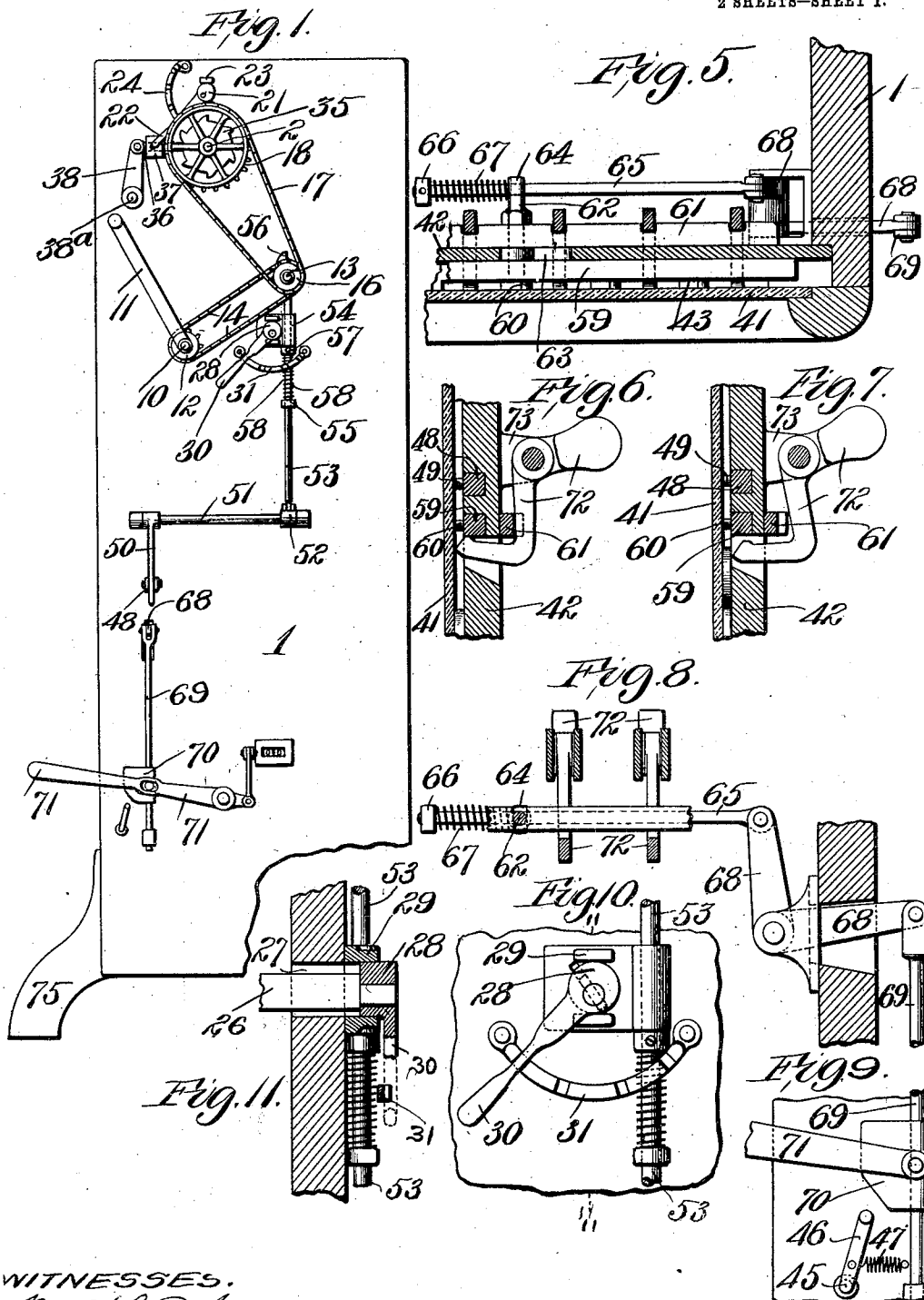


C. W. JOHNSON.
COIN COUNTING MACHINE.
APPLICATION FILED MAR. 1, 1905.

2 SHEETS—SHEET 1.



WITNESSES.

