

June 19, 1945.

A. R. BUCHHOLZ ET AL

2,378,828

COIN COUNTING MACHINE

Filed Jan. 28, 1941

5 Sheets-Sheet 1

Fig. 1.

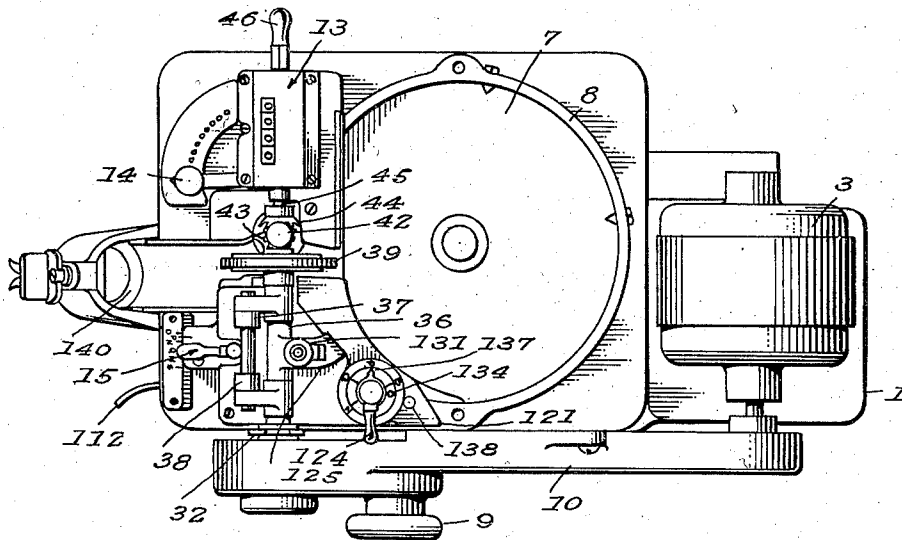
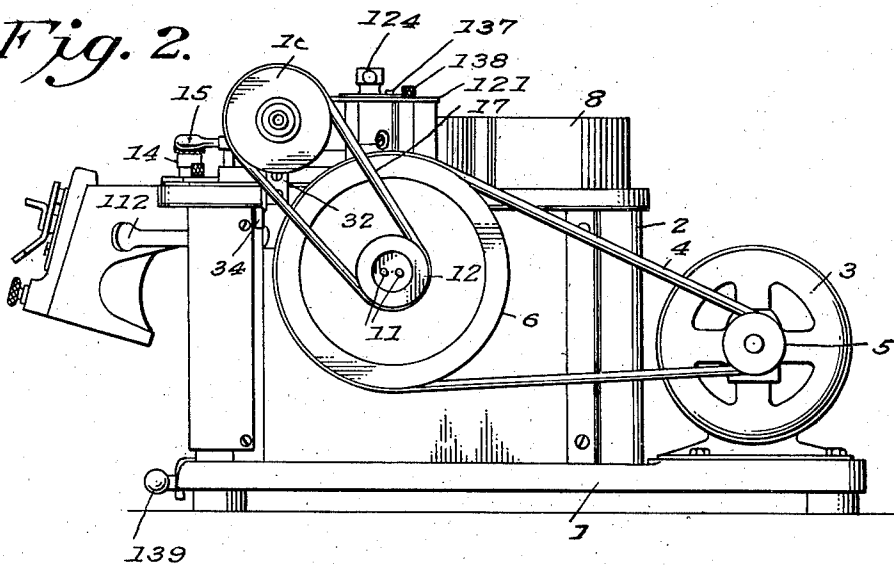


Fig. 2.



