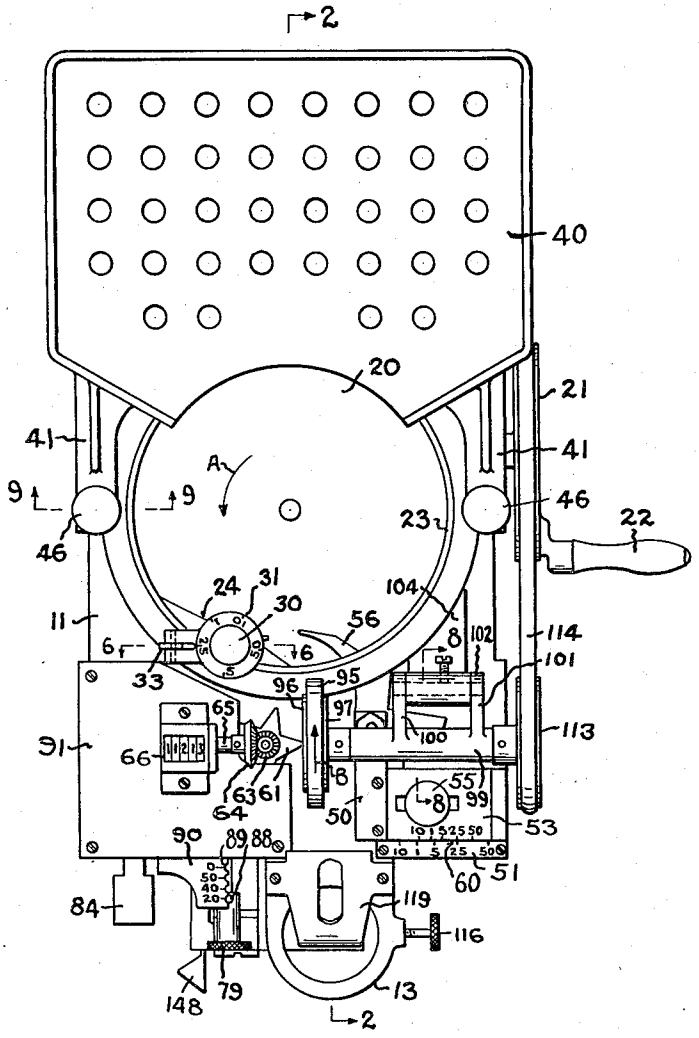
July 11, 1939. C. L. DOWNEY 2,165,240

COIN COUNTING MACHINE

Original Filed May 21, 1932 4 Sheets-Sheet 1

Fig. 1



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Fig. 2.