Wm. H. Scott.
Fred. F. Reimer.

INVENTOR:

Charles W. Johnson.

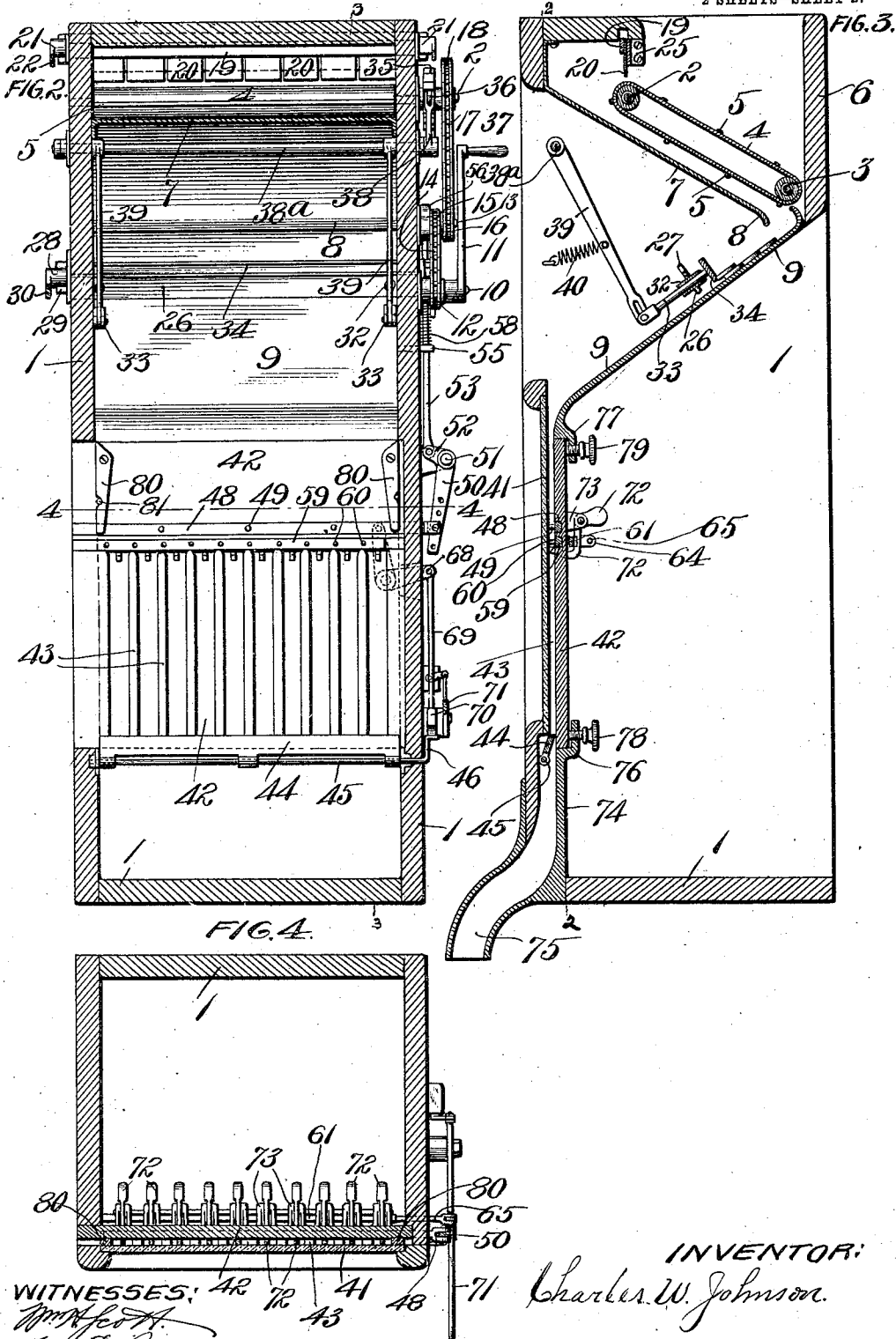
No. 844,308.