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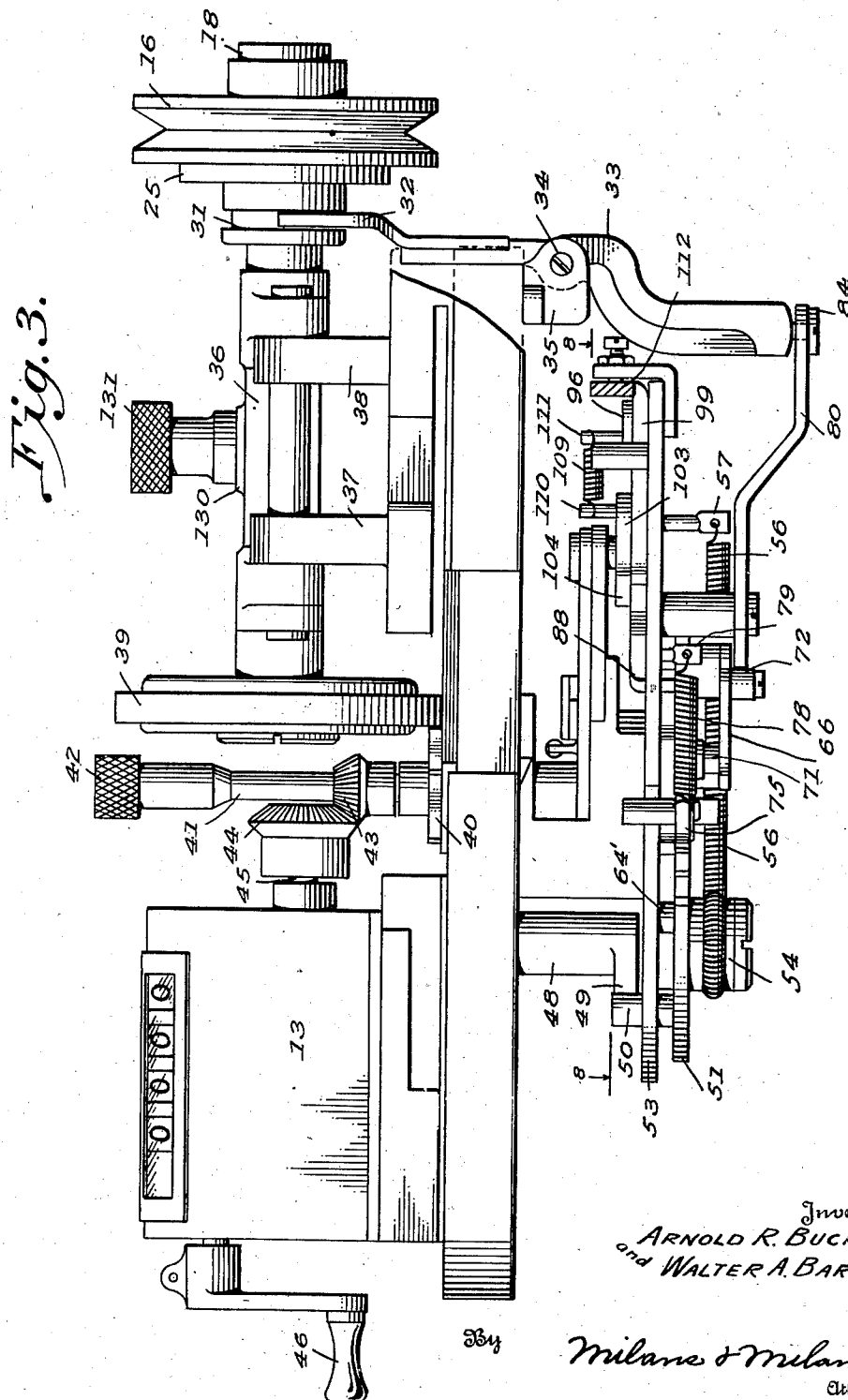
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COIN-COUNTING MACHINE

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Fig. 4.

