May 18, 1926. 1,585,380

E. P. DONNELLAN

COIN COUNTING MECHANISM

Filed April 24, 1925 2 Sheets-Sheet 1

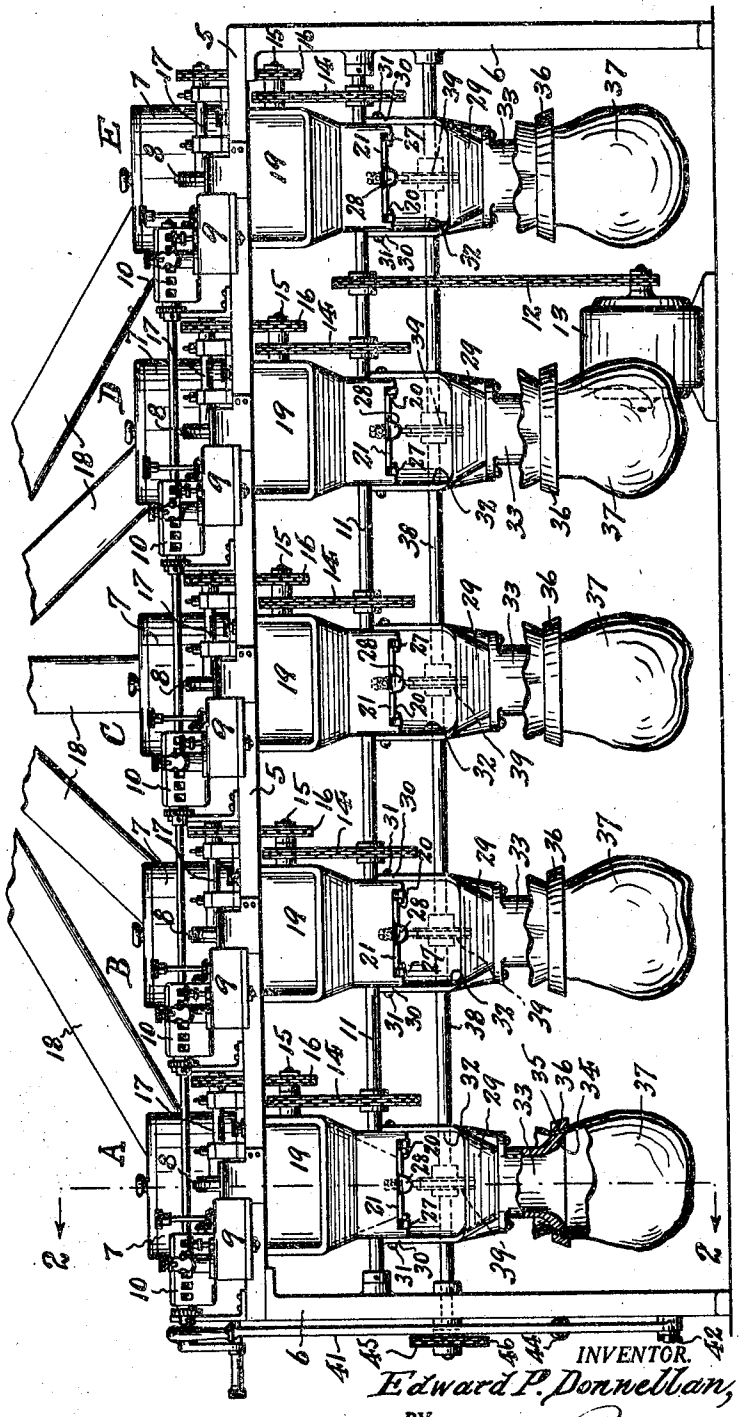


Fig. 1

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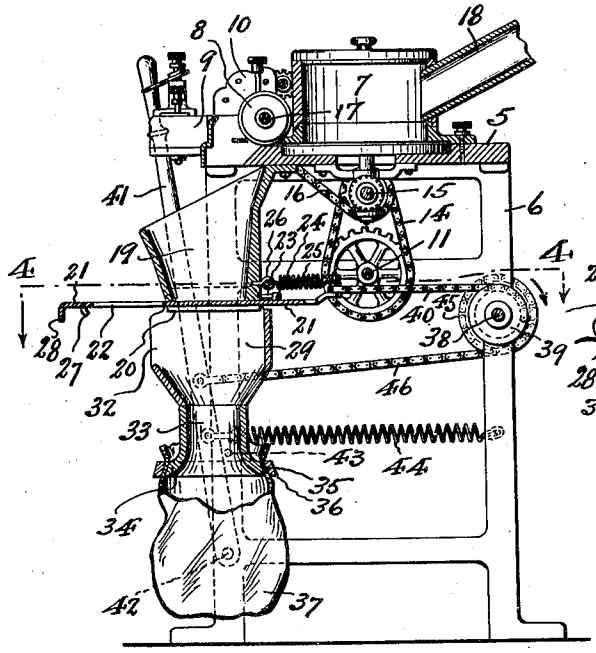


Fig. 2

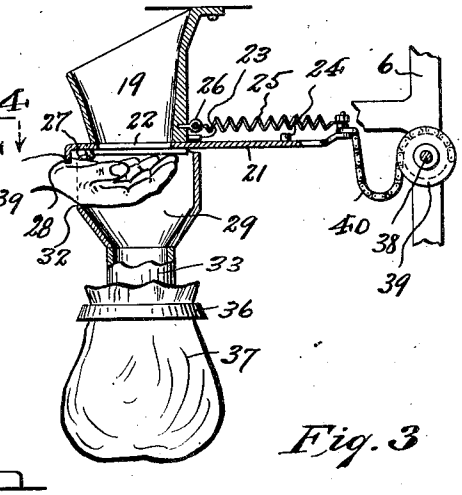


Fig. 3

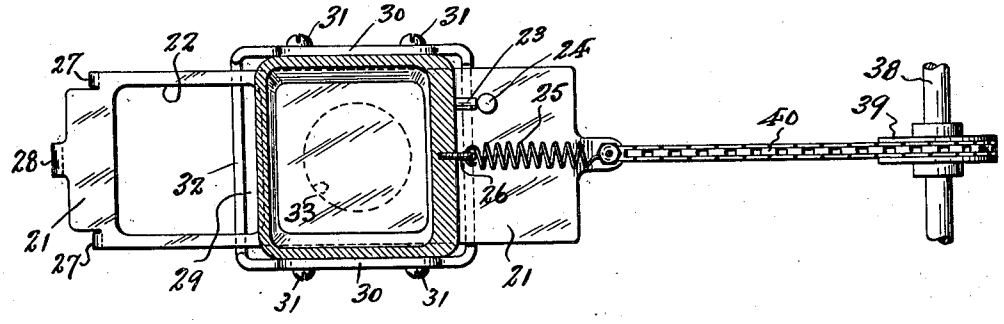


Fig. 4

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Patented May 18, 1926. 1,585,380

UNITED STATES PATENT OFFICE.

EDWARD P. DONNELLAN, OF BROOKLYN, NEW YORK, ASSIGNOR TO STANDARD-JOHNSON COMPANY, INC., OF BROOKLYN, NEW YORK, A CORPORATION OF NEW YORK.

COIN-COUNTING MECHANISM.

Application filed April 24, 1925. Serial No. 25,544.

This invention relates, generally, to improvements in coin counting machines of the type provided with simultaneously operated individual counting mechanisms for each denomination of coin, said counting mechanisms each having a receiving pocket for temporarily holding the counted coin discharged therefrom, and said receiving pockets having means for releasing the coins therefrom combined with actuating devices for said releasing means whereby the latter may be either individually and selectively or simultaneously operated as may be desired.

A further object of this invention is to provide in connection with the coin receiving pockets of the machine, means for holding bags into which the counted coin may be finally discharged.

Other objects of this invention, not at this time more particularly enumerated, will be clearly understood from the following detailed description of the same.

The invention is clearly illustrated in the accompanying drawings, in which:—

Figure 1 is a front elevation of the coin counting machine made according to and embodying the principles of this invention; Figure 2 is a transverse vertical section taken on line 2—2 in Figure 1; Figure 3 is a fragmentary transverse vertical section, similar to that shown in Figure 2, but illustrating the manner of attaining individual or selective actuation of the means for releasing counted coin from the receiving pockets of the machine; and Figure 4 is a detail horizontal section, taken on line 4—4 in Figure 2, but drawn on an enlarged scale.

Similar characters of reference are employed in all of the hereinabove described views, to indicate corresponding parts.