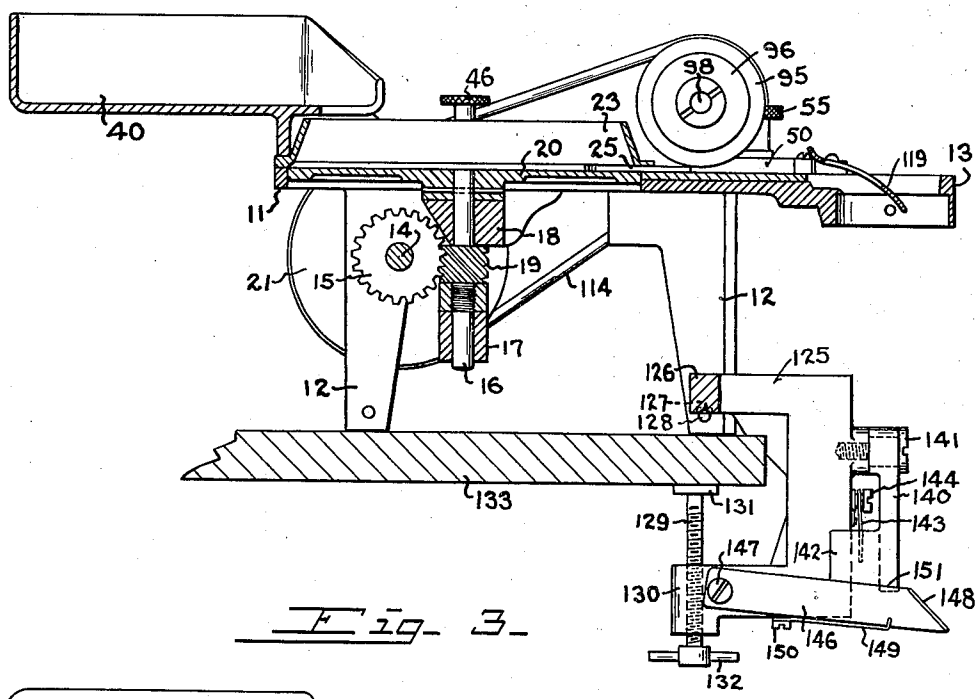
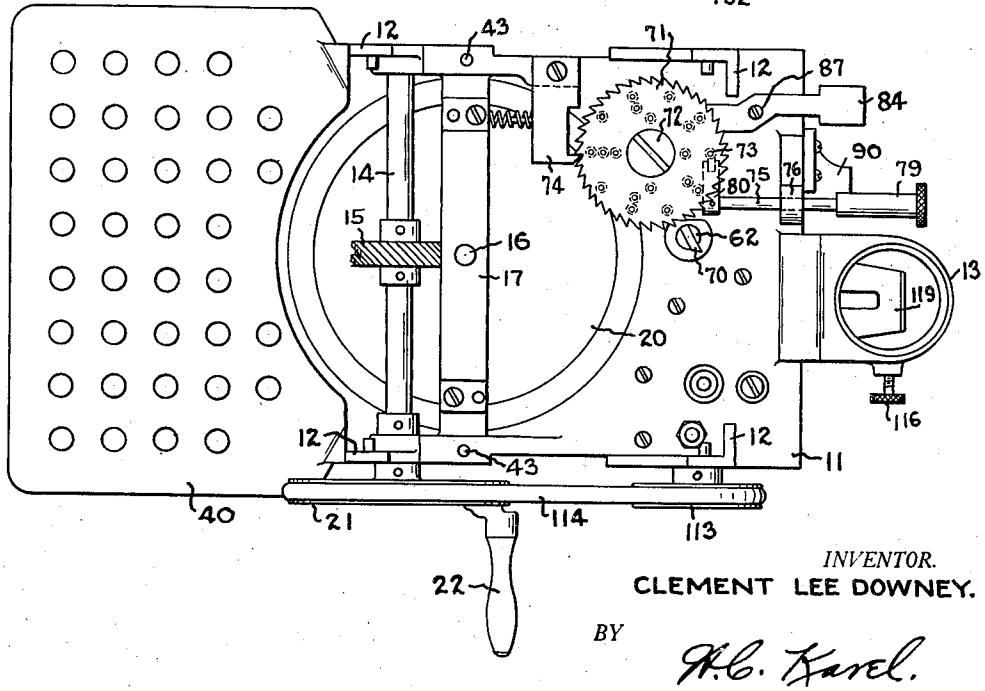


Fig. 3.



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Fig. 4.

