, part of the casing being removed. Fig. 3 is a partly-broken plan view of the bank. Fig. 4 is a vertical cross-section through the coin-chute. Fig. 5 is a cross-sectional view on the plane of the line 5 5, Fig. 3, showing the mechanism for indicating automatically the value of a coin passed into the bank, showing in dotted lines the position the parts assume when a ten-cent piece is passed into the bank. Fig. 6 is a similar view showing in full and dotted lines the positions the parts assume for a twenty-five-cent piece. Fig. 7 is a similar view of part of the mechanism, showing the positions of the parts on the entrance of a five-cent piece. Fig. 8 is a detail partly-broken front view showing the mechanism by which the opening of the door is controlled. Fig. 9 is a face view of the same looking from the inner side of the casing. Fig. 10 is a vertical cross-section on the plane

of the line 10 10, Fig. 9; and Fig. 11 is a detail of a modification hereinafter explained.

Referring to the accompanying drawings, the letter A indicates a casing of suitable construction, having a door B suitably hinged to the same, the door having an opening B'. Within the casing A we preferably secure a frame or box D, to which the mechanism of the bank is attached, although said mechanism can be carried within the bank in any desired manner.

E is a shaft shown journaled in the frame D and projecting from one side of the same, on the outer end of which shaft is an indicator or pointer F, which sweeps over a dial G on the plate *a*. On the shaft E is a toothed wheel H, having, say, one hundred teeth to correspond with the points on the dial G to indicate cents.

I is a coin-chute, (shown carried by the frame D,) the lower part of which chute is shown leading to the outer side of the frame D, so as to deposit the coins in the bank away from the mechanism. Said chute at the upper part registers with an opening *b* in the casing A, preferably on top. (See Fig. 3.)

J is a lever pivoted in the frame D, a part *d* of which lever passes within the chute I on one side to be engaged by a coin as it is pushed into the chute, said lever being moved more or less by a coin, according to the diameter of the same. One edge of the part *d* of the lever J is shown beveled to permit the coin to ride on it to move the lever. The lever J carries an arm or projection *e*, (shown with a pin *f*;) adapted to encounter and move a stop-piece or lever K. (Shown pivoted in the frame D.) A pin *g* limits the forward movement of the stop-piece or lever K, and a spring *h* holds it in its normal position against the pin *g*. The stop-piece K is provided with a number of wards or recesses and projections to regulate the movement of the dog L, that turns the wheel H, according to the size of the coin inserted in the chute I. The dog L is shown carried by or connected with an arm M, hung on the shaft E, whereby the dog is guided to travel over the teeth of the wheel H.

N is a lever or bar carried in the frame D and preferably secured to a shaft *i*, journaled in the frame D, the lever N being shown con-

nected by a link j with the arm M and dog L, although they can be otherwise suitably connected.

The lever N is moved forward to turn the wheel H by a spring l , (see Figs. 2 and 3,) which is shown coiled on the shaft i and connected with a pin m , Fig. 3, on the frame D; but the spring for moving the lever N may be otherwise suitably arranged.

O is an arm rigidly connected with the lever N and moving with it. The arm O carries a pin or projection n , adapted to engage the stop-piece or lever K and to be regulated in its movement by the wards or recesses and projections a^2 , b^2 , d^2 , and e^2 on the stop-piece K. The lever N is shown provided with a pin o , which is normally engaged by a hook or latch p on a lever P, hung or pivoted in the frame D. The lever P carries a pin or the like q , that passes through a slot r in the wall of the chute I and extends across the path of the coins in said chute, so that as the coin passes through the chute it will press down the lever P and move the hook p to release the lever N.

Q is a spring, shown carried by the lever J and adapted to press against the pin o or lever N to move the latter when the lever P releases it, while also permitting the lever J to be moved by a coin (to move the stop-piece K) while the lever N is held.

The toothed wheel H is shown meshing with a pinion s on the shaft t of a toothed wheel n which engages with an escapement v in the frame D to regulate the movement of the wheel H and thereby the pointer.

R is a bell which is to sound one stroke for each cent passed into the bank, the clapper S for which bell is shown carried by a shaft w , journaled in the frame D. The shaft w carries a tooth y , engaging the teeth of the wheel H, so that as each tooth of said wheel passes said tooth y the clapper will strike the bell R.

