E. W. McPHEETERS.

AUTOMATIC COIN ASSORTER AND REGISTER.

APPLICATION FILED DEC. 14, 1916.

1,288,091.

Patented Dec. 17, 1918.

3 SHEETS—SHEET 1.

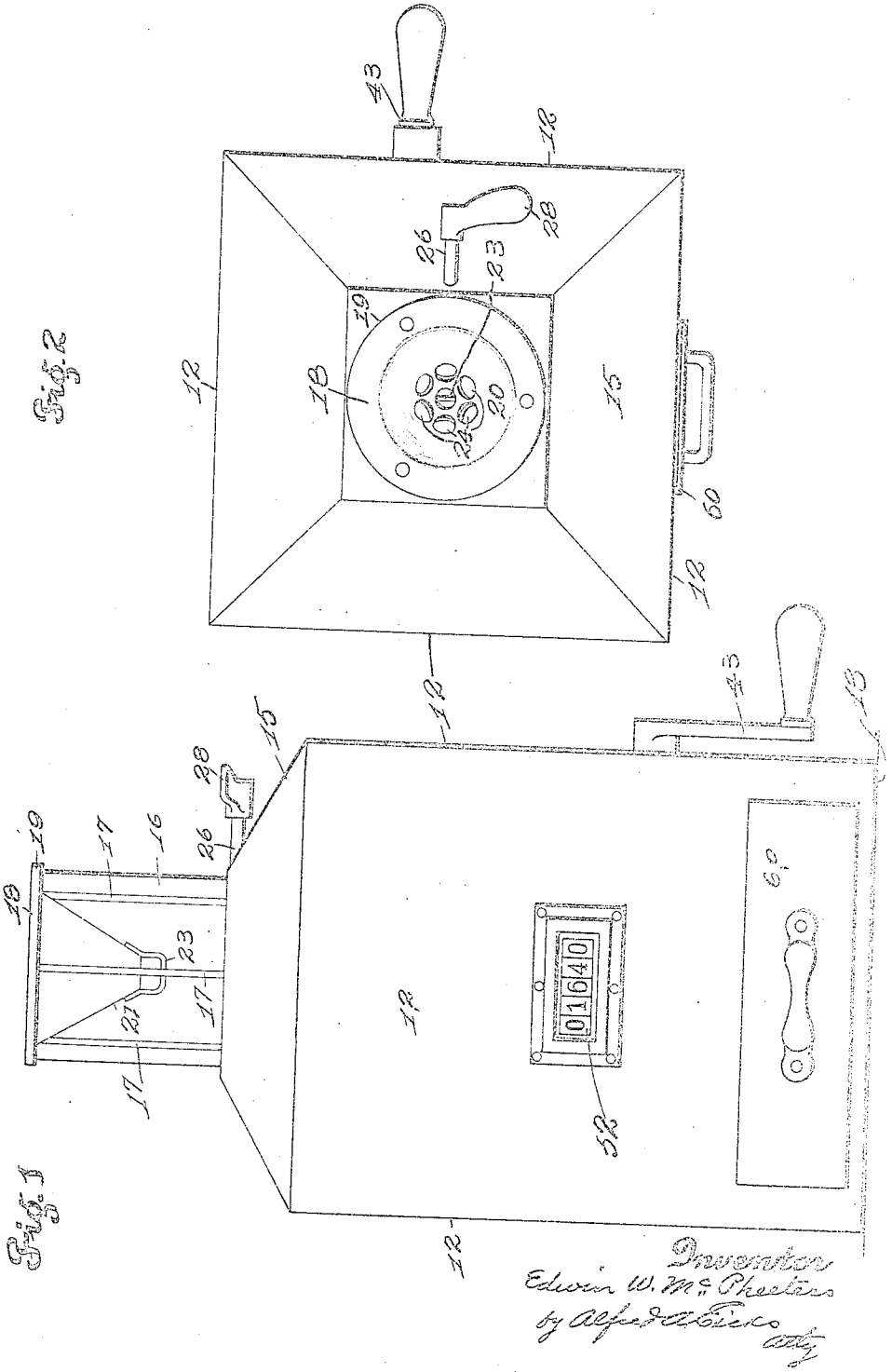


Fig. 2

Fig. 1

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3 SHEETS—SHEET 2.