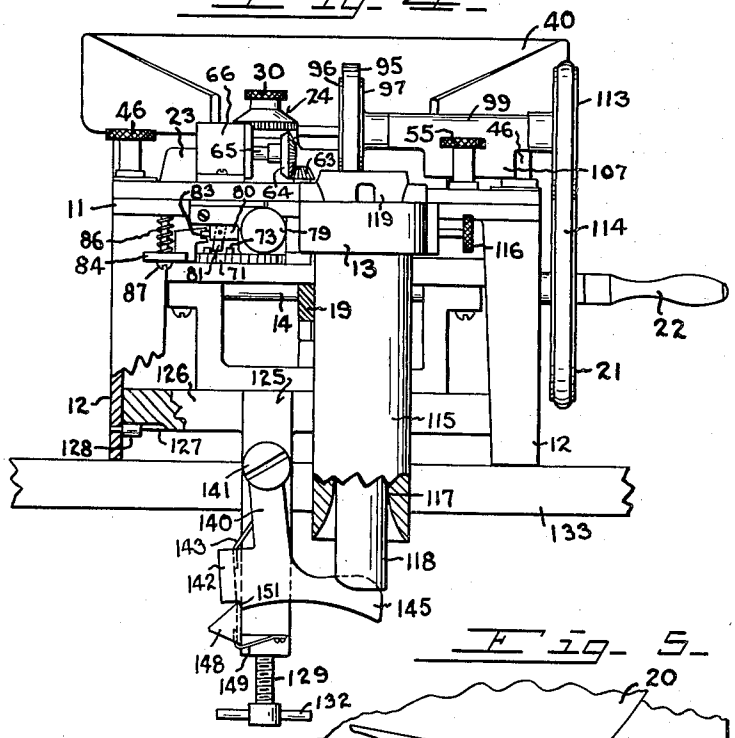
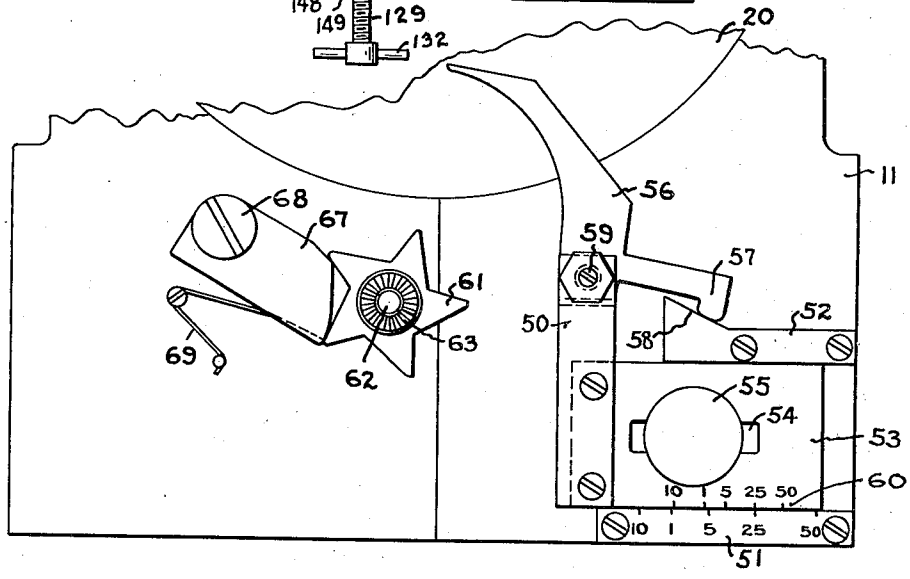


Fig. 5.



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Fig. 6.

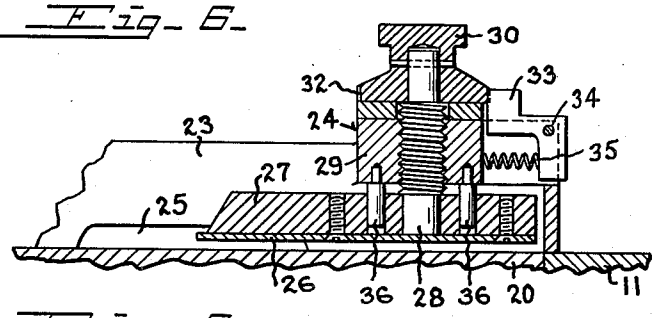


Fig. 7.

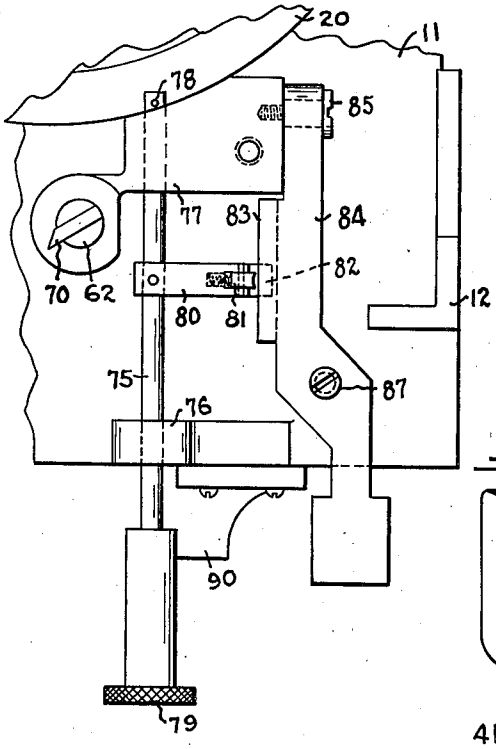


Fig. 8.