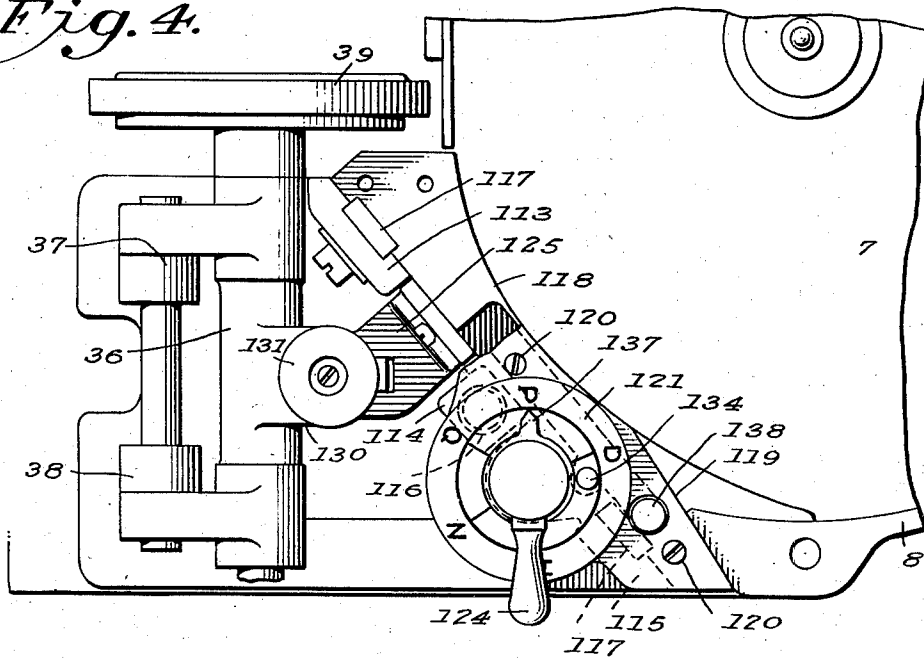


Fig. 5.

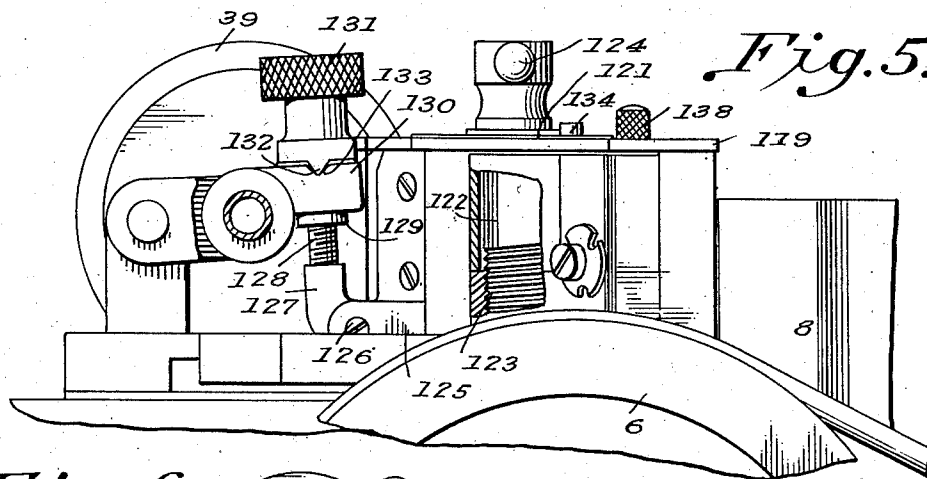


Fig. 6.

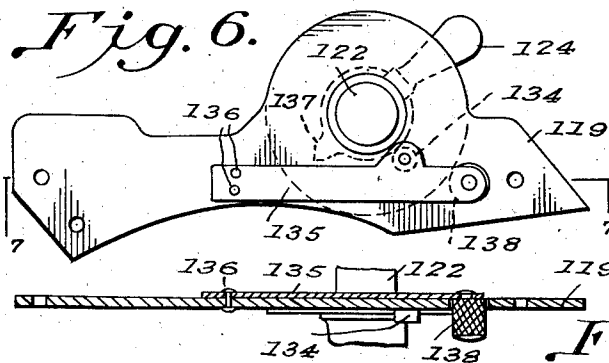


Fig. 7.

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Fig. 8.