The above parts operate as follows:

Referring to Fig. 5, the parts are shown in their normal positions ready to receive and indicate a ten-cent piece, the pin n on the arm O being in line with and adapted to pass into the recess a^2 on the stop-piece K, which recess is of just sufficient length to permit the lever N to move back to draw the dog L over ten teeth on the wheel H when the lever P releases the lever N. When the coin is now pressed into the chute I, it presses back the lever J a distance corresponding to the diameter of the coin; but as the ten-cent piece is the smallest coin to be inserted the pin f in the example shown does not engage or actuate the stop-piece K, and thereby the slot a^2 remains in line with the pin n . As the lever J is moved back by the coin, the spring Q is compressed, and when the widest part of the coin reaches and passes the part d of the lever J the lever P will be moved by the coin to release the pin o and lever N. The spring

Q now moves the lever N and arm O, causing the pin n to pass into the slot a^2 until it comes to rest, whereby the dog L will be drawn back ten teeth on the wheel H, as shown in dotted lines. As pressure on the lever J is now released, (the coin having passed it,) the spring l acts to turn the shaft i and moves the lever N forward, thereby turning the wheel H ten teeth and moving the pointer F over the dial to indicate "10," while at the same time as ten teeth pass the tooth y ten strokes will be sounded on the bell R, thereby giving an audible as well as visible indication of the value of the coin deposited. When a twenty-five-cent piece (see Fig. 6) is passed into the slot b , the lever J is moved, and the pin f , encountering the stop-piece K, moves it back out of the path of the pin n , (or so that the pin n can travel back the requisite distance,) whereby when the coin moves the lever P to release the lever N the latter will be moved by the spring Q back far enough to pass the dog L over twenty-five teeth on the wheel H. (See Fig. 6.) As the lever N now moves forward, the wheel H will be moved forward the distance of twenty-five teeth, and "25" will be indicated on the dial and sounded on the bell.

Fig. 7 shows how a five-cent piece is indicated. This coin moves the lever J back far enough to cause the pin f to move the stop-piece K such a distance as to bring the recess b^2 in line with the pin n , said recess being of such a depth as to allow the lever N to be moved back far enough to draw the dog L over five teeth on the wheel H to indicate "5" on the dial as the lever N moves forward. The projection d^2 on the stop-piece K is of such a length and in such a position that a one-cent piece will move the stop-piece K a distance to cause the pin n to engage said projection and permit the dog L to be moved only one tooth on the wheel H, and the projection e^2 is likewise arranged so that the pin n will be stopped when a two cent piece is passed into the bank, so that only "2" will be indicated on the dial.

From the above it will be seen that by making the wards or the length of the recesses or projections on the stop-piece K correspond to the movement of the levers J and K, according to the difference in the diameter of the coins, and by bringing said wards or the recess or projection in line with the pin n , as the case may be, to limit the movement of the dog L and wheel H, the value of the coin will be accurately indicated on the dial. By suitably changing the positions and length of the recesses and projections on the stop-piece K coins of any denomination can be indicated on the dial, and the relative arrangements of the wards on the stop-piece K can be changed from that shown, as desired.

As each coin is inserted the pointer is moved a distance corresponding to the value of the coin, and the amount of the latter is

added to the sum in the bank until the hand F has made one revolution to indicate "100" or any other desired number.

In order to indicate more than one dollar, we have provided the following arrangement, although any suitable multiplying arrangement can be used: On the shaft E is hung a star-wheel T on a sleeve U, that passes, through the plate *a* and carries a pointer V. (See Fig. 10.)

W is a dog, shown pivoted on the plate *a* and adapted to turn the star-wheel T step by step, a spring X holding the dog in the normal position. The dog W carries an arm or projection Y, that is adapted to be engaged by a pin Z on the wheel H. These parts are so arranged that when the wheel H has made one revolution the pin Z will move the dog W to turn the star-wheel T one tooth to cause the hand V to indicate "\$1" on the dial, and so on as each one hundred cents are put in the bank, the pointer F indicating cents and the hand V indicating dollars.

To cause the door B to open when a predetermined amount of money has been placed in the bank, and to prevent it from opening until said amount has been placed in the bank, and also to enable a person to adjust the door to open when the desired amount has been inserted in the bank, we have provided the following means:

A² is a toothed disk having teeth corresponding to the star-wheel T, said disk being carried on the shaft E and shown surrounding the sleeve U.