Fig. 4.

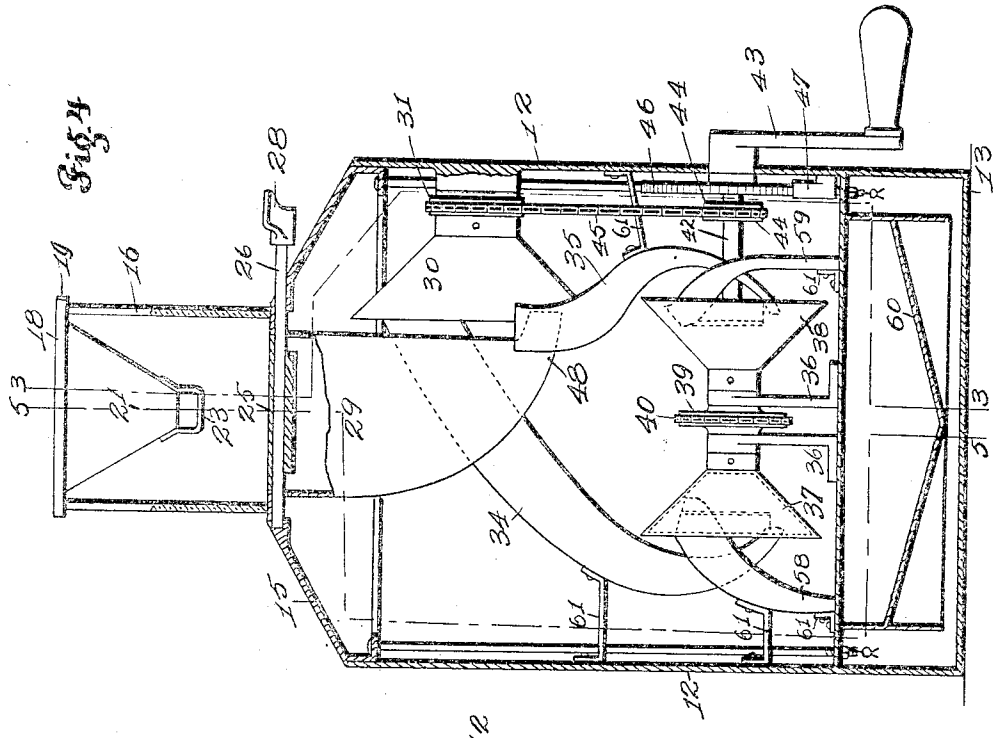
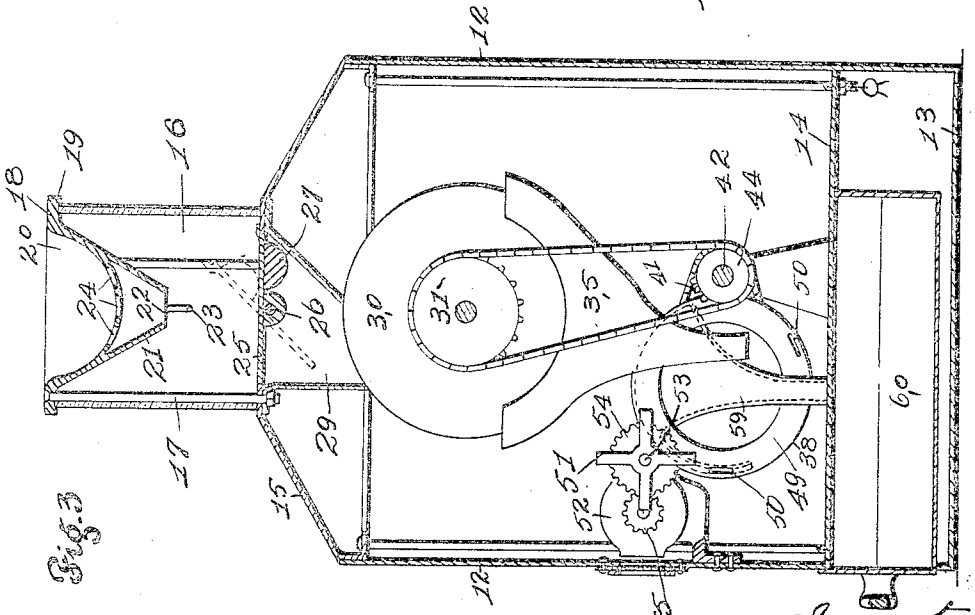


Fig. 3.