Referring now to said drawings, the coin counting mechanism comprises a base plate 5 suitably supported by standards 6. Mounted on said base plate 5 are a plurality of coin counting devices, one for each denomination of coin to be counted; viz, a counting device A for dimes, a counting device B for pennies, a counting device C for nickels, a counting device D for quarters, and a counting device E for half-dollars. Each counting device is of the general type or kind shown and described in prior United States Letters Patent #1,160,830, dated November 16th, 1915. Each counting device comprises a receiving hopper 7 having a rotary bottom upon which the coins to be counted are deposited, and from which the coins are successively discharged by centrifugal force beneath a propeller wheel 8 to actuate a counting mechansm 9, with which is geared a registering device 10.

Journaled to extend longitudinally between the standards 6, beneath said base plate 5, is a main shaft 11, which may be driven from any suitable power transmission means 12 by an electric motor 13, or from any other desired source of power. Suitable transmission means 14, driven from said main shaft 11, operates the counter shaft 15 and associated transmission mechanism for actuating the rotary bottom of each hopper 7, and sprocket and chain drives 16 driven from each counter shaft 15 actuates the shafts 17 of the propeller wheels 8 of said counting devices.

In multiple counting head machines of the type above described, it is usual to provide, for cooperation therewith, a coin assorting and separating mechanism (not shown), which separates the several denominations of coins making up a lot of mixed coins, and thereupon delivers the respective denominations of coins, properly separated one from another, through chutes 18, to the respective counting devices A, B, C, D and E.

Suitably secured to the forward marginal portions of said base plate 5, so as to respectively receive the counted coins discharged from the respective counting devices, are a plurality of receiving pockets 19, which are open at their bottom ends. Connected with the lower end of said receiving pockets 19 are transverse guides or slideways 20 which slidably support transversely movable cut-off plates 21. Each cut-off plate 21 possesses an opening or discharge port 22, which on inward movement of the cut-off plate will be registered or alined with the open bottom of the pocket with which the same is associated, to thus release the coins accumulated within the pocket for gravitation therefrom. Said cut-off plates 21 are normally outwardly projected to position the same in a normal initial closing relation to the open bottom of the receiving pocket. Such normal initial closed position of the respective cut-off plates is determined by an abutment lug 23 which is secured to and projects from the rear wall of each receiving pocket 19, and

each cut-off plate is provided with a stop-lug 24 to engage the abutment lug 23. Each cut-off plate is normally held in forwardly moved closed relation to the open bottom of each receiving pocket 19, as determined by the engagement of its stop-lug 24 with the fixed abutment lug 23, by means of a pull spring 25, one end of which is suitably anchored to the inner or rearward end of the cut-off plate and the other end of which is anchored to a fixed eye 26, or equivalent means, which is secured to the rear wall of said receiving pocket 19. The rearward sliding movement of each cut-off plate, whereby the opening or port 22 is registered with the open bottom of the pocket 19, is properly limited by stop-pieces 27, which depend from the forward or outer portions of the plate, and which, on inward movement of the latter, engage the outer ends of said guides or slideways 20. Each cut-off plate 21 is provided at its forward or outer end with a downwardly projecting toe 28.

Connected with each receiving pocket 19, so as to depend therefrom and beneath the cut-off plate 21 thereof, is a coin guide, comprising a funnel-like top member 29 having at its sides upwardly extending ears 30 to embrace the receiving pocket, and being secured in fixed relation to the latter by fastening screws 31 which are passed through said ears 30 into the side walls of said receiving pocket. Said funnel-like top member 29 is cut away at its forward or outer side to provide an opening 32 into which the hand may be inserted. Connected with the lower end of each funnel-like top member 29 is a tubular well 33 terminating in an outwardly flared annular bottom flange 34, the outer perimeter 35 of which is of truncated conical conformation. Cooperative with the truncated conical outer perimeter 35 is a clamp ring 36, these parts serving as a means for coupling with the lower end of said well 33 a bag 37 into which the counted coins may be finally deposited. The neck or mouth of the bag 37 is disposed over the truncated conical perimeter 35, and then the clamp ring 36 is lowered over the exterior side of the bag mouth thus arranged to thereby secure the bag in operative coupled relation to the well 33, as shown in Figures 1, 2 and 3 of the drawings.