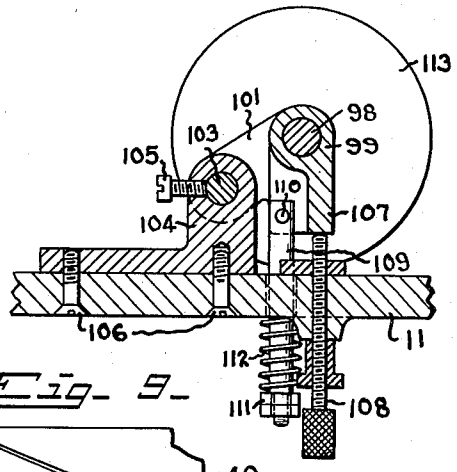
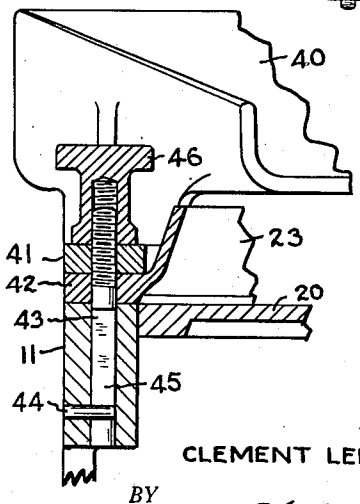


Fig. 9.



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Patented July 11, 1939 2,165,240

UNITED STATES PATENT OFFICE

2,165,240

COIN COUNTING MACHINE

Clement Lee Downey, Cincinnati, Ohio

Application May 21, 1932, Serial No. 612,781
Renewed April 26, 1937

7 Claims. (Cl. 133—8)

My invention relates to a new coin counting machine wherein a rotary disc feeds the coins past a counting device and deposits the coins either in a coin wrapper or other receptacle.

The object of my invention is to provide a machine with a rotating disc and adjustable means for guiding the coins from the disc past the feed roller. A still further object is to provide the feeding face of the disc with a thickness gage thereabove having a micrometer adjustment thereon. A still further object is to provide the feed roller with a rocking support held under pressure and adjustable to compensate for wear on the feed roller. A still further object is to provide a removable coin ring and coin tray whereby the machine can be easily cleaned. A still further object is to provide a combination of a five pointed star wheel actuated on continuously counting ratchet, stop members attached thereto and means for regulating the movement of the counting ratchet for permitting adjustment for packages of various denominations. A further object is to provide a push-pull movement for adjustment to secure different packages of coins actuating in combination with a continuously revolving counting wheel. A further object is to provide a clamping bracket for the machine provided with a lever for supporting a coin package and preventing the coins from falling there through. Still further objects will become apparent as the description progresses.

My invention will be further readily understood from the following description and claims and from the drawings, in which latter:

Fig. 1 is a plan view of the machine,

Fig. 2 is a vertical cross-section of the same, taken in the plane of the line 2—2 of Fig. 1,

Fig. 3 is a bottom view of the machine,

Fig. 4 is a front view of the machine,

Fig. 5 is an enlarged plan view of a portion of the machine with parts removed showing the width gage and star wheel,

Fig. 6 is a detailed section of the micrometer thickness gage, taken in the plane of the line 6—6 of Fig. 1,

Fig. 7 is a detailed bottom view of the push-pull adjustment with the ratchet wheel removed,

Fig. 8 is a detailed section of the feed roller mounting, taken in the plane of the line 8—8 of Fig. 1, and;

Fig. 9 is a detailed section of the coin ring and tray attaching means, taken in the plane of the line 9—9 of Fig. 1.

My improved machine comprises a base 11 provided with legs 12 and a coin tube supporting bracket 13. A shaft 14 is journaled crosswise in the frame and is provided with a spiral gear 15, a vertical shaft 16 is suitably journaled in bearings 17 and 18 and is provided with a spiral gear 19 meshing with the spiral gear 15. A disc 20 is pinned to the upper end of the shaft 16 and is rotated by means of a pulley 21 secured to the shaft 14. A handle 22 extends from the pulley for imparting rotation to the shaft 14. A coin ring 23 surrounds the disc 20 and has a thickness gage 24 mounted adjacent to the feed-out opening 25 in the ring. This thickness gage comprises a plate 26 secured to a block 27 and having a threaded stud 28 extending upwardly therefrom and threaded into a boss 29 on the coin ring 23. Secured to the upper end of the stud 28 is an indicating knob 30 provided with marks 31 to indicate the correct positions of the gage for coins of different thicknesses. The face 32 of the knob is provided with fine teeth to permit an indicating lever 33 to contact the knob. This lever is pivoted at 34 to the boss 29 and is maintained in position by means of a spring 35. A pair of guide pins 36 extending from the boss 29 into the block 27 maintains the thickness gage against rotation and guides the block in its movement up or down.