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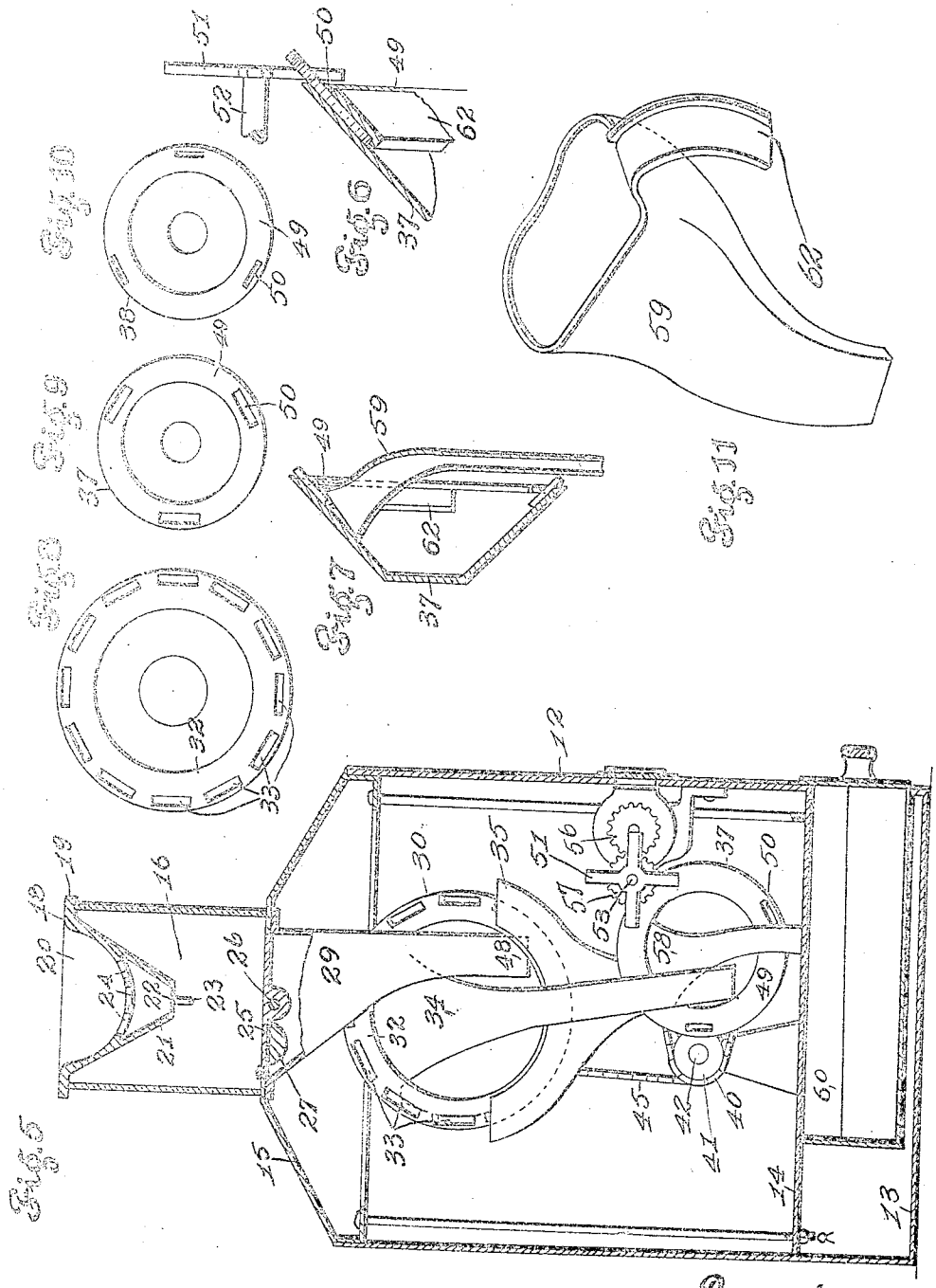
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

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AUTOMATIC COIN ASSORTER AND REGISTER.

