C. C. VOGLESONG.

COIN SEPARATOR AND COUNTER.

APPLICATION FILED NOV. 6, 1913.

1,210,732.

Patented Jan. 2, 1917.

3 SHEETS—SHEET 1.

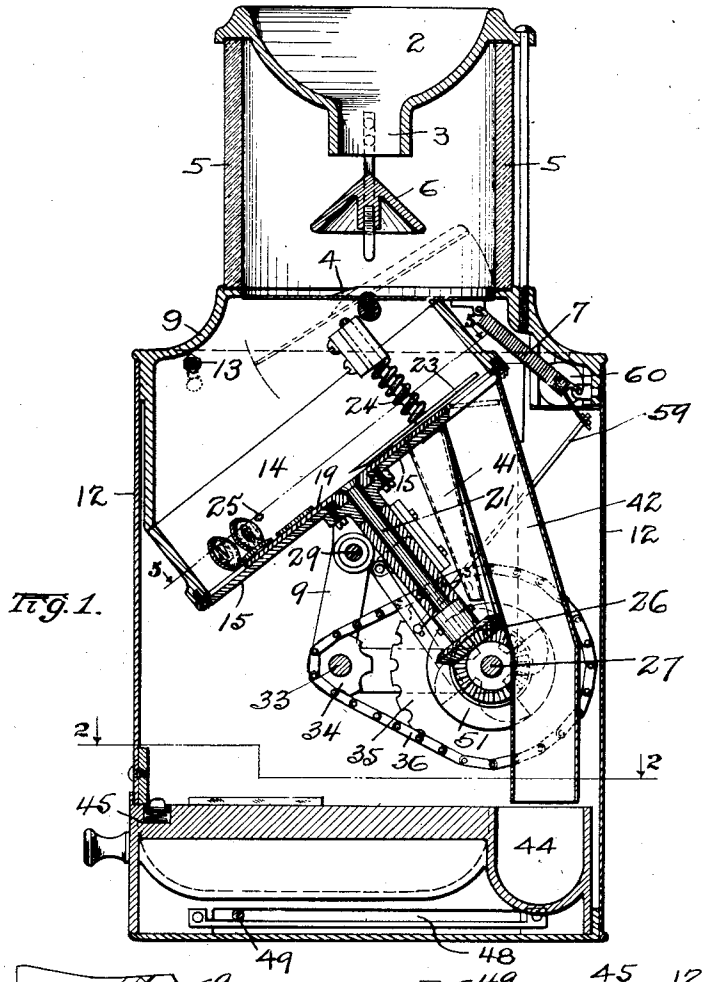


Fig. 1.

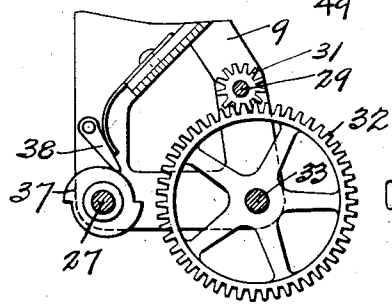


Fig. 3.

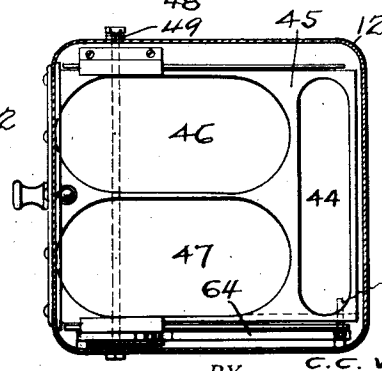


Fig. 2.

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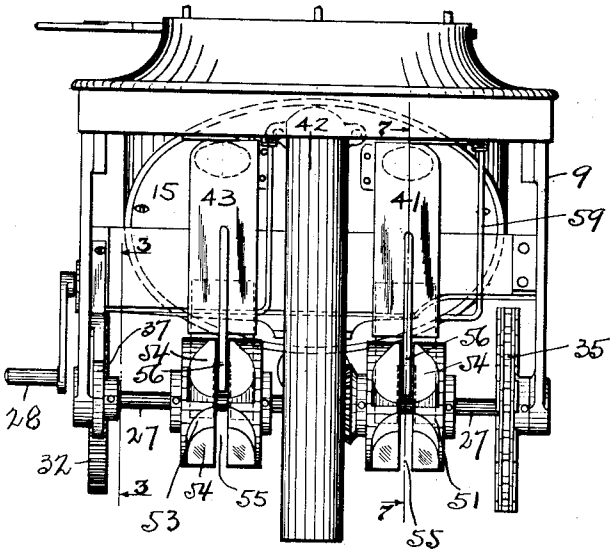


Fig. 4.