PATENTED FEB. 12, 1907.

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UNITED STATES PATENT OFFICE.

CHARLES W. JOHNSON, OF LITCHFIELD, ILLINOIS.

COIN-COUNTING MACHINE.

No. 844,308.

Specification of Letters Patent.

Patented Feb. 12, 1907.

Application filed March 1, 1905. Serial No. 247,864.

To all whom it may concern:

Be it known that I, CHARLES W. JOHNSON, a citizen of the United States, and a resident of the city of Litchfield, county of Montgomery, and State of Illinois, have invented a new and useful Improvement in Coin-Counting Machines, of which the following is a specification.

My invention relates to coin-counting machines, and has for its principal objects to produce a machine into which coins can be introduced in bulk and which will arrange them in a predetermined manner; to count coins of like denomination by measuring them; to measure coins of like denomination in a receptacle adapted to receive only a predetermined number of coins; to prevent emptying such receptacle until it has been entirely filled; to prevent the introduction of coins into the receptacle while it is being emptied; to provide a machine with a plurality of interchangeable receptacles, each receptacle being constructed to measure coins of a particular denomination.

My invention consists in the parts and in the arrangements and combinations of parts hereinafter described and claimed.

In the accompanying drawings, forming a part of this specification, and wherein like symbols refer to like parts wherever they occur, Figure 1 is a side elevational view of the machine. Fig. 2 is a vertical sectional view on the line 2 2 of Fig. 3. Fig. 3 is a sectional view on the line 3 3 of Fig. 2. Fig. 4 is a transverse sectional view on the line 4 4 of Fig. 2. Fig. 5 is a fragmentary transverse sectional view on an enlarged scale. Figs. 6 and 7 are detail views of the locking mechanism on an enlarged scale. Fig. 8 is a detail view. Fig. 9 is a fragmentary elevational view of a part of the discharging mechanism. Fig. 10 is an enlarged elevational view of the adjusting mechanism for the agitator, and Fig. 11 is a sectional view on the line 11 11 of Fig. 10.

My machine comprises a case or frame which serves to support the operating mechanism. The case is open at the top. Near the top of the case two shafts 2 3 are journaled, the shaft 2 being arranged in front of and above the shaft 3. An endless belt 4, provided with cleats 5, runs over the shafts. A plate 6 of the case extends from the top of the case down to and below the shaft 3. Thus a hopper is formed by the sides of the case 1, the rear plate 6, and the belt 4. A plate 7 is

connected to the front upper portion of the case and extends downwardly parallel to the belt 4, terminating in a curve 8 short of the rear of the case. Below said plate is a second inclined plate 9, extending from the rear of the case downwardly and forwardly, stopping short of the front plate of the case a distance equal to the thickness of the largest coin to be measured.

The coins are dumped into the hopper in bulk and are to be carried up and dumped onto the plate 7 by the belt. The latter is actuated by the following mechanism:

Near the front of the machine and between the plates 6 and 7 an actuating-shaft 10 is journaled, one end projecting through the casing. A crank 11 is mounted on the projecting end of the shaft, as well as a sprocket 12. Above and to the rear of said shaft 10 a counter-shaft 13 is journaled in the case and also projects therethrough at one end, the projecting end being provided with two sprockets 15 and 16. A sprocket-chain 14 connects the sprocket 12 on the actuating-shaft 10 and the sprocket 15 on the counter-shaft 13. The above-mentioned belt-actuating-shaft also projects through the case and is provided at its projecting end with a sprocket 18, which is connected to the sprocket 16 by a sprocket-chain 17. Thus by rotation of the crank 11 the feed-belt 4 is driven.