1,288,091. Specification of Letters Patent. Patented Dec. 17, 1918.

Application filed December 14, 1916. Serial No. 136,888.

To all whom it may concern:

Be it known that I, EDWIN W. McPHEETERS, a citizen of the United States, and resident of St. Louis, Missouri, have invented certain new and useful Improvements in Automatic Coin Assorters and Registers, of which the following is a specification.

This invention relates to improvements in a coin assorter and register, and has for its object an apparatus especially designed to be used in connection with railway cars adaptable in connection with the "pay-as-you-enter" system, and which may be used in show-houses where coins of certain denominations are deposited and such coins of various denominations when run through the apparatus will be properly registered.

A further object of my invention is to construct a device in which coins such as nickels, or dimes or pennies may be deposited, the same after entering the depository may be delivered into a certain chute and into a distributing mechanism by which the nickels, dimes, of different diameter, and pennies are assorted and conveyed to separate compartments. When so delivered these separated coins are then delivered to a drawer or other compartment after having first been brought in contact with the registering mechanism by which each coin is registered; the register or indicator showing or indicating the number of 5¢ coins or fares passed through the apparatus before they are deposited into the drawer.

A further object of my invention is to construct a device which registers the number of fares or admissions paid by means of coins passing through the apparatus and before such coins can be removed from the apparatus it registers, depending upon its denomination to operate the register in units accordingly; for example, a five-cent piece will register one while a ten-cent piece will register two, making a total register of three 5¢ coins passing through the machine.

A further object of my invention is to also register pennies in the same denomination as a ten-cent piece so that each penny when passing through the machine will register the amount of ten-cents or two fares and prevent the operator from substituting pennies for dimes. These pennies being deducted from the amount supposed to be in the drawer as shown on the register less of course the value of each coin which is one-cent unless the proper credit from an auditor is shown.

By this apparatus and system it will be utterly impossible to defraud the company as the coins deposited into the machine are properly registered and the drawer must contain the amount as so indicated on the register.

Figure 1, is a front view of my complete invention.

Fig. 2, is a top plan view of the same.

Fig. 3, is a vertical sectional view taken on the line 3—3 of Fig. 4.

Fig. 4, is a vertical sectional view of the front of the casing cut away.

Fig. 5, is a vertical sectional view taken on the line 5—5 of Fig. 4.

Fig. 6, is an enlarged detail sectional view of a portion of one of the coin register cones showing the coin in relative position with the turn stile.

Fig. 7, is a detail vertical sectional view of one of the register cones showing the relative position of the coin chute and coin guide located therein.

Fig. 8, is a front view of the coin assorter cone.

Fig. 9, is a plan view of the large coin register cone.

Fig. 10, is a front view of the small coin register cone.

Fig. 11, is a detail perspective view of one of the coin chutes made use of.

In carrying out my invention I provide a suitable casing which is formed preferably rectangular in form and consists of four sides 12, a bottom 13, a horizontal partition 14, and an inclined top 15. On the top and centrally located on said inclined top 15 is located a coin receptacle 16 which is in shape of a transparent cylindrical body made preferably of glass and held in rigid position by posts 17. On the top of these posts and resting upon the upper edge of the trans-

parent cylindrical body is a casting which I will term as a coin cup 18. This cup is provided with a flange 19, a cup shaped portion 20 and a conical downwardly projecting portion 21 which has a central opening 22 of sufficient diameter to allow the largest coin to pass therethrough.

Attached to this conical portion and approximately centrally located is a wire or separating device 23 which is designed to prevent a wire or other object from being inserted to which may be attached some adhesive material to which a coin may adhere and the same be extracted from the receptacle.