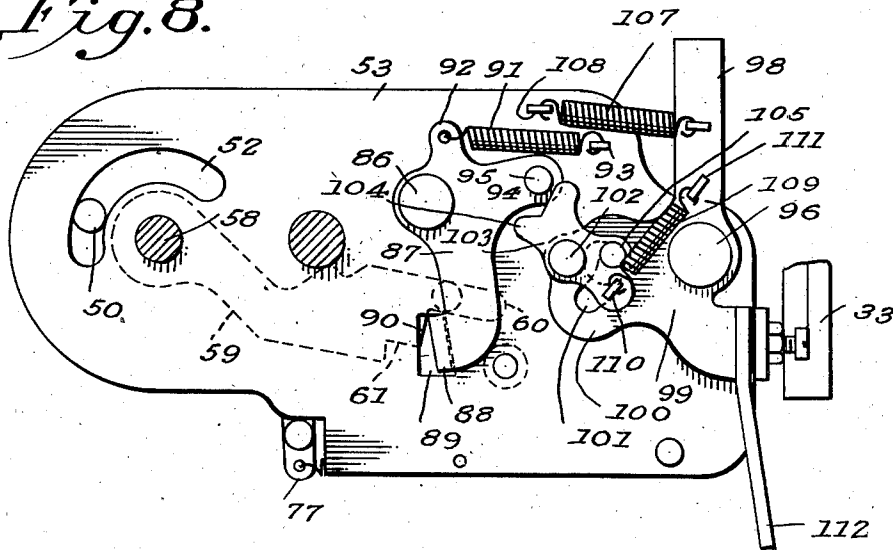
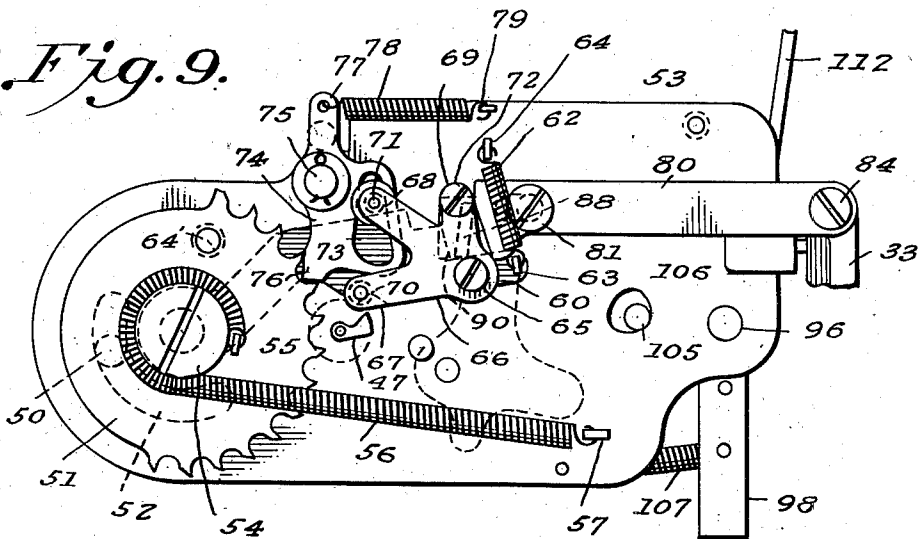


Fig. 9.



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Fig. 10.