The cleats on the belt will catch coins in the hopper and carry them up and dump them on the plate 7. It is desired, however, that only one layer of coins be dumped on the plate at one time. To accomplish this purpose, a bar 19, provided with a plurality of spring-fingers 20, is mounted in the upper part of the case. The bar extends at its ends through slots in the case. The ends of the bar are round and carry eccentrics 21, carrying handles 22. Guides 23 on the case prevent up-and-down movement of the eccentrics. Thus when the eccentrics are turned the bar will be raised and lowered. The handles cooperate with segments 24, which have a notch corresponding to each size of coin which the machine is intended to count. For example, if the machine is intended to count nickels, dimes, quarters, and halves the segments 24 will have four notches. When the handles engage the notches for the nickels, the lower edge of the spring-fingers will be above the belt a distance equal to the thickness of a nickel. The said fingers are

made flexible, so that they will yield rather than grip the coins if they should become clogged. Ordinarily, however, the fingers will permit but one layer of coins to pass beneath them. To prevent the fingers springing forwardly, a bar 25 is arranged back of them and below the bar 19. Normally the spring-fingers bear against said bar 25 and are held in a vertical position.

The coins will slide down the plate 7 in substantially the order in which they are dumped from the belt 4 and will fall upon the plate 9. Occasionally, however, the coins will lodge on top of one another, and to prevent their passing into the chute an agitator is provided.

The agitator comprises a bar 26, extending across the case above the plate 9 and projecting through slots 27 in the sides of the case, which extend perpendicularly to said plate 9. The ends of the bar are round and carry eccentrics 28, which rotate between guides 29 on the ends of the case. A handle 30 is secured to each eccentric and moves over segments 31, which are provided with notches, with which said handle may engage, there being a notch for each denomination of coin which the machine is intended to count. Inside the case, near the ends of the bar, tubular bearings 32 are provided. In said bearings shafts 33 are slidably mounted and carry a plate 34 on their rear ends. By manipulating the eccentric 28 said plate 34 is adjusted with respect to the plate 9 so that it will permit only one layer of coins to pass beneath it. This plate 34 is reciprocated by the following mechanism:

On the belt-actuating shaft 2 a star-wheel 35 is secured. A rod 36 is slidably mounted in a bearing 37 on the case immediately in front of said star-wheel and is connected to an arm 38, mounted on a shaft 38^a, which is journaled in the case. Said shaft carries arms 39, arranged inside of the case and near the sides thereof. The shafts 33 of the plate 34 have a pin-and-slot connection with the arms 39. Springs 40, connected at their sides to the casing and said arms 39, respectively, hold the plate 34 normally in its forward position and the rod 36 in contact with said star-wheel. The teeth of said star-wheel are beveled on their advancing sides and are terminated abruptly on the other side. Hence the advance of said plate 34 when said rod 36 is engaged by a tooth of said star-wheel will be comparatively gradual, while its retreat will be abrupt. This mode of operation prevents clogging under the plate of the agitator.

The case is partially closed at the front by a glass plate 41. The case is open at one side for the insertion of a coin-receptacle 42. A plurality of these receptacles is provided, one for each denomination of coin which it is desired to count with the machine. These

receptacles are alike, differing only in proportions.

The receptacles consist, preferably, of a plate the front face of which is milled to form grooves separated by ribs 43. These ribs 43 fit up against the glass plate 41, and thus a series of chutes are formed. These chutes are proportioned to receive a coin edgewise and are deep enough to accommodate a predetermined number of coins. In the case shown the machine is intended to count nickels. There are ten grooves or chutes and each chute will contain ten nickels. The chutes are closed at the bottom by a plate 44, which is mounted on a shaft 45, journaled in the casing and projecting therethrough at one side, the projecting end carrying a small crank 46. A spring 47, connected at its ends, respectively, to the case and the crank 46, holds the plate normally in such position as to close the chutes.

