

C. C. VOGLESONG.
COIN SEPARATOR AND COUNTER.
APPLICATION FILED SEPT. 26, 1916.

1,356,947.

Patented Oct. 26, 1920.

4 SHEETS—SHEET 1.

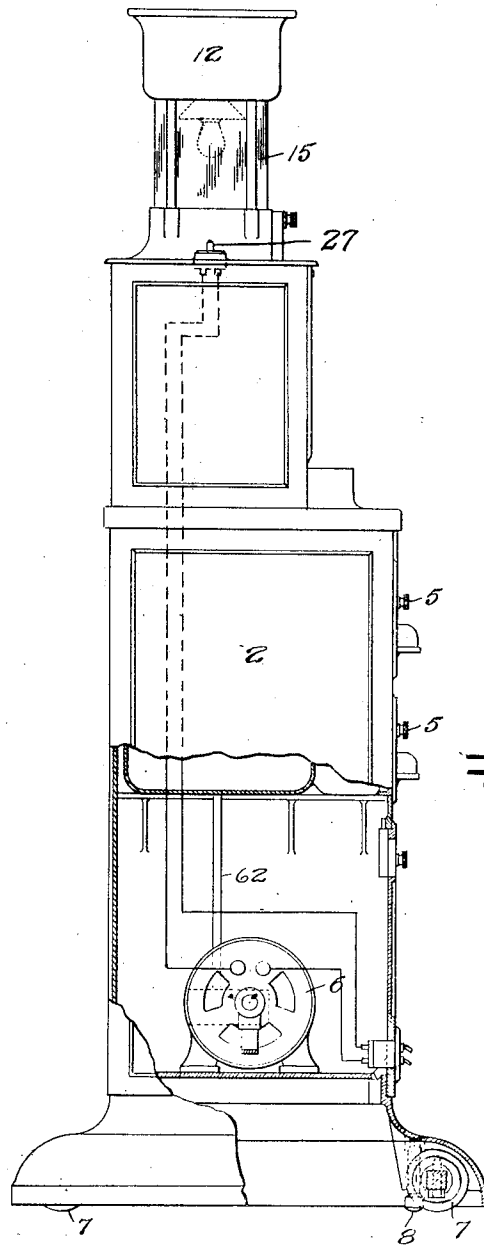
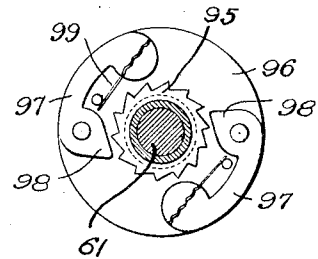


Fig. 9

WITNESSES:

J. D. Gardner

INVENTOR.
CLYDE C. VOGLESONG

BY *White & Frost*

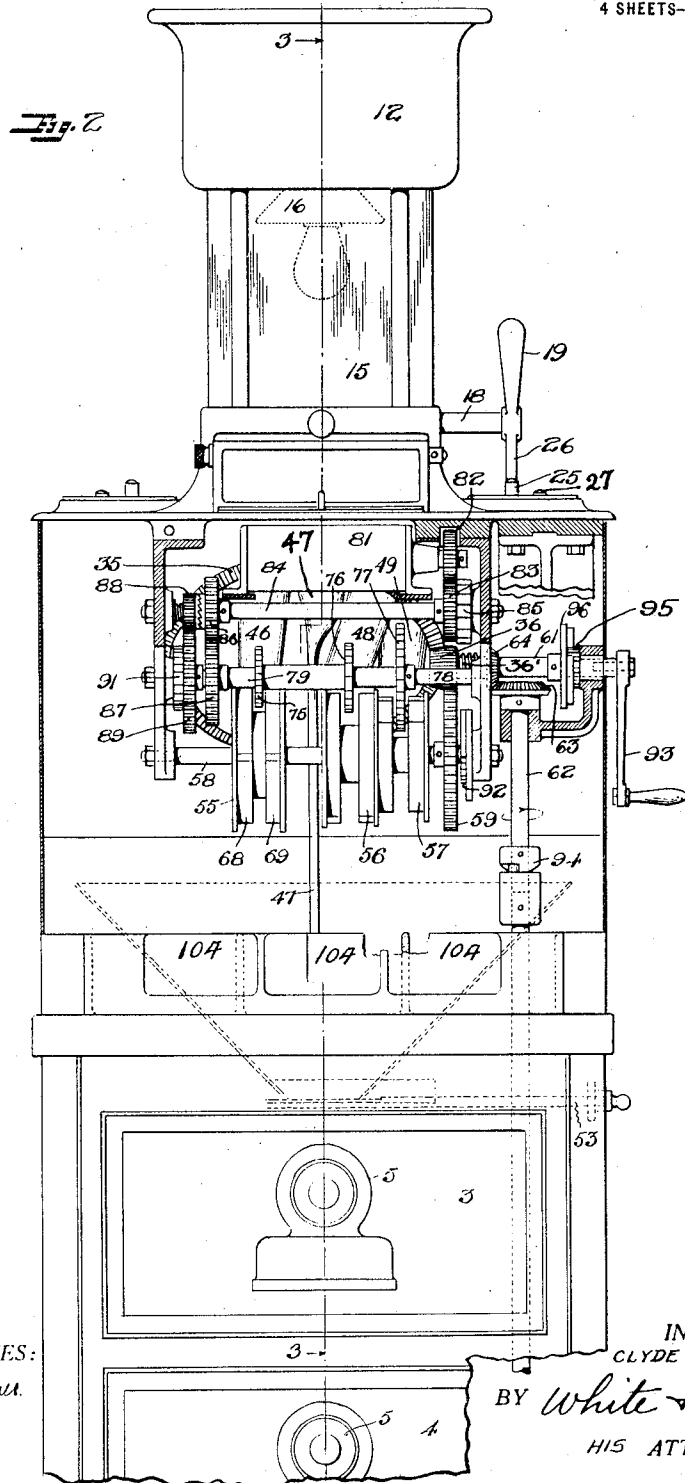
HIS ATTORNEYS.

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4 SHEETS—SHEET 2.



WITNESSES:
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4 SHEETS—SHEET 3.