The cup shaped portion 20 is provided with a plurality of openings 24 which are of such diameter large enough to admit a coin the size of a nickel to pass therethrough, but a coin of larger diameter cannot enter.

At the base of the coin receptacle and in the horizontal portion of the inclined top is located a trap door 25, this door is centrally pivotally mounted and supported on a rod or axle 26, the one edge of the door 25 provided with a counter-weight 27 which normally holds the door in horizontal and closed position.

The rod or axle 26 projects through the conical top and is provided with a handle 28 by which the trap door may be tilted as shown by dotted lines in Fig. 3, when said handle is pressed upon by the finger and all of the coins lodging on this door will be permitted to pass beneath the trap-door into a chute 29, and when the pressure of the finger is released from the handle 28 the counter balance weight 27 will normally return the trap-door to its normal position.

The chute 29 in which the coins from the coin receptacle are deposited are conveyed downwardly by gravity into a coin assorter 30, which is rotatably mounted on the short shaft or trunnion firmly connected to one side of the casing, and on the hub of this coin assorter is located a sprocket wheel 31 by which the assorter is rotated by the mechanism hereinafter fully described. The assorter 30 is of conical form its front surface being open with the exception of an inwardly projecting peripheral flange 32, the surface of which is provided with a plurality of elongated slots 33 of a size sufficient to permit dimes, and pennies to freely pass therethrough but yet hold the nickels and carry them upwardly to a point where said nickels are permitted to automatically by their own gravity drop into a large coin chute 34, the dimes and pennies while the coin assorter is in rotation being directed into the small coin chute 35.

The construction of the chute is clearly shown in the perspective view of Fig. 11.

On the horizontal partition 14 are mounted a pair of standards 36 in which is supported a short horizontal shaft, on said shaft are mounted a pair of register cones 37 and 38, the same being arranged in opposite directions and between the same and attached to the shaft is a sprocket wheel 39 over which operates a sprocket chain 40 which chain operates over a sprocket pinion 41 which is mounted on a shaft 42 extending through the casing and is provided with a crank handle 43 by which the shaft together with the pinion is rotated. On this shaft is also mounted a sprocket pinion 44 over which a sprocket chain 45 is mounted which chain also operates over the sprocket wheel 31 controlling the rotating movement of the coin assorter 30. On this shaft is also mounted a ratchet wheel 46 with which communicates a ratchet pawl 47 allowing the shaft to be rotated in but one direction.

By the rotation of the crank shaft 43 the coin assorter 39 and the register cones 37 and 39 are simultaneously rotated. The chute 29 in which the coins are deposited from the trap door projects downwardly and discharges the coins into the coin assorter at a point near the bottom as that indicated by the numeral 48. See Figs. 4 and 5. The deposited coins passing through the chute and entering into the coin assorter will be properly assorted during the rotation of the coin assorter, the dimes and pennies being of smaller diameter and thinner than the nickels will freely pass through the slots 33 formed in the flange of the assorter and into the chute 35, which chute is located below the lower periphery of the assorter, the sides of said chute projecting partially upwardly so as to prevent coins from passing beyond the chute entrance and these coins are then delivered through the chute 35 into the register cone 38 which is likewise provided with a flange 49 arranged with elongated slots 50 of a size sufficient to permit approximately one-third of the diameter of the coin to project which projecting end of each coin is designed to contact with an arm of the turn-stile 51.

During the rotation of the coin assorter 30 the nickels which are held in the slots 33 will automatically by their own gravity drop in the chute 34 and are conveyed into the register cone 37; its surface being provided with a flange and a plurality of slots through which a portion of each coin will project.

By this mechanism the nickels and the dimes and pennies are separated, the nickels conveyed to the cone 37 while the dimes and pennies are conveyed to the cone 38. In order that each coin may be properly registered and operate the indicator showing the registration of each coin I provide in the casing a standard register 52, the internal

construction of which is not being made a part of this invention nor embodied in the claims. To this register however, the turn-stile mechanism is attached which turn-stile mechanism consists of a divided shaft 53 suitably held in bearings and is provided with a large gear wheel 54 meshing with a gear pinion 55 located on the register shaft; on the opposite end with a gear wheel 56 meshing with a gear wheel of the same size 57 located on the register shaft, the detail of construction of the register not being made a part of this invention but made to operate in the manner as previously described.