Above the chutes a bar 48 is slidably mounted in a groove in the plate. It is provided with pins 49, projecting forwardly. At one end said bar 48 projects through the casing and is connected to an arm 50 on a shaft 51, journaled on the side of the case. This arm 50 is provided with holes equal in number to the number of the denominations of coins which the machine is intended to count. It will be understood that the chutes will vary in depth with the size of the coins to be counted, and hence said bar 48 will be carried at a different elevation in the receptacle to count dimes than in the one to count nickels. The holes in the arm 50 are in the proper position to connect up with the bars 48 of the various receptacles. At the rear end of the shaft 50 a second arm 52 is mounted, which connects with the vertical rod 53. This rod extends upwardly through bearings 54 55 in the case and engages a cam 56 on the counter-shaft 13. A collar 57 is secured on the rod between the bearings 54 55. A spring 58 surrounds the rod between the bearing 55 and the collar 57 and tends to hold the rod in its uppermost position. As the counter-shaft rotates the rod 53 will reciprocate and cause the bar 48 to reciprocate in a horizontal plane. The pins 49 will thus agitate the coins as they approach the chutes, and thus any possible clogging at this point will be prevented.

Above the chutes a bar 59 is mounted in a groove in the plate and carrying a series of pins 60 equal in number to the number of grooves or chutes and similarly spaced. When the bar is in its normal position, the pins register with the partitions between the grooves. A notched bar 61 is arranged back of the plate and in the plane of said bar 59. Said bars are connected by screws 62, which pass through slots 63 in the plate. At least one of said screws is provided with an eye 64, through which extends a rod 65, carrying a

collar 66 at its inner end. A spring 67 surrounds said rod and rests between said collar 66 and said eye 64. At its outer end said rod 65 is connected to a bell-crank lever 68, which is journaled on the case and has one arm projecting therethrough. Said projecting arm is connected to a rod 69, which extends downwardly and is guided in an eye on the case. A cam-block 70 is secured on said rod 69 just above the crank 46 of the closing-plate 44 for the chutes. On the side toward said crank the cam-block is beveled to about half its height, and the remainder of the face is vertical. A lever 71 is pivoted on the case and has a pin-and-slot connection with said cam-block and therethrough with the rod 69. When said lever 71 is actuated, the bars 59 and 61 will be moved longitudinally and the plate 44 will be rocked on its shaft to open the bottoms of the chutes. To prevent such operation before the receptacle is full, locking members are provided.

The locking members are bell-crank levers 72, pivoted in ears 73 on the rear of the plate of the receptacle. One arm of each of said bell-crank levers is curved and projects through holes in the plates and into the chutes or grooves. The front ends of the curved arms rest in contact with the glass plate, being held there by the other arm, which is weighted. The locking members rest in the notches of said notched bar 61, the spring 67 normally holding said bar in such position that the notches therein will be in registry with said locking members. As the coins enter the chutes the locking members will be tripped and will fall into place. The last coin in each chute will, however, not pass below the respective locking member, but will hold the same out of its respective notch. When all the chutes are full, all the locking members will be held out of their respective notches. Then by operation of the lever 71 the bars 59 and 61 can be moved longitudinally, so as to bring the pins 60 on the bar 59 into registry with the grooves or chutes. After moving sufficiently to bring the pins 60 over the center of the grooves or chutes the bars strike the case and are held there. Further movement of the actuating-lever 71 is possible, however, as the spring 67 may be compressed. The cam-block 70 is so located on the rod 69 that up to the time when the rods 59 and 61 strike their stops on the case said block has not engaged the crank 46. Thus the plate 44 cannot be turned until the tops of the grooves or chutes are closed to prevent the admission of coins thereto while the receptacle is being emptied. Upon further movement of the actuating-lever 71 and rod 69 the cam-block 70 engages the crank 46 and rocks the shaft 45, thus opening the bottoms of the chutes and permitting the discharge of the receptacle. When the lever is released and the rod is permitted to rise, the

reverse operation occurs. The plate 44 swings into position to close the bottoms of the chutes before the rods 59 and 61 move to carry the pins 60 out of registry with the grooves or chutes of the receptacle.

Below the bottom of the receptacle is a casting 74, having a slot registering with the chutes or grooves and leading to a discharging-spout 75.