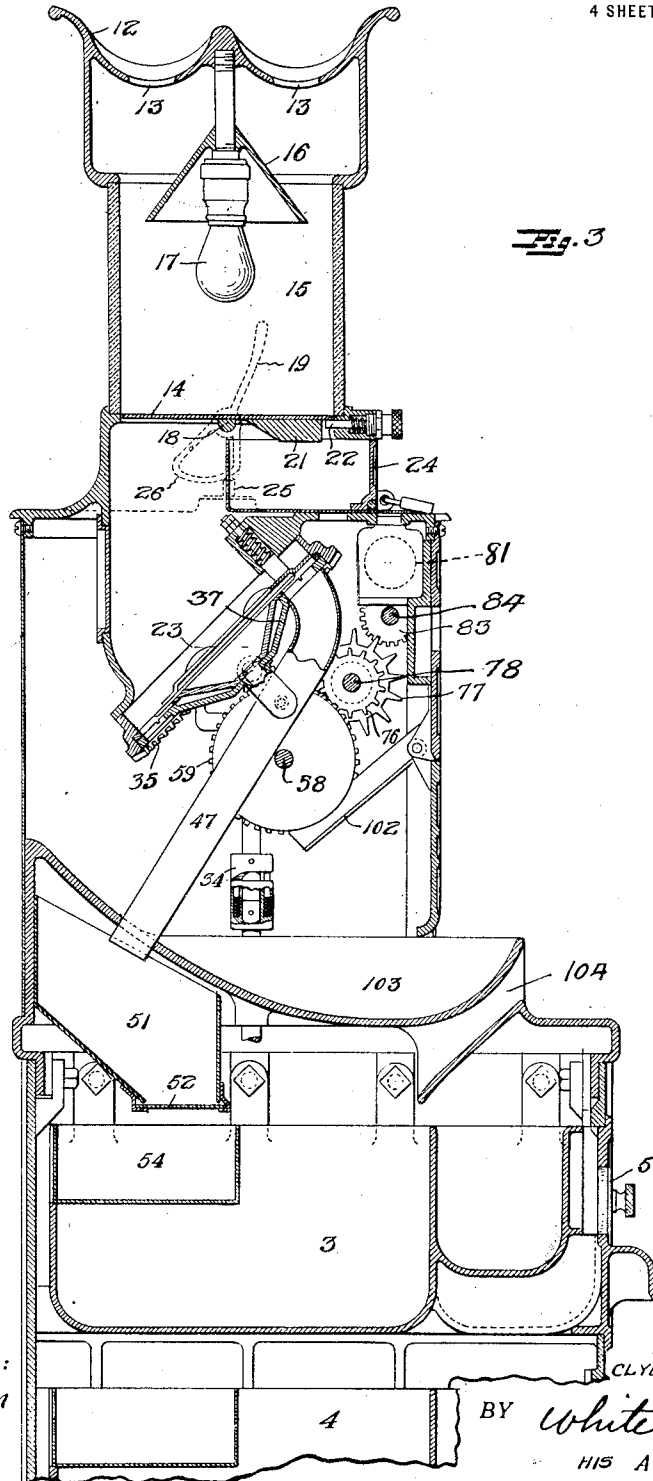


Fig. 3

WITNESSES:
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 CLYDE C. VOGLESONG

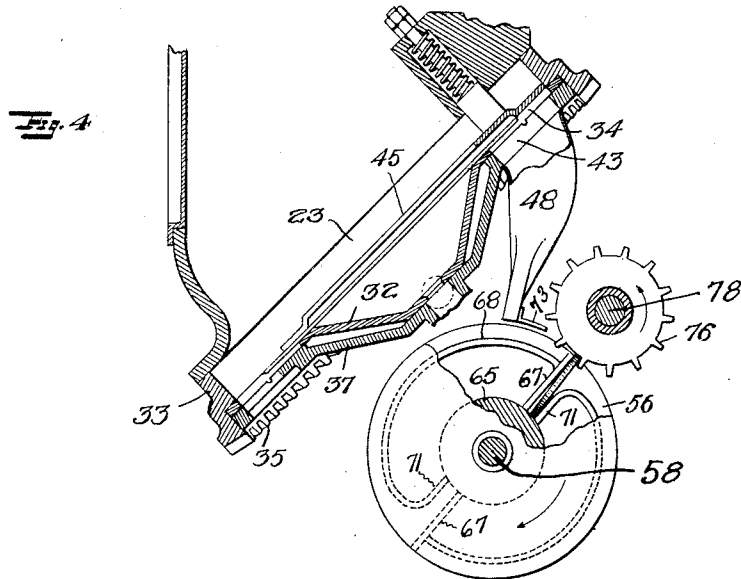
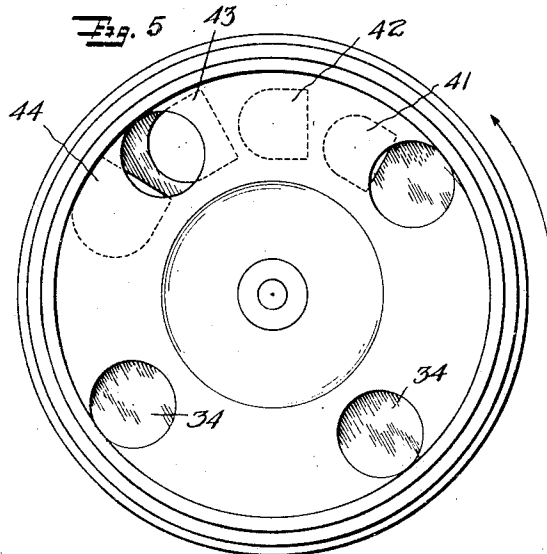
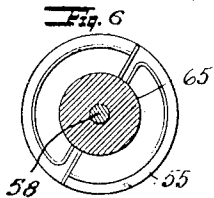
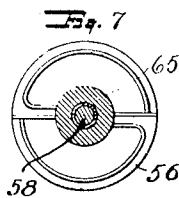
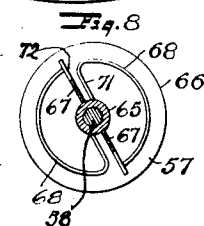
BY *White Frost*
 HIS ATTORNEYS.

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 APPLICATION FILED SEPT. 26, 1916.

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Patented Oct. 26, 1920.

4 SHEETS—SHEET 4.



INVENTOR.
 CLYDE C. VOGLESONG
 BY *White & Frost*
 HIS ATTORNEYS.

UNITED STATES PATENT OFFICE.

CLYDE C. VOGLESONG, OF OAKLAND, CALIFORNIA.

COIN SEPARATOR AND COUNTER.

1,356,947.

Specification of Letters Patent.

Patented Oct. 26, 1920.

Application filed September 26, 1916. Serial No. 122,221.