B² is a thumb-piece connected with the disk A² and shown (see Fig. 10) projecting in front of the plate *a*, so that said disk can be turned from the outside of the bank.

The disk A² carries a projection D², that is adapted to be engaged by a pin E² on the star-wheel T. The disk A² also carries numerals from, say, 1 to 10, any one of which is adapted to show through an opening F² on the plate *a*.

G² is a latch-lever, shown pivoted on the plate *a* and adapted to engage an apertured projection H² on the door B to hold said door closed, (see Figs. 2 and 3,) which projection passes through an aperture *a'* in plate *a*. The latch-lever G² is supported on the disk A² by a pin I², (see Fig. 10,) shown movable and connected to a spring J², carried on the lever G². This arrangement is to give the latch-lever G² slight independent movement to permit the projection H² to pass over and engage the lever G².

Suppose, now, it is desired to have the door B open when, say, five dollars have been placed in the bank. The thumb-piece (or disk A²) is turned until "5" on the disk A² appears opposite the opening F², both hands F and V being placed at zero by turning them in the usual way for setting clock-hands. The door is then closed and held shut by the latch-lever G² engaging the projection H² on the door. When the star-wheel turns the distance of

five teeth, (after five dollars have been placed in the bank and indicated on the dial,) the pin E² will push the projection D² to bring a notch on the disk A² under the pin I², whereupon said pin being then unsupported the latch-lever G², carrying it, will drop, and becoming disconnected from the projection H² will release the door B. By this means the door may be set to open at any desired time by first turning the disk A² the requisite amount to bring a certain notch close to the pin I² and the door cannot be opened until the predetermined amount has been received in the bank, as the disk A² will not turn to permit the latch to descend until the required amount has been placed in the bank.

It will be understood that any desired indicator, instead of the hands and dial, can be used to indicate dollars and cents.

The stop-piece K, according as it is moved by a coin, regulates the movement of the spindle E or the indicators, and by this means we are able to indicate the value of any coin.

In the modification shown in Fig. 11 the link *j* is dispensed with, and the lever N engages a pin *j'* on the arm M to move said arm, and thereby the dog L, the end of the lever N being shown forked to receive the pin *j'*.

Having now described our invention, what we claim is—

1. The combination of a dial, a spindle, a pointer carried thereby to indicate on the dial, a driving-lever for turning said spindle, and a stop-piece having wards adapted to regulate the movement of the driving-lever, substantially as described.

2. The combination of a coin-chute, a lever or bar projecting into the same and moved more or less by different-sized coins, registering mechanism, and a stop-piece having wards to regulate the movement of said mechanism according to the movement of the lever or bar by a coin, and a flexible connection between the lever or bar and the stop-piece for moving the latter by the former, substantially as described.

3. The combination of a lever or bar adapted to be moved more or less by coins and according to the size of a coin, with a stop-piece to be moved by said lever or bar, said stop-piece having wards, registering mechanism, and a spring-actuated lever or bar for actuating the same, said wards being adapted to regulate the movement of said lever according as they are moved by a coin, substantially as described.

4. A lever or bar adapted to be moved more or less by coins and according to the diameter of a coin and a stop-piece to be moved by said lever, combined with registering mechanism, a lever or bar for actuating the same, said lever being regulated in its movement by said stop-piece, and a catch for holding said lever or bar until the stop-piece has been set according to the size of the coin, substantially as described.

5. A lever or bar adapted to be moved more

or less by coins and according to the size of a coin and a stop-piece to be moved by said lever, said stop-piece having a recess, as α^2 , combined with a registering mechanism, a lever or bar to actuate the same, a projection n , connected to said lever and adapted to enter the recess α^2 to regulate the movement of said lever, the length of said recess being proportioned to the size of the coin to be counted, and a catch to hold the lever or bar until the stop-piece is set, substantially as described.

6. The combination of a lever or bar adapted to be moved more or less according to the size of a coin, a registering mechanism, a lever or bar for actuating the same, a pin or projection connected with said lever, and a stop-piece to regulate the movement of said lever, said stop-piece having a recess α^2 , corresponding to the size of one coin, a projection corresponding to the size of another coin, and a recess b^2 , corresponding to the size of another coin, said stop-piece being moved by the entrance of a coin to bring the corresponding recess or projection in line with said pin to cause the corresponding number to be indicated, substantially as described.