The casting 74 and the plate 9 are provided with offset flanges 76 77, respectively. The receptacles fit in front of said flanges and are pressed up against the glass front 41 of the frame and secured in position by set-screws 78 79.

Above the chutes the plate of the receptacle is cut away flush with the back walls of the grooves or chutes. Thus when the receptacles are in position in the case a portion of the slot through which the receptacles are inserted is left open. To close this opening, a closing-piece 80 is pivotally mounted on the plate. A pin 81 engaging the piece 80 prevents any outward movement of the same. If desired, this piece can be rigidly secured to the plate.

Obviously my device is capable of considerable modification within the scope of my invention, and therefore I do not wish to be limited to the specific construction shown and described.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A coin-counting machine comprising a receptacle having a plurality of chambers to receive coins, movable means to prevent the discharge of coins from said chambers, and means to prevent the movement of said means until all of said chambers are full.

2. A coin-counting machine comprising a receptacle having a plurality of chambers to receive coins, means to prevent the escape of coins from said receptacle, means to actuate said means and locking means for said actuating means arranged to be thrown out of locking position by the top coins when said chambers are full.

3. A coin-counting machine comprising a hopper to receive coins in bulk, a receptacle having a plurality of chambers to receive coins, means to conduct coins from said hopper to said receptacle, means to prevent the escape of coins from said receptacle, means to actuate said second-mentioned means and locking means for said actuating means projecting into said chambers, said locking means being arranged to be thrown out of locking position by the top coins when said chambers are full.

4. A coin-counting machine comprising a receptacle having a plurality of chambers to receive coins, movable means to prevent the escape of coins from the bottoms of said chambers, movable means to prevent the admission of coins to said chambers, and means

for operating both of said means arranged to prevent the movement of said first-mentioned means until said second-mentioned means is in position to prevent the admission of coins to said chambers.

5 5. A coin-counting machine comprising a receptacle having a plurality of chambers to receive coins, movable means normally in position to prevent the escape of coins from said chambers, movable means normally out of position, but movable into position, to prevent the admission of coins to said chambers, and means for operating both said means arranged to move said first-mentioned means only when said second-mentioned means is in position to prevent the admission of coins to said chambers.

6. A coin-counting machine comprising a hopper to receive coins in bulk, a belt to carry coins from said hopper, adjustable means to prevent the passage of more than one layer of coins between it and said belt, a plate to receive coins discharged from said belt, an adjustable agitator to prevent the passage between it and said plate of more than one layer of coins, a receptacle having a plurality of chambers to receive coins, an agitator near the top of said receptacle, an actuating-shaft, and means to operate said belt and said agitators from said shaft.

7. In a coin-counting machine, an adjustable selector-bar, resilient fingers depending from said bar a handle to adjust the bar for the admission of a predetermined coin, and a notched plate to be engaged by said handle.

8. In a coin-counting machine, the combination with the chutes, of means for closing the top and bottom of the chutes, means extending normally into the chutes and actuated by the coins to be counted, to prevent the opening of the bottom-closing means of the chutes before the receptacle is full.

9. In a coin-counting machine, the combination with coin-chutes, of means controlled by the coins passing through the chutes to close the top and the bottom of the chutes alternately.

10. In a coin-counting machine, the combination with coin-chutes, of means controlled by the last of a predetermined number of coins to be counted in the chutes, to close and open the top and bottom of said chutes alternately.

11. In a coin-counting machine, the combination with coin-chutes and means to close the top and bottom of said chutes, of a lever projecting into said chutes in the path of the coins to be counted and locking the closing means against movement until the last coin to be counted enters the chute which prevents said lever from again entering the chute whereupon the closing means is free to be actuated to close the top of the chute and open the bottom of the chute.

12. In a coin-counting machine, the com-

bination with the chutes, of a slidable bar mounted near the top of the chutes and provided with projections adapted to close said chutes, a lever one end of which enters the chute, the other end being adapted to lock the sliding bar against movement, said lever being operated by the passage of the coins through the chute.