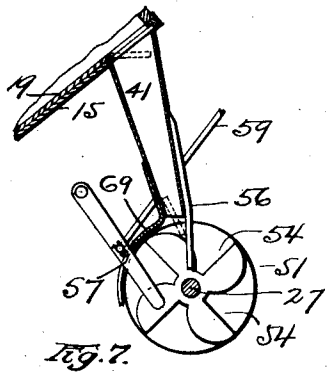


Fig. 7.

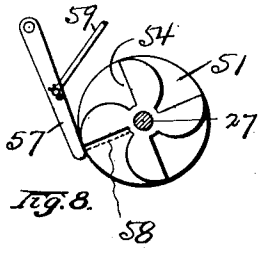


Fig. 8.

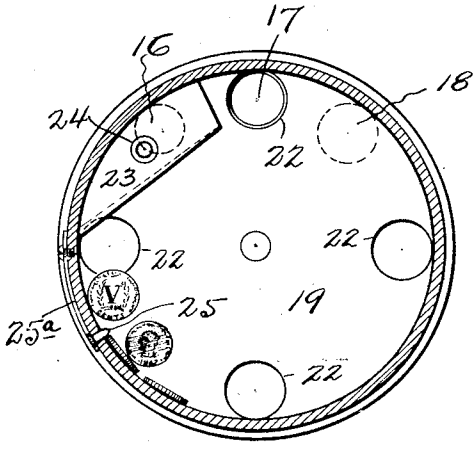


Fig. 5.

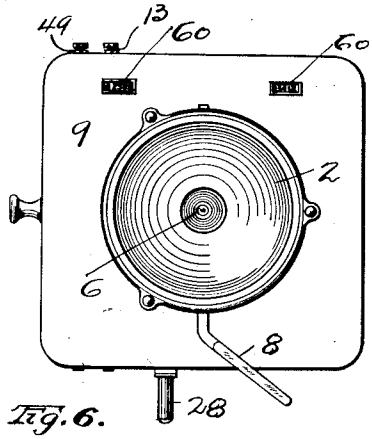


Fig. 6.

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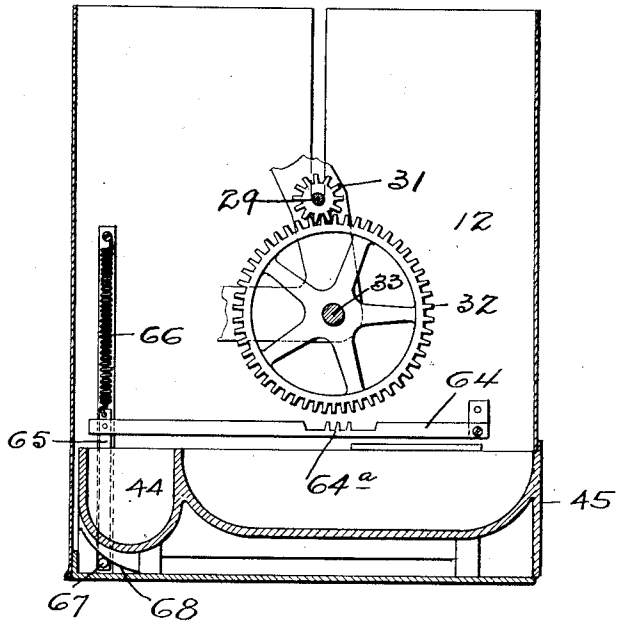
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3 SHEETS—SHEET 3.

Fig. 9.