Means are provided whereby the cut-off plates 21 of all coin receiving pockets 19 may be simultaneously operated to release all coins for deposit in the respective bags 37. Said means consists of a rotatable shaft 38 journaled to extend longitudinally between the standards 6 to the rearward of said receiving pockets 19. Fixed on said shaft 38 are a plurality of sheaves 39, one for each receiving pocket 19. Suitably coupled to the rearward end of each cut-off plate 21 is a flexible connection 40 preferably in the form of a pull-chain, the rearward end of which runs over and is fixed to the sheave 39 corresponding to the cut-off plate from which the particular flexible connection extends.

The means for rotating the shaft 38 to simultaneously actuate said sheaves 39, comprises a lever member 41 which is fulcrumed on a stud 42 connected with the outer side of one of said standards 6. Said lever member 41 is retained in normal initial position against a stop projection 43, by means of a pull spring 44 interconnected between said lever member and a portion of said standard 6. Fixed on said shaft 38 is a driver sheave 45. Secured to said lever member 41, at a point intermediate its fulcrum and its free end, is a flexible connection 46, preferably in the form of a pull chain, the rearward end portion of which runs under and then over said driver sheave 45, with its extremity attached to the latter.

In operation, the coin counting machine, with the novel features above described, functions as follows:—

The machine is particularly adapted for counting lots of coin, as for example, coin turned in by street railway conductors, or by agents in other businesses or industries, who at predetermined intervals turn in with a report the coins collected during working hours, thus enabling accurate count of the coins to be made for comparison with the report, and at the same time arranging for the deposit of each denomination of counted coins in bags or other suitable receptacles to enclose a predetermined number of coins of a given total value, ready for banking or other handling.

In such cases, the money turned in by a conductor or other agent is separated to segregate the different denominations thereof, and then each denomination of coin is delivered through the chutes 18 into the counting devices respectively devoted to each denomination.

As the coins are delivered into the hoppers 7 of the counting devices, the centrifugal action exerted by the rotary bottoms of said hoppers will deliver the coins successively beneath the propeller wheels 8, which in turn impel the coins into actuating engagement with the counting mechanism 9, and thereupon discharge the coins into the receiving pockets 19, in which the same are temporarily retained by the normally closed cut-off plates 21 until the count of the particular lot of coins is completed. When a given lot of coins has thus been passed through the machine, the same will have been separated according to denomination, and each denomination counted, so that the attendant by reading the registering devices 10, will be enabled to check up the amount of coin turned in against the record or report of the

conductor or other agent. If the count and report agree, the attendant may thereupon simultaneously release the coins from the receiving pockets 19 for final deposit in the bags 37. This is accomplished by pulling forward the lever member 41, which thereupon exerts a pull on the flexible connection 46, whereby the drive sheave 45 is rotated in the direction of the arrow shown in Figure 2. The rotative movement of the drive sheave 45 imparts a like rotative movement to the shaft 38 and the several sheaves 39 which are fixed thereon. In this manner all the sheaves 39 are rotated so as to exert a rearward pull on their respective flexible connections 40, which in turn exerts a rearward pull on the respective cut-off plates 21 to which the outer ends of the connections 40 are attached, thus sliding said cut-off plates 21 rearwardly against the tension of their springs 25, until the openings or ports 22 are registered or alined with the open bottoms of the receiving pockets 19, thereby releasing the coins contained in the latter so that the same may drop through the funnel members 29 and wells 33 into the attached bags 37. The release of the coins for deposit in the bags 37 having been thus accomplished, the attendant releases the lever member 41, whereby the tension of the spring 44 will retract the same to normal initial position. The pull on the drive sheave 45 being thus relaxed, the springs 25 of the respective cut-off plates 21 will thrust or slide the latter outwardly to normal closed position relative to the receiving pockets 19, and at the same time will exert an outward pull on the flexible connections 40 to reversely rotate the sheaves 39, shaft 38, and drive sheave 45 to thus return all said parts to normal initial positions.