13. In a coin-counting machine, the combination with the chutes, of a movable bar near the top of the chutes, projections on said bar adapted to enter and close said chutes, a bell-crank lever, one arm of which is normally in the chute in the path of the coins and momentarily displaced by each coin except the last coin counted which holds it out of the chute, and means released by the bell-crank lever permitting the sliding bar to move.

14. In a coin-counting machine, the combination with the chute, of a movable bar near the top of the chute, pins carried by said bar and adapted to project into the chute, a movable notched bar connected to the first-named bar, and a bell-crank lever, one arm of which engages said bar, the end of said arm projecting in the chute normally but adapted to be projected from the chute by the last coin counted whereby the arm of the lever is held out of engagement with the notched bar, thus permitting the said bars to be moved and the pins carried by one of them enter and close the top of the chute.

15. In a coin-counting machine, the combination of a casing, a coin-compartment plate in said casing provided with a plurality of compartments, means for delivering the coins to said compartments, means for controlling the outlets from said compartments, a runway-plate above said coin-compartment plate and means for agitating the coins while they are passing to said compartments on said runway-plate, substantially as set forth.

16. In a coin-counting machine, the combination of a casing, a coin-compartment plate in said casing provided with a plurality of compartments, means for delivering coins to said compartments, means for controlling the outlets from said compartments, shiftable means for closing the inlets to said compartments, and means actuated upon by the coins for holding said inlet-controlling means until all of the compartments are filled, substantially as set forth.

17. In a coin-counting machine, the combination of a casing, a coin-compartment plate in said casing provided with a plurality of compartments, means for controlling the outlets from said compartments, means for delivering the coins to said compartments, a lock-bar provided with pins adapted to control the inlets to said compartments, and means acted upon by the coins adapted to control said lock-bar, substantially as set forth.

18. In a coin-counting machine, the combination of a casing, a coin-compartment plate in said casing provided with a plurality of compartments, means for controlling the outlets from said compartments, means for delivering the coins to said compartments, a lock-bar provided with pins adapted to control the inlets to said compartments, and dogs arranged to engage said lock-bar and adapted to project into said compartments to be acted upon by the coins entering thereinto to control the movement of said lock-bar, substantially as set forth.

19. In a coin-counting machine, the combination of a casing, a coin-compartment plate in said casing provided with a plurality of compartments, a gate for controlling the outlets from said compartments, means for delivering coins to said compartments, a lock-bar associated with said plate and provided with stop-pins, coin-tripped means extending into said compartments and adapted to engage said lock-bar, and means for first moving said lock-bar to carry its pins into said compartments and thereafter tripping said gate to permit the discharge of coins from said compartments, substantially as set forth.

20. In a coin-counting machine, the combination of a casing, a coin-compartment member in said casing provided with a plurality of compartments, a traveling coin-delivery member, a runway member located beneath said delivery member, and an agitator located above said runway member, substantially as set forth.

21. In a coin-counting machine, the combination of a casing, a coin-compartment

member in said casing provided with a plurality of compartments, a traveling coin-delivery member, a runway member located beneath said delivery member, and an adjustably-supported agitator located above said runway member, substantially as set forth.

22. In a coin-counting machine, the combination of a casing, a coin-compartment member in said casing provided with a plurality of compartments, a traveling coin-delivery member, a runway member beneath said coin-delivery member and leading to said coin-compartment member, a reciprocatory agitator mounted above said runway member, means whereby said agitator is adjustably supported, and means for imparting reciprocation to said agitator, substantially as set forth.

23. In a coin-counting machine, the combination of a casing, a coin-compartment member in said casing, a gate for controlling the outlets from the compartments of said member, a trip-arm fitted to said gate, a coin-controlled lock-bar associated with said coin-compartment member, a pull-rod connected to said lock-bar, and a cam carried by said pull-rod arranged to engage said gate trip-arm, substantially as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 27th day of February, 1905, at St. Louis, Missouri.

CHAS. W. JOHNSON.

Witnesses:

FRED F. REISNER,
J. B. MEGOWN.