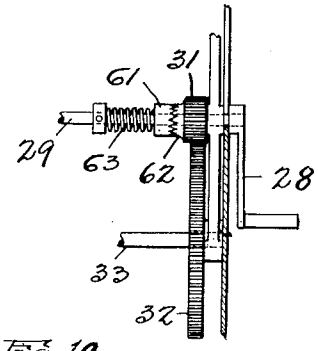


Fig. 10.

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UNITED STATES PATENT OFFICE.

CLYDE C. VOGLESONG, OF OAKLAND, CALIFORNIA, ASSIGNOR TO AMERICAN COIN REGISTER COMPANY, A CORPORATION OF CALIFORNIA.

COIN SEPARATOR AND COUNTER.

1,210,732. Specification of Letters Patent. Patented Jan. 2, 1917.

Application filed November 6, 1913. Serial No. 799,508.

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 certain new and useful Improvements in Coin Separators and Counters, of which the following is a specification.

The invention relates to machines for receiving segregating and counting coins of various sizes and is particularly adapted for use in connection with street cars and in other instances and locations where the coins are deposited by the passengers or patrons.

The object of the invention is to provide a fare box or coin collecting and separating machine having the capacity of segregating several sizes of coins quickly and accurately.

Another object of the invention is to provide a coin separator of such construction that worn and mutilated coins will progress therethrough with the same speed and accuracy as new and properly sized coins.

Another object of the invention is to provide means whereby the count of the various coins of different sizes is registered before the coins are discharged into receptacles from which they may be readily removed.

A further object of the invention is to provide a fare box which cannot be dishonestly manipulated or tampered with and which produces and preserves the proper record of the coins deposited.

The invention possesses other advantageous features, 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. The novelty of the invention will be included in the claims succeeding said description. From this it will be apparent that I do not limit myself to the showing made by said drawings and description as I may adopt many variations within the scope of my invention as set forth in said claims.

Referring to said drawings: Figure 1 is a vertical section through the machine. Fig. 2 is a cross section on a smaller scale taken on the line 2—2 Fig. 1. Fig. 3 is a detail of the means for preventing the moving parts from being rotated in the wrong direction, taken on the line 3—3 Fig. 4. Fig. 4, is a rear elevation of the mechanism with the outer casing removed. Fig. 5 is a section of the coin separating means taken on the line 5—5 Fig. 1. Fig. 6 is a top or plan of the machine. Fig. 7 is a detail showing the counting means in side elevation taken on the line 7—7 Fig. 4. Fig. 8 is a similar view showing the operation of the counting means. Fig. 9 is a side view of a portion of the mechanism showing the means for locking the mechanism when the coin receiving drawer is withdrawn. Fig. 10 is a detail of a safety clutch which is interposed between the drive handle and the mechanism.

The coins generally used for the payment of car fare are the ten cent piece or dime, the five cent piece or nickel, and occasionally cent pieces. The cent pieces are rarely used, but are legal tender and must be accepted when tendered. These coins differ both in diameter and thickness, the nickel being the larger in both dimensions, the dime being the smallest in both dimensions, and the cent occurring intermediate these two. Since these coins are the ones used, I will describe the invention in connection therewith, although it is to be understood that the invention is not limited to use in connection with any particular coins or with any particular names of coins.

The coins are deposited in a hopper 2 having a constricted outlet 3 from whence they fall onto the centrally pivoted table 4 which forms the bottom of a receiving chamber, which is provided with glass walls 5 to allow the coins to be observed before they are discharged into the segregating mechanism. The outlet 3 is of such diameter that only coins capable of being acted on by the mechanism may pass therethrough. Arranged below the outlet 3 is a wedge or cone-shaped plate 6 which prevents the removal of the coins in the receiving chamber through the outlet 3. The table 4 is normally held in a level position by the spring 7 and is tilted by means of a lever 8 arranged on the outside of the machine. After the coins have been observed and found to be proper by the conductor or person in charge, the lever 8 is operated to discharge the coins into the segregating mechanism.