To all whom it may concern:

Be it known that I, CLYDE C. VOGLESONG, a citizen of the United States, and a resident of Oakland, county of Alameda, and State of California, have invented a certain new and useful Coin Separator and Counter, of which the following is a specification.

The invention relates to machines for receiving, segregating and counting coins of various denominations.

An object of the invention is to provide a coin separating and counting machine having the capacity of segregating and counting coins of various sizes quickly and accurately.

Another object of the invention is to provide means for registering on one counter, the total value of all coins passing through the machine.

Another object of the invention is to provide means for operating the segregating means which is automatically thrown into operation by the introduction of coins into the segregating means.

A further object of the invention is to provide means for directing spurious or mutilated coins or other articles which are deposited in the machine from the segregating means.

Another object of the invention is to provide means for preventing the apparatus from being operated at an excessive speed.

The invention comprises other advantageous features, some of which, with the foregoing, will be set forth at length in the following description, where I shall outline in full that form of the invention which I have selected for illustration in the drawings accompanying and forming part of the present specification. In the drawings I have shown only one specific form of my generic invention, but it is to be understood that I do not limit myself to such form because my invention may be embodied in a multiplicity of forms, each being a species of my said invention.

In said drawings:

Figure 1 is a side elevation of the apparatus of my invention, part thereof being broken away to disclose the interior construction.

Fig. 2 is a vertical section of a portion of the apparatus showing the coin counting wheels.

Fig. 3 is a vertical section of a portion of the apparatus, taken on the line 3—3, Fig. 2.

Fig. 4 is a vertical section through the coin segregating means showing one coin counting unit.

Fig. 5 is a plan view of the coin segregating means.

Figs. 6, 7 and 8 are sections of the coin wheels for receiving the coins of different denominations, showing the relative angular positions of the wheels.

Fig. 9 is a detail of a centrifugally acting lock.

The machine illustrated in the drawings is particularly adapted to be used by theaters, ferry and suburban railway systems and other places where admission or fares may be paid by persons on entering the building, terminal or vehicle as the case may be. In such use, the coins which are tendered in payment usually vary from cent pieces to quarter dollars and I have constructed the present machine to accommodate cents, nickels, dimes and quarters, although the range of coin values or the number of coin values to be accommodated may be varied as desired to meet different conditions. Cent pieces are not frequently tendered as fare or admission, and I have provided means for separating these coins from the others and depositing them in a separate receptacle, but on account of their infrequent use I have not believed it advisable to provide means for counting them. The present machine, therefore, operates to segregate coins of four different denominations and to count and register the values of the coins of three of these denominations.

The present machine is of the pedestal type, being arranged on a suitable case or cabinet in which drawers for containing the money received are arranged, the drawers being provided with suitable combination locks, so that they may be opened only by authorized persons. In the bottom of the case is arranged an electric motor, for driving the segregating and counting mechanism. The case is provided with suitable rollers, so that the machine may be readily moved over the floor and with adjustable supports which may be lowered to raise the rollers from the floor when the machine is to remain in one place.

The coins are placed in the hopper 12, which is provided with apertures 13 of only sufficient size to allow the largest coin which may be segregated by the device to pass through. From the hopper the coins fall onto the inspection table 14 which forms the bottom of the glass-walled inspection chamber 15. Arranged below the hopper 12 and preferably supported thereby is a conical shield 16 which prevents the insertion of an instrument into the inspection chamber through the hopper for the purpose of removing coins therefrom. The shield 16 also acts as a protection for the incandescent lamp 17 which illuminates the inspection table.

The inspection table is secured to the diametrically disposed rocker shaft 18 which is rocked by the handle 19 to tilt the table to cause the coins to discharge therefrom. The table is normally held in a horizontal position by the weight 21 attached thereto and the stop-pin 22, both arranged on the same side of the center line of the table. Movement of the handle toward the left (Fig. 3) causes the table to tilt and slide the coins thereon into the segregating cup 23. Means are provided for preventing spurious or mutilated coins or other foreign articles which are dropped into the machine from being fed to the segregating cup. The stop-pin 22 is yieldingly held in position in contact with the table 14 and may be withdrawn to permit the table to tilt to the right, Fig. 3. Arranged below the right side of the table is a locked compartment or drawer 24 into which the undesirable articles fall and from which they can be removed only by operating the lock. The operator is thereby able to divert any extraneous objects from the segregating mechanism and these objects are retained in the machine and are not accessible.