The turn-stiles being in relative position with the register cones as that shown in Fig. 6, so that the coin projecting through the slots formed in the flange of each cone will properly contact and advance the stile one notch forward thereby registering each coin as it contacts with the arm of the stile and moves it forward. As before stated the relative position is shown in Fig. 6.

After the coins have been properly separated and lodged into their respective register cones and after each of such coins has been carried upwardly to the register cones and brought in contact with the arms of the turn-stile of the register such coins are then automatically released by gravity from their position and dropped into chutes 58 and 59. The nickels or five-cent pieces passing through the chute 58 are directed into the coin drawer 60. The dimes and pennies which are directed into the cone 38 are directed through the chute 59 into the coin drawer 60. This drawer being properly locked or it may be unlocked as found desirable so that the conductor in charge of the car may remove the coins and use them for change but nevertheless, each coin has been properly registered in the registering apparatus.

The chutes 34 and 35, 58, and 59 are properly held in position by brackets 61, and to the upper edges of each of these chutes are connected guides 62, these guides are so positioned as to hold the coin after it has entered into the slot until it makes its register then the coin is permitted to slip out of its position and drop into the chute at the end of the guide. the general position is clearly shown in Fig. 7.

The most essential feature of this invention is that every coin dropped into the machine which passes through the openings into the coin cup whether they are five-cent pieces, ten-cent pieces or pennies will be registered, that is the five-cent piece will register one fare while the ten-cent piece or penny will register two fares each, and no matter whether the ten-cent piece is hammered flat or slightly enlarged it will have to come in contact with the turn-stile and register. It is the intention that the coins shall remain in the observation chamber if pennies are dropped in till an official can manipulate the register and give the conductor in charge of the car a credit slip for the difference of nine-cents registered in addition to each penny which will be registered as a dime.

By this construction of apparatus it will be utterly impossible for the conductor or auditor in charge to make a false registration or defraud the company of any coins passing through the machine.

Having fully described my invention what I claim is:

1. An apparatus of the class described including an upper hollow assorter cone mounted for rotary movement on a horizontal axis and provided with an annular flange having slots to permit coins of a certain diameter to pass through them and to carry upward coins of a greater diameter, a pair of upper chutes having their upper ends arranged interiorly and exteriorly of the said assorter cone in position to receive coins therefrom, and a pair of lower hollow cones mounted for rotary movement on a horizontal axis and having annular flanges provided with coin slots, and a pair of chutes having their upper ends arranged interiorly of the lower hollow cones.

2. An apparatus of the class described including an upper hollow assorter cone mounted for rotary movement on a horizontal axis and provided with a vertical annular flange having slots to permit coins of a certain size to pass through them and to carry upward coins of a greater diameter, an upper pair of chutes having their upper ends arranged interiorly and exteriorly of the said assorter cone, a pair of reversely arranged lower hollow cones mounted for rotary movement on a horizontal axis and having an annular flange provided with coin receiving slots arranged to carry upward coins in a projecting position for operating registering mechanism, and chutes arranged to receive the coins from the lower hollow coins.

3. An apparatus of the class described including an upper hollow cone mounted for rotary movement on a horizontal axis and provided with an annular flange having slots to permit coins of a certain size to pass through them and to carry upward coins of a greater diameter, a horizontal shaft located below the assorter cone, reversely arranged lower hollow cones mounted for rotary movement on the said shaft and provided with annular flanges having coin slots for carrying coins upward in a projecting position for operating registering mechanism, a pair of chutes having their upper

ends arranged interiorly and exteriorly of the assorter cone and extending to and arranged to discharge coins into the lower cones, gearing connecting the shaft with the upper assorter cone, and means for carrying the coins away from the lower hollow cones.

In testimony whereof, I have signed my name to this specification, in presence of two subscribing witnesses.

EDWIN W. McPHEETERS.

Witnesses:

ALFRED A. EICKS,

WALTER C. STEIN.