A coin tray 40 is provided with extending arms 41 which are received over lugs 42 extending from the coin ring. A stud 43 is slidable in the wall of the frame 11 and is held against rotation by means of a pin 44 received in a slot 45 in the stud whereby when the coin tray and ring are removed the studs will drop down leaving a clear space to that part of the machine to facilitate cleaning the same. Nuts 46 are received over the threaded ends of the studs for clamping the coin tray and ring to the machine.

A deflector and width gage 50 are mounted on the forward end of the machine and comprise a pair of guides 51 and 52 secured to the frame 11 between which a member 53 is slidable crosswise of the machine. The member 53 is provided with an elongated slot 54 through which a suitable stud extends upwardly from the frame 11. A nut 55 is received over the stud for clamping the member 53 in the desired position. An arm 56 is pivoted to an extension of the member 53 and is provided with a heel 57. The guide 52 is provided with an inclined face 58 for moving the heel and causing the finger or arm 56 to move inwardly or outwardly according to the position of the member 53. The pivotal connection 59 of the arm comprises a spring wound about the pivotal stud for maintaining the heel 57 against the inclined face 58. The member 53 and the guide 51 are provided with cooperating indicating marks 60 whereby registration of similar marks on both members will give the proper width for a coin of that particular denomination. As indicated in Fig. 5 the width gage is set for counting 25¢ pieces.

Mounted opposite the width gage is a five point star wheel 61 which is secured to a shaft 62, the upper end of which is provided with a beveled

gear 63 arranged to mesh with a beveled gear 64 secured to a shaft 65 extending from the counting device 66. A member 67 is pivoted about a screw 68 and contacts the star wheel. A spring 69 maintains the member in contact with the star wheel to hold the star wheel after a coin has rotated it one-fifth of a revolution. This counting device is of the type using multiple discs and is of standard construction. The shaft 62 is journaled in the frame 11 and has a projecting tooth 70 secured thereto below the lower face of the frame 11. A ratchet wheel 71 is mounted on a stud 72 and is rotated by means of the tooth 70 extending from the shaft 62.

Upon each revolution of the shaft 62, five coins will have passed through the counting device as the coins being forced therethrough rotate the star wheel 61. Pins 73 extend upwardly from the ratchet wheel 71 and are so arranged to provide stopping or locking of the star wheel after 20, 40 or 50 coins have passed through the counting device. Of course, this number can be changed by relocating the pins 73. A counteracting ratchet lock 74 which is spring pressed prevents the ratchet wheel from moving more than one tooth at a time. The means for accomplishing the locking of the star wheel comprises an endwise shiftable shaft 75 which is slidable in bearings 76 and 77 and provided with an extending pin 78 in the end of the shaft to prevent complete withdrawal of the shaft. A handle 79 is secured to the shaft for operating the same. An arm 80 is pinned to the shaft and is provided with a downwardly extending lug 81 which can be shifted endwise whereby said lug will be positioned in the path of one of the sets of pins 73. An extending key 82 is received in a groove 83 in an arm 84. This arm is mounted on a stud 85 and can be moved up or down against the pressure of a spring 86 mounted about a screw 87 for rocking the shaft 75 and moving the engaging pin 88 out of registry with one of the notches 89 in the indicating plate 90, whereby the handle 79 can be moved back and forth for relocating the pin 88 in the desired position.

The setting of the machine as shown in the drawings is set to allow 20 coins to pass through the machine and move the star wheel 20 times, or four revolutions. Each time the star wheel moves 5 times the ratchet wheel 71 will be moved one notch. Therefore, in the outer circle of pins there is one pin every four notches on the ratchet wheel, thereby causing the lug 81 to contact one of the pins 73 each time the star wheel has been moved by twenty coins. The next circle of pins on the ratchet wheel 71 is arranged to stop the mechanism after 40 coins have passed through the machine. Likewise the inner circle of pins is arranged to stop the machine after 50 coins have passed therethrough. When the pin 88 on the handle 79 is in registry with the zero mark the lug 81 will have been moved inwardly out of range of any of the pins, therefore allowing the mechanism to continue letting coins therethrough for continual counting of coins. A plate 91 to which the counting device is attached forms a housing over a portion of the star wheel and the spring pressed holding member.