Means are provided for preventing the accumulation of a large number of coins in the segregating cup 23 and the consequent congestion and liability of error therein. The segregating mechanism is driven by an electric motor and means are provided for closing the motor circuit when the inspection table 14 is tilted to discharge the coins thereon into the segregating cup. Arranged adjacent the handle 19 is a button 25 which when depressed closes a switch in the motor circuit and the handle is provided with a cam 26 which engages and depresses the button when the handle is moved to tilt the table to slide the coins into the cup. A second button 27, connected to button 25 in a known manner, is raised when button 25 is depressed and after the table has returned to the horizontal position, the button 27 may be depressed to raise button 25 so that the circuit is opened and the motor stopped. When coins are being continuously dropped

into the hopper, the motor may be kept running continuously.

The segregating mechanism comprises an inclined rotatable cup 23 consisting of the bottom plate 32 and the side wall 33 which are secured together. The bottom plate is provided adjacent its periphery with a plurality of circular apertures 34, equal in diameter to the largest coins to be segregated in which the coins lodge and in which they are carried to the different coin chutes as the cup rotates. The side wall 33 is provided with a bevel gear 35 which meshes with the driving gear 36. Arranged below the rotatable bottom 32 and in contact therewith is a stationary plate 37 which is provided adjacent its periphery with various-sized segregating apertures 41—42—43—44 through which the coins fall, the successive apertures increasing in size in the direction of rotation of the cup. In the present machine segregating aperture 41 receives the dimes, aperture 42 the cent pieces, aperture 43 the nickels and aperture 44 the quarters. The bottom plate 32 rotates in a counter-clockwise direction (Fig. 5), so that the coins arrive at the proper aperture before falling from the apertures in the bottom plate. The apertures 41—42—43—44 are preferably straight on the side which the coins approach and the coins tilt over the straight edge and fall into the chutes arranged immediately below the segregating apertures. A stationary spring-pressed shoe 45 is arranged in the rotating cup and overlies a portion of the periphery of the bottom plate and prevents more than one coin from being carried in an aperture in the bottom plate at one time.

Secured to the stationary plate 37 and registering with the respective segregating apertures therein are a plurality of coin chutes 46—47—48—49. The chute 47 is arranged below aperture 42 and conducts the cent pieces to a compartment 51. This compartment is provided with a locked sliding gate 52 attached to the rod 53 so that the gate may be opened by moving the rod. When the gate is opened the cent pieces fall into the chamber 54 in drawer 3. The coin chutes 46, 48 and 49 receive the dimes, nickels, and quarters respectively from their respective segregating apertures and are so shaped, that in passing therethrough, the coins are turned so that they move edgewise and are discharged edgewise from the chutes. Arranged below the discharge ends of the coin chutes 46, 48 and 49 and adapted to receive the coins edgewise therefrom, respectively, are coin wheels 55, 56 and 57, secured to the driven shaft 58 arranged substantially parallel to the ends of the coin chutes. The shaft 58 is driven by means of a gear 59 secured thereto, which meshes with a cylindrical gear extension of bevel gear 36. Bevel gear 36 is splined on shaft 61 which is con-

nected to the main motor driven shaft 62 by
 the bevel gears 63 and 64. The bevel gear 36
 is pressed by spring 36' into engagement
 with the bevel gear 35 on the segregating cup
 5 and should for any reason the segregating
 cup become jammed, the bevel gear 36 will
 be pushed out of engagement with the bevel
 gear 35, thereby preventing breaking or in-
 juring the apparatus or stalling the motor.
 10 Each coin wheel comprises a hub 65 and
 side plates 66, the diameters of the hubs
 varying in an inverse ratio to the diameter
 of the coins. Arranged between the side
 plates and substantially diametrically oppo-
 15 site each other are plates 67 which form one
 side of the diametrically opposed slots into
 which the coins fall from the chutes, the
 slots lying in planes parallel to the shaft 58.
 Arranged between the side plates and spaced
 20 apart transversely of the wheel so that a slot
 is formed between them are plates 68 and 69,
 which hold the coins in the chutes until the
 coin wheel has rotated a sufficient distance
 to bring the coin slot under the chute. The
 25 plates 68 and 69 extend circumferentially
 of the wheel within the perimeter thereof
 for substantially one-half a circumference,
 joining the plates on one end and being bent
 to lie substantially parallel with the dia-
 30 metrically opposed plate 67 on the other
 end. The bent portions 71 and the plates
 67 form the coin slots into which the coins
 discharge from the chutes, the slots being
 closed at their inner ends by the hub. The
 35 plate 67 is provided with an indenture 72,
 so that a complete circumferential slot is
 formed. In the particular machine shown
 herein, each coin wheel is provided with two
 coin slots, but a lesser or a greater number
 40 of slots may be provided, depending upon
 the rate of rotation of the segregating cup
 with respect to that of the coin wheels, the
 number of coin carrying apertures in the
 cup and other features of construction. In
 45 the present construction, the coin wheels are
 fixed to the shaft 58, so that the coin slots
 in the various wheels are advanced angu-
 larly 60° with respect to each other, for
 reasons that will be explained hereafter, but
 50 this angular spacing may be varied in ma-
 chines of different construction. The coin
 slots in the different wheels are spaced apart
 angularly, so that only one coin will be in
 engagement with the counting mechanism at
 55 one time, since in this machine one counter
 is employed for counting and totaling the
 value of all coins passing through, but when
 separate counters are used for each coin, the
 spacing of the coin slots is not essential, nor
 60 is the number of slots in each wheel a particu-
 lar consideration. The coin wheels rotate
 in the direction indicated in Fig. 4, and as
 a coin emerges from the chute, it comes into
 65 contact with the plates 68—69 and is held
 partially in the chute by the plates until the