The segregating and counting mechanism is arranged on a suitable frame 9, which is

supported and partly inclosed by the housing 12, preferably made of sheet metal, the mechanism being entirely contained within the housing so that it is not accessible. The frame 9 and housing 12 are locked together by means of a pin 13 which is sealed in place, so that its removal may be readily detected. Arranged below the tilting table 4 is an inclined cylindrical cup or chamber composed of the side wall 14 and the bottom plate 19, the side wall and bottom plate being secured together. Arranged below and contacting with the bottom plate 19 is a stationary plate 15 which is provided with a plurality of circular apertures 16—17—18 spaced apart circumferentially and arranged adjacent the periphery of the plate adjacent its upper portion, the centers of the apertures occurring on a circle. In the present machine the aperture 16 is made of a diameter slightly larger than a dime but smaller than a cent, aperture 17 has a diameter slightly larger than cent, but smaller than a nickel, and aperture 18 has a diameter slightly larger than a nickel.

The segregating plate 19 which forms the bottom of the inclined cup and which is secured to the side wall thereof is mounted on the inclined shaft 21, so that it may be rotated over the stationary plate 15. The segregating plate 19 is provided with a plurality of circumferentially spaced circular apertures 22 of a diameter slightly larger than the largest coin to be handled and the centers of the apertures are arranged on the same circle as the centers of the apertures in the bottom plate 15.

The plate 19 is rotated in a clock-wise direction as shown in Fig. 5, and the coins thereon, lodging in the apertures 22, are carried successively over the apertures 16—17—18, the coins dropping through the apertures corresponding in size thereto; the dimes falling through aperture 16, the cents through aperture 17 and the nickels through aperture 18. Arranged above the plate 19 toward the upper portion thereof is a guard plate 23, which operates to allow only one coin at a time to be carried to the respective segregating apertures 16—17—18. The plate 23 is provided with a beveled forward edge and is pressed against the revolving plate 19 by the spring 24. Should two coins become lodged in one aperture 22, the plate 23 operates to remove the upper coin before the aperture comes into alinement with the first segregating aperture 16. By mounting the plate on a yielding support, a mutilated coin lodged in the aperture is permitted to be carried to the segregating apertures, thereby avoiding the choking or blocking of the machine, but a superimposed coin is always removed. Arranged in the side wall 14 of the cup are one or more pins 25 projecting through the wall of the cup and beyond the inner surface thereof. Each pin 25 is mounted on a flat spring 25^a secured to the wall of the cup and the inner end of the pin is rounded so that should a coin in contact therewith encounter an obstruction, the pin will recede, allowing the cup to be rotated. The function of the pin is to deflect any coins which stand against the side wall, downward onto the plate 19.

The plate 19 is fixed to the shaft 21 which is journaled in the frame 9 and which is provided at its lower end with a bevel gear 26 meshing with a similar gear fixed on the shaft 27. It is essential that the angular velocity of the plate 19 be slow in order that the coins will not be moved over their respective apertures in the bottom 15 with such speed that they have not an opportunity of dropping therethrough. For this reason, the handle 28 on the exterior of the machine is connected to the shaft 27 through a reducing gear. The handle is fixed to the shaft 29 on which is rotatably mounted the small pinion 31 which meshes with the gear 32 fixed on shaft 33, and the shaft 33 is connected to the shaft 27 by means of the sprockets 34—35 and chain 36. In order to prevent a reverse rotation of the plate 19 and the consequent improper segregation of coins, the shaft 27 is provided with a ratchet 37 which is engaged by a pawl 38.

In order to prevent the breaking of the mechanism, should it become stopped or clogged for any reason, I arrange a spring held clutch between the handle and the pinion 31 which operates to disengage the handle from the pinion when an excessive force is applied to the handle. Splined on shaft 29 is a clutch member 61 having inclined teeth which are pressed against the clutch member 62 formed on or attached to the pinion 31 by a spring 63, which second clutch member is also provided with inclined teeth. When the pinion becomes locked through a clogging or locking of the mechanism, an excess of pressure on the handle causes the teeth on the clutch members to ride up on each other against the pressure of the spring, so that the handle may be revolved without subjecting the apparatus to any excessive forces.