Mounted in the path of the coins being ejected from the rotating disc and substantially in axial line with the star wheel is a feed roller 95 which is preferably of a fibrous composition and is clamped between a pair of collars 96 and 97 suitably secured to a shaft 98. The shaft 98 is journaled in a bearing 99 which is provided with extending arms 100 and 101 which in turn have bearings 102 movable on a pin 103 which is secured in a bracket 104 by means of a set screw 105. The bracket 104 is secured to the frame of the machine by screws 106. The bearing 99 has an extending apron 107 against which an adjusting screw 108 threaded into the frame 11 contacts. A stud 109 is pinned to a portion of the arm 101 by means of a pivot pin 110. The stud 109 extends through the frame and has a pair of lock nuts 111 threaded on the lower end thereof. A spring 112 surrounds the stud and is interposed between the lower face of the frame and the lock nuts to exert a downward pressure on the bearing 99 against the adjusting screw 108. With this means the feed roller 95 can be adjusted relative to the feeding face of the machine whereby any wear of the feed roller can be compensated for and thereby prolong the usefulness of the feed roller.

At the opposite end of the shaft 98 a pulley 113 is suitably secured. This pulley receives its rotation through a belt 114 received about the pulley 21 which has the handle 22 secured thereto for imparting rotation to the disc 20 and the feed roller 95.

The tube supporting bracket 13 is arranged to receive a coin tube 115 which can be clamped therein by means of a clamp screw 116. A plurality of these tubes are provided with each machine having a central aperture 117 of various sizes for the accommodation of the usual coin wrappers 118 for coins of various denominations. A guard 119 projects into the tube supporting bracket for deflecting the coins being passed under the feed roller into the coin tube.

A clamping bracket 125 is provided with a cross arm 126 having grooves 127 at the respective ends thereof arranged to be hooked over extending pins 128 in the base of the legs. The bracket 125 is of a U shape formation and has a clamping screw 129 threaded into the lower extension 130 and provided with a clamping face 131 and a cross pin 132 for clamping the machine to a suitable support 133. Secured to the clamp 125 are means for supporting and crimping the lower end of the coin package 118 for supporting the coin package in the tube and preventing coins from falling therethrough. This means comprises an arm 140, pivoted about a stud 141 and having an extending flange 142 against which a spring 143 twisted about a screw 144 exerts pressure. The arm 140 is provided with a curved extension 145 arranged to contact the lower end of the coin package 118 and to crimp the lower edge of the package. An arm 146 is pivoted about a screw 147 and has a finger releasing lug 148 at the opposite end thereof. A spring 149 being clipped about the lower edge of the arm 146 and secured to the bracket by means of a screw 150 tends to hold the arm 146 in an upward position for engaging a shoulder 151 on the arm 140 for holding the arm 140 in the position shown in Fig. 4. When the package for coins has been filled and it is desired to remove the package from the coin tube, the lug 148 is pressed downwardly releasing the lug 151 and permitting the arm 140 to snap back under pressure of the spring 143 and thereby withdrawing the arm 145 away from the axial line of the coin package for permitting easy removal of the coin package.

In the operation of the machine, the coins are deposited in the coin rack 40 and are pushed therefrom onto the disc 20 which is surrounded by the coin ring 23. The handle 22 is then rotated for causing the disc to rotate in the direction of the arrow A for causing the coins to be

thrown against the coin ring. The thickness gage having been adjusted for the particular kind of coin it is desired to count, will allow only one coin at a time to pass thereunder into contact with the deflector arm **56** for throwing the coins into the path of the feed roll **95** which rotates in the direction of the arrow B. This feed roll will grip the coin and pass it forward, past the star wheel and each coin as it passes the star wheel will cause the star wheel to rotate one-fifth of a revolution, which rotation will register a unit on the counting device. As the coins leave the feed roller they are thrown forward against the guard **119** and dropped into the proper package for wrapping the same, or in place of the coin tube and coin package a suitable container may be positioned under the tube supporting bracket for collecting the counted coins as they drop from the machine.