rotation of the coin wheel brings the coin
 slot under the coin, when it falls into the slot
 and is then carried forward by the coin
 wheel. The plates 68—69 curve gently into
 the bent portion 71, so that the coin slides
 70 into the slot. Arranged on the rear of each
 chute is a guard plate 73 which prevents the
 coin from becoming dislodged from the slot
 before it reaches the counting mechanism.
 The rate of rotation of the segregating cup
 75 and the number of coin carrying apertures
 or pockets therein is such that in the pres-
 ent construction, two coin carrying apertures
 pass over each segregating aperture for a
 complete revolution of the coin wheels.
 80 Therefore, if a plurality of coins of one de-
 nomination are placed in the segregating
 cup, they are conveyed to the coin wheel
 only as fast as the coin wheel can receive
 them, that is, not more than two coins of
 85 any one denomination can be fed to the re-
 spective coin wheel for each revolution of
 the coin wheel. This insures accuracy in
 counting the coins, whether one or more
 counters be used and prevents coins jamming
 90 in the chutes since there is never more than
 one coin at a time in any chute.

Arranged adjacent the coin wheels and
 preferably having their toothed portions
 lying between the plates 66 or extending
 95 into the circumferential slots, are the coun-
 ter-actuating means comprising the toothed
 wheels 75, 76 and 77, cooperating with coin
 wheels 55, 56 and 57 respectively. The
 counter actuating wheels are mounted on a
 100 shaft 78, parallel to shaft 58 and preferably
 arranged adjacent the ends of the coin
 chutes. The toothed wheel 77 is secured to
 shaft 78 and toothed wheels 75 and 76 are
 105 secured to the sleeve 79, mounted on the
 shaft. The toothed wheels are preferably
 of different diameters, so that they project
 for different distances into the coin wheels
 and are, therefore, in contact with the dif-
 ferent coins through different distances and
 110 therefore rotate for different distances. The
 teeth on the wheels are engaged by the coins
 in the slots and the arc of engagement de-
 termines the angular movement of the
 toothed wheels, the wheels being rotated
 115 by the coins carried in the slots of the coin
 wheels. Toothed wheels 75 and 76 which
 count the nickels and dimes are secured to
 the same sleeve and are so arranged that the
 presence of a dime in its coin wheel causes
 120 its counter actuating wheel to rotate through
 twice the angle caused by the presence of a
 nickel in its coin wheel.

Arranged within the apparatus and hav-
 ing its counting face visible on the exterior
 125 of the apparatus, is a counter 81 adapted to
 be actuated by the passage of a coin through
 any of the coin wheels and to be actuated to
 a different degree for each denomination of
 coin and to total the value of all coins count- 130