In the event the count of the coins does not agree with the report of the conductor or other agent, and it is desired to remove the coins from one or more of the receiving pockets 19 for recount, prior to deposit in the bags 37, or if for any other reason it is desired to remove the coins from any one or more of the receiving pockets 19 without depositing the same in the bags 37, the same may be accomplished by manually and individually operating any one or more of the cut-off plates to release the coins into the hand of the attendant for removal from the machine. This is possible for the reason that each cut-off plate 21 is independently operatable by hand, without interfering with or disturbing the connected relation thereof with the above described means for simultaneously operating the cut-off plates as a group. To thus independently and manually actuate a cut-off plate 21, the attendant inserts his hand palm upward beneath the selected cut-off plate, so that the heel of the palm presses against the toe 28 of the plate, with the extended palm beneath the opening or port 22 of said plate. With the hand thus positioned the attendant presses inwardly upon the cut-off plate, thus sliding the same rearwardly, whereby the hand enters through the open front 32 of the funnel member 29, and the opening or port 22 is moved into alinement with the open bottom of the receiving pocket 19, thus releasing the coins contained in the latter so that the same may fall into the extended palm of the attendant to be thus caught and removed. Such independent actuation of the cut-off plates 21 is possible and does not interfere with or disturb the operative relation of the means for simultaneously actuating the same as a group, for the reason that the flexible connection 40 between the sheave 39 and the plate yields to the independent movement of the latter, as shown in Figure 3.

The convenience and simplicity of the arrangement whereby the cut-off plates may be actuated as a group or independently will be readily understood from the above description, and offers a novel and advantageous improvement in coin counting machines of the kind here involved.

I am aware that some changes may be made in the arrangements and combinations of the various devices and parts comprising this invention, as well as in the details of the construction of the same, without departing from the scope thereof as described in the foregoing specification, and as defined in the appended claims. Hence, I do not limit this invention to the exact arrangements and combinations of devices and parts as set forth in the foregoing specification, nor do I confine myself to the exact details of the construction of said parts as illustrated in the accompanying drawings.

I claim:—

1. The combination with a plurality of coin counting devices of coin receiving pockets into which the coins are discharged from the counting devices, each coin receiving pocket having an open bottom, a cut-off plate slidably related to the open bottom of each receiving pocket, said cut-off plates having openings registrable with the open bottoms of said receiving pockets, spring means for holding said cut-off plates in closed relation to said receiving pockets, common actuating means for simultaneously moving said cut-off plates to open relation to said receiving pockets, and connecting means intermediate said cut-off plates and said common actuating means yieldable to independent manually controlled movements of said cut-off plates.

2. The combination with a plurality of coin counting devices of coin receiving pockets in which the coins are discharged from the counting devices, each coin receiving pocket having an open bottom, a cut-off

plate slidably related to the open bottom of each receiving pocket, said cut-off plates having openings registrable with the open bottoms of said receiving pockets, spring means for holding said cut-off plates in closed relation to said receiving pockets, a shaft journaled to the rear of said receiving pockets, sheaves on said shaft opposite each receiving pocket, flexible means interconnected between each cut-off plate and an opposed sheave, and means for rotating said shaft and its sheaves to simultaneously retract all cut-off plates into open relation to their receiving pockets.

3. The combination with a plurality of coin counting devices of coin receiving pockets into which the coins are discharged from the counting devices, each coin receiving pocket having an axial discharge conduit depending therefrom, a slidable cut-off plate intermediate each receiving pocket and its discharge conduit, said cut-off plates having openings registrable with said receiving pockets, spring means for holding said cut-off plates in closed relation to said receiving pockets, common actuating means for simultaneously moving said cut-off plates to open relation to said receiving pockets, connecting means intermediate said cut-off plates and said common actuating means yieldable to independent manually controlled movements of said cut-off plates, and said discharge conduits having side openings for the insertion of the hand beneath said cut-off plates.

4. The combination with a plurality of coin counting devices of coin receiving pockets into which the coins are discharged from the counting devices, each coin receiving pocket having an axial discharge conduit depending therefrom, a slidable cut-off plate intermediate each receiving pocket and its discharge conduit, said cut-off plates having openings registrable with said receiving pockets, spring means for holding said cut-off plates in closed relation to said receiving pockets, a shaft journaled to the rear of said receiving pockets, sheaves on said shaft opposite each receiving pocket, flexible means interconnected between each cut-off plate and an opposed sheave, means for rotating said shaft and its sheaves to simultaneously retract all cut-off plates to pocket-opening position, and said discharge conduits having side openings for the insertion of the hand beneath said cut-off plates.

In testimony that I claim the invention set forth above I have hereunto set my hand this 8th day of April, 1925.

EDWARD P. DONNELLAN.