When it is desired to count coins in special groupings such as 20, 40 or 50, the hand wheel is rotated and a sufficient number of coins are fed through the machine until one of the pins **73** contacts the lug **81** for stopping the machine. The lever **84** is then pressed upwardly to release the lug from the engaging pin, which due to the pivoted construction of the lug **81** will cause the lug to move forward and rest on top of the pin. As soon as the machine is started and the ratchet wheel revolves, the lug again drops into the path of the next approaching pin and causes the machine to lock after the pre-determined number of coins have passed therethrough.

Having thus fully described my invention what I claim as new and desire to secure by Letters Patent, is:

1. In combination with a coin counting machine, an adjustable width gauge, guides for said gauge, one of said guides forming a cam, and a coin deflector pivoted to said width gauge and provided with a heel engaging said cam.

2. In combination with a coin counting machine having a feed roller, a width gauge adjustably mounted adjacent to said feed roller, a pair of guides for said gauge, said gauge and one of said guides provided with registering indicia, one of said guides provided with a cam face, and a deflector pivoted to said gauge provided with a heel co-acting with said cam face.

3. In a coin counting device the combination with a horizontal, rotatably mounted disk for imparting centrifugal force to coins disposed on said disk, means for rotating the disk and means providing a raceway leading away from the disk of a bearing at one side of the raceway having an axis extending transversely to said raceway, a second bearing mounted for movement about the axis of the first bearing, a shaft revolubly supported by the second bearing and having its axis in substantial parallelism with the axis of the first bearing, a friction feed roller on the shaft and extending into the raceway, the roller having its peripheral face disposed tangential to the raceway, means for yieldingly resisting movement of the roller away from the raceway, and means operable from said disk rotating means for imparting rotation to the disk and to the roller.

4. In a coin counting device the combination with a horizontal, rotatably mounted disk for imparting centrifugal force to coins disposed on said disk, means for rotating the disk and means providing a raceway leading away from the disk of a bearing at one side of the raceway having an axis extending transversely to said raceway, a second bearing mounted for movement about the axis of the first bearing, a shaft revolubly supported by the second bearing and having its axis in substantial parallelism with the axis of the first bearing, a friction feed roller on the shaft and extending into the raceway, the roller having its peripheral face disposed tangential to the raceway, means for yieldingly resisting movement of the roller away from the raceway, means operable from said disk rotating means for imparting rotation to the disk and to the roller, and coin counting means comprising a star wheel extending into the raceway adjacent the roller, whereby to respond to the movement of coins through the raceway while under the control of the feed roller.

5. In combination with a coin counting machine comprising a rotatably mounted star wheel, means for feeding coins singly past the star wheel, means for restraining movement of the star wheel against reverse movement, a rotatably mounted ratchet wheel, means for transmitting a step by step rotary movement from the star wheel to the ratchet wheel and means for preventing reverse movement of the ratchet wheel, of a plurality of sets of stop pins on one of the side faces of the ratchet wheel, the sets of stop pins being arranged in radial sequence, a fork adjustable radially of the ratchet wheel, a stop lug carried by the fork and adjustable to selected positions for contact with the stop pins of a selected set of stop pins, and means for disengaging the stop lug and any pin with which the lug may be in engagement.

6. In combination with a coin counting machine having a star wheel, means for feeding coins past the star wheel, and a ratchet wheel for step by step movement by and under the control of the star wheel, of a plurality of sets of stop pins associated with the ratchet wheel, the sets of pins being spaced at various radii from the center of the ratchet wheel, a fork slidable to various positions radially of the ratchet wheel and having one of its ends shiftable toward and from the ratchet wheel independent of the radial adjustment thereof relative to the ratchet wheel, a pivotally mounted, spring pressed stop lug on the fork adapted to be selectively moved into the path of the various sets of stop pins by radial adjustment of the fork relative to the ratchet wheel whereby the stop lug may be contracted by a stop pin for holding the ratchet wheel and star wheel against further movement and the stop lug may be moved against the yielding influence of its associated spring, and means for shifting the one end of the fork relative to the ratchet wheel for separating the stop lug and the stop pin and for permitting the stop lug to respond to the yielding influence of its associated spring.

7. A device as set forth in claim 6 together with means for yieldingly resisting shifting of the fork, whereby the stop lug is returned to operative position relative to the stop pins upon release of the fork shifting means.

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