ed. The unit of counting is preferably the value of the coin of lowest denomination counted, in the present instance the nickel, and the counter may record one or five for each nickel. In the event that the counter records one for each nickel, it will record two for each dime and five for each quarter. The counter is provided with a driving gear 82 which meshes with a gear 83 preferably of the same diameter, secured to shaft 84. Secured to shaft 84 is a ratchet wheel 85 engaged by a suitable spring latch, so that it moves with a step by step motion, one step for each unit of value recorded. Secured to shaft 84 is a gear 86 meshing with gear 87 secured to sleeve 79. Rotatably mounted on shaft 84 is a gear 88 having a clutch face spring pressed into engagement with a similar clutch face on gear 86. The gear 88 is in mesh with gear 89 secured to shaft 78 which gear 89 is also provided with a motion retarding ratchet 91. Gear 88 is smaller than gear 89 so that the motion of shaft 78 is multiplied when applied to shaft 84. The clutch faces on gears 86 and 88 permit the sleeve 79 to rotate without rotating the shaft 78. The coins when in the coin wheels are in engagement with the counter wheels through an arc of less than 60° and the coins are separated in the coin wheels at least 60° so that one coin has completed its operation of the counter before the next coin comes into engagement with the counting mechanism, thereby insuring the proper counting of every coin passing through the apparatus. The coin wheels are prevented from moving in the wrong direction by a ratchet 92 secured to shaft 58 and engaged by a pawl pivoted to the frame. The apparatus may be driven by hand, instead of by motor when desired or when the motor drive fails. A handle 93 may be attached to shaft 61 and the entire mechanism driven by rotating the handle. A clutch 94 on the main drive shaft 62 permits rotation of shaft 61 without rotating the motor. Means are provided for preventing the handle from being rotated at such high speed as to interfere with the proper segregation of the coins. Fixed to the frame and surrounding the shaft 61 is a ratchet 95 and secured to the shaft 61 is a plate 96 to which are pivoted two weighted spring pressed levers 97 having teeth 98 adapted to engage the ratchet. When the shaft 61 and consequently the plate 96 are rotated at too high speed, the centrifugal force of the weighted ends of the levers causes them to move outwardly against the influence of the springs 99 and cause the teeth 98 to engage the ratchet and stop the shaft.

After the coins have been counted, they fall from the coin wheels onto the chute 102 and thence into the compartment 103 which is open to allow the coins to be taken there-

from for the purpose of making change or for deposit. Arranged in the casing below the opening of compartment 103 are a plurality of chutes 104 which lead into different compartments in drawer 3 and into which the excess coins and the large coins and bills received in making change are placed.

I claim:

1. In a coin segregator, an inspection table tiltable in either direction about a horizontal axis, segregating means arranged to receive coins from the table when tilted in one direction, a closed compartment arranged to receive coins from the table when tilted in the other direction and means for normally preventing the table from being tilted in the second direction.

2. In a coin segregator and counter, means for segregating coins of different denominations, coin wheels arranged to receive the segregated coins from said segregating means, a single registering means and register actuating means arranged in coöperative relation with said coin wheels and arranged to be actuated by the movement of the coin wheels during the presence of coins therein.

3. In a coin segregator and counter, means for segregating coins of different denominations, driven coin wheels arranged to receive the coins from the segregating means and counter actuating means in coöperative relation with said coin wheels, said wheels being so arranged that only one counter actuating means is moved at one time.

4. In a coin segregator and counter, means for segregating coins of different denominations, a driven shaft arranged below and connected to said segregating means, coin wheels fixed in said shaft arranged to receive the segregated coins, a register, toothed wheels arranged adjacent said coin wheels and arranged to engage coins therein, and means connecting said toothed wheels and said register.

5. In a coin counter, a driven shaft, a plurality of coin wheels having radial slots fixed on said shaft, a second shaft, and counter actuating means arranged on said second shaft and coöperating with said wheels, the slots in said wheels being so arranged that only one counter actuating mechanism is operated at a time.

6. In a coin counter, a driven shaft, a plurality of coin wheels having radial slots arranged on said shafts, said slots being of different depths in different wheels, means for placing coins edgewise in said slots, a plurality of concentric toothed wheels of different diameters coöperating with said coin wheels and adapted to be engaged by coins in the slots of said wheels, a counter, and means connecting said toothed wheels with said counter.

7. In a coin segregator and counter, seg-

regating and counting means, a casing upon
which said means are mounted, a compart-
ment in said casing into which the counted
coins are discharged, a drawer arranged be-
5 low said compartment and chutes opening
on the front of said casing and directed
toward said drawer.

In testimony whereof, I have hereunto set
my hand at Emeryville, California, this 21st
day of September, 1916.

CLYDE C. VOGLESONG.

In presence of—
H. G. PROST.