7. The lever or bar J, a spring, as Q, connected to the same, and a registering mechanism, combined with a spring-actuated lever or bar N to actuate said mechanism, the spring Q moving said lever against the tension of its spring, a latch to hold the lever N, and a stop-piece having wards to regulate the movement of the lever N by the spring Q, said stop-piece being adapted to be actuated by the lever J, according to the size of a coin, substantially as described.

8. A bar or lever adapted to be moved according to the size of a coin, an index-spindle, a toothed wheel connected thereto, a spring-actuated lever for turning said wheel, and a dog engaging said teeth and connected with said lever, combined with a stop-piece having wards to regulate the movement of said driving-lever, and a flexible connection between said first-mentioned lever or bar and said stop-piece for moving the latter according to the size of a coin, substantially as described.

9. A lever or bar to be moved according to the size of a coin, an arm e , connected thereto, and a separately-supported stop-piece to be actuated by said arm according to the movement of said lever by the coin, said stop-piece having wards corresponding to different coins, and a flexible connection between said stop-piece and said first-mentioned lever, combined with registering mechanism, a lever for actuating the same, said lever being regulated by said stop-piece, and a catch for holding said lever until the coin has set the stop-piece, substantially as described.

10. A lever or bar to be actuated more or less by coins of different sizes and a stop-piece having wards to be actuated by said

lever, combined with registering mechanism, a lever or bar for actuating the same, and a flexible connection between said stop-piece and said first-mentioned lever or bar to actuate the former by the latter at the proper time, substantially as described.

11. A coin-chute, a lever or bar projecting into the same, registering mechanism, a driving lever or bar for actuating the same, a catch for holding said lever, and a pin or the like q , connected with said catch and passing across the path of the coin in the chute to permit the coin to release the driving-lever, combined with a stop-piece having wards to regulate the movement of the driving-lever, and a flexible connection between said first-mentioned lever and said stop-piece, substantially as described.

12. The combination of a coin-chute, a lever J passing into the same to be moved by a coin, an index-spindle, a toothed wheel, an arm M, a dog carried thereby, a lever N, connected with said arm M, a catch for holding said lever N, a pin n , connected with said lever N, a spring for actuating the lever N to turn the spindle, and a stop-piece having wards to regulate the movement of said lever N, said stop-piece being moved by the lever J, according to the size of a coin, to bring different wards in line with the pin n , substantially as described.

13. The combination of a lever J, an index-spindle, a toothed wheel, a lever N for actuating the same, a stop-piece having wards to regulate the movement of said lever, a flexible connection between the lever J and said stop-piece, and a bell and a clapper actuated by said wheel according to the movement of the latter by said lever, substantially as described.

14. The combination, with a door and its latch, of an index-spindle, a toothed disk to hold up said latch, a thumb-piece connected with said disk for turning it to set any desired notch into position for releasing the latch, and registering mechanism connected therewith for turning said disk, whereby the disk may be first set to release the door when a predetermined amount has been inserted in the bank, substantially as described.

15. The combination, with a door and its latch, of a toothed disk to hold up said latch, a thumb-piece connected to said disk for turning it to set any desired notch into position to release the door, a wheel T, adapted to turn said disk to release the latch, and registering mechanism adapted to turn the wheel T, whereby the disk may be first set to release the door when a predetermined amount has been inserted in the bank, substantially as described.

16. An index-spindle, a toothed disk on the same, a thumb-piece connected with said disk, a projection on said disk, a wheel T, having a projection to engage the projection on the disk, and a dog for turning the disk T, combined with registering mechanism

adapted to turn the dog and with a latch held up by the disk and a door to be held by said latch, whereby the toothed disk can be first set to release the door when a predetermined
5 amount has been inserted in the bank, substantially as described.

17. An index-spindle, a toothed disk mounted thereon and having a thumb-piece B², a latch held up by said disk, and a door held
10 by said latch, combined with indicating mechanism, a wheel T, a dog W for actuating it, and connections between the disk and wheel

T for turning one by the other, whereby the disk can be first set to cause the door to open at any desired moment, substantially as specified. 15

Signed at New York, in the county of New York and State of New York, this 10th day of January, A. D. 1891.

RALPH B. COOLEY.
STEPHEN M. BALZER.

Witnesses:

T. F. BOURNE,
C. R. BOURNE.