Arranged below each of the apertures 16—17—18 are the chutes 41—42—43, through which the coins are conducted. Since cent pieces are used only on rare occasions, the chute 42 arranged below the aperture 17 is arranged to conduct the cents directly to the pocket 44 in the drawer 45 arranged at the bottom of the machine. The other coins are conducted to counting mechanisms through which they pass before being deposited in the drawer. The dimes are deposited in pocket 46 in the drawer and the nickels are deposited in pocket 47. The drawer 45 may be readily drawn forward

or opened, so that the conductor or person in charge may have access to the coins in pockets 46 and 47, which have previously been counted. The coins in pocket 44 have not been counted and therefore access thereto is not desirable. To allow for the limited movement of the drawer, a slot 48 is provided at the lower edge thereof, in which engages the rod 49 which is sealed in place. In order to gain access to pocket 44 the seal must be broken, thereby disclosing such fact.

Means are provided for locking the separating and counting mechanism against operation when the drawer is withdrawn or partly withdrawn. Arranged within the casing 12 below and adjacent the gear 32 is bar 64 provided with teeth 64^a which, when the bar is in the elevated position, engage with the teeth on gear 32 and hold it stationary. The bar 64 is pivoted at one end to the casing and is fastened at the opposite end to the rod 65, to which is attached the tension spring 66. On the lower end of the rod 65 is a pin 67 which is engaged by a curved or cam surface 68 on the rear of the drawer, which cam surface causes the pin 67, and consequently the bar 64, to be depressed when the drawer is completely seated in the casing. When the drawer is partly withdrawn, the pin is raised by the spring 66, moving the teeth 65 into mesh with the teeth on gear 32, thereby locking the mechanism.

Arranged below each chute 41 and 43 and adapted to receive the coins therefrom are the coin wheels 51 and 53 secured to the shaft 27. These wheels are each provided with a plurality of coin receiving pockets 54, one side of each pocket being substantially radial, and the other side being curved. Each wheel is provided with a central annular groove 55 cutting through the pockets, in which grooves are arranged the fixed guide fingers 56 and the counter lever 57. The fingers 56 operate to guide the coin gently into the pockets so that they must be counted, and a guard plate 69 attached to some relatively stationary part of the mechanism and overlying the coin wheel, prevents the jarring of the vehicle, upon which the fare box is carried for shaking the coin from the coin wheel before it is counted. A coin 58, Fig. 8, in one of the pockets closes the annular groove 55 and causes the lever 57 to be moved outward as the wheel is revolved. Each lever 57 is connected by means of a rod 59 with a counter 60, which registers the number of coins deposited in the corresponding pocket in the drawer. A record of the removable coins is, therefore, accurately kept and the conductor or person in charge has access to the coins so that they may be used in making change for other patrons.

I claim:

1. In a coin separator and counter, a chute adapted to receive coins of one denomination, a wheel provided with radially disposed pockets mounted on a horizontal axis below said chute and adapted to receive the coins edgewise therefrom, said wheel being provided with an annular groove intersecting said pockets, and a guide attached to the chute and extending into said groove.

2. In a coin separator and counter, a chute adapted to receive coins of one denomination, a rotatable wheel provided with radially disposed coin receiving pockets arranged below said chute, said wheel being provided with an annular groove intersecting said pockets, a lever arranged in said groove adapted to be engaged by a coin in one of said pockets, a counter connected to said lever, and a guard plate overlying said wheel.

3. In a coin separator and counter, mechanism for segregating and counting the various sized coins, a gear wheel for driving said mechanism, a slidable drawer into which the coins are deposited, a toothed bar pivotally arranged adjacent said gear wheel and adapted to be moved into mesh therewith, a spring tending to move said bar into mesh with said gear and means on said drawer for moving said bar out of mesh with said gear when the drawer is completely shut.

4. In a coin separator and counter, a chute adapted to receive coins of one denomination and to discharge them edgewise therefrom, a wheel mounted on a horizontal axis arranged below said chute and provided with a pocket adapted to receive coins edgewise from said chute and means for rotating said wheel, the leading wall of said pocket in the direction of the rotation of the wheel being curved outwardly and forwardly in said direction of rotation, so that a pocket of gradually increasing depth is brought under the chute as the wheel rotates.

In testimony whereof, I have hereunto set my hand at San Francisco, California, this 30th day of October 1913.

CLYDE C. VOGLESONG.

In presence of—
H. G. Prost,
M. Le Conte.