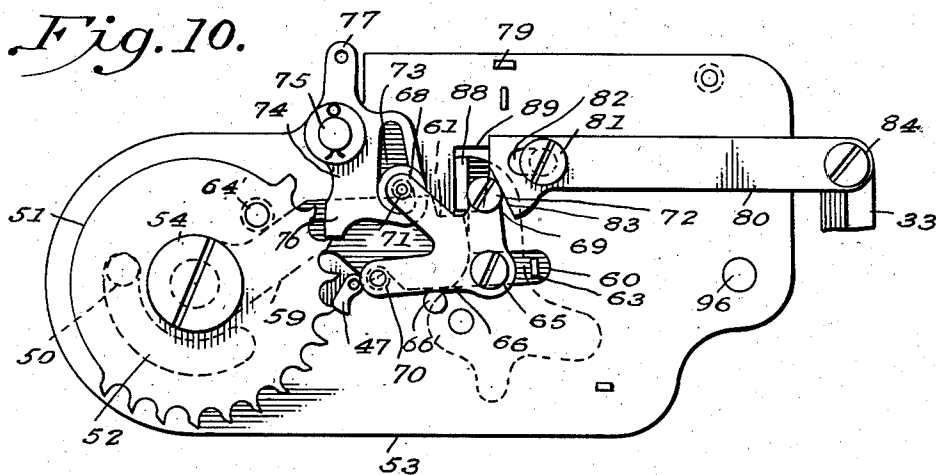


Fig. 11.

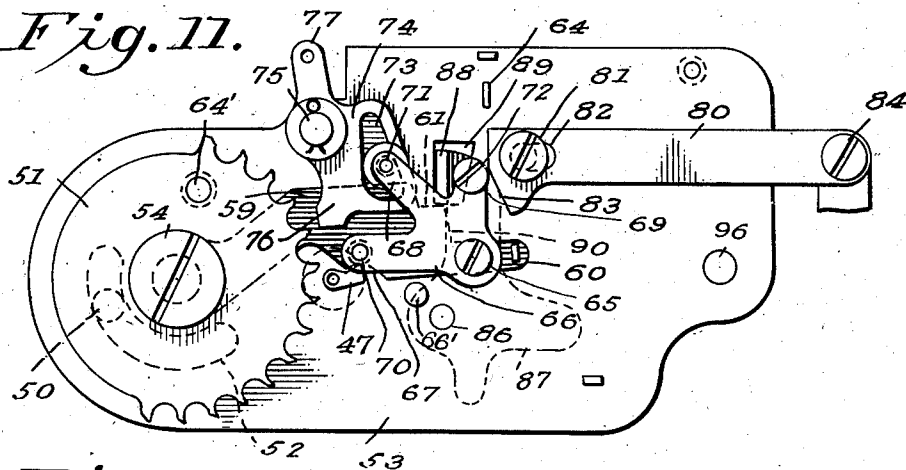
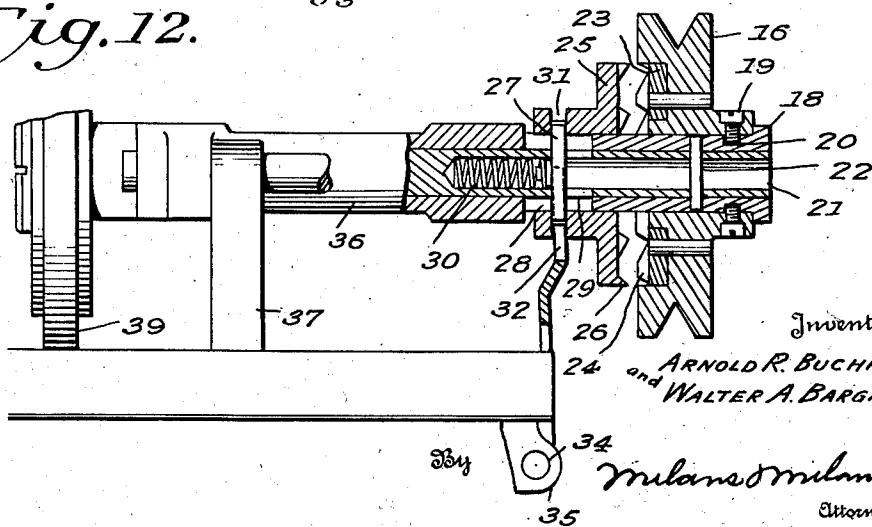


Fig. 12.



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2,378,828

COIN COUNTING MACHINE

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Application January 28, 1941, Serial No. 376,392

11 Claims. (Cl. 133—8)

Our invention relates to new and useful improvements in coin counting machines adapted for automatically counting either an unlimited or predetermined number of coins of varying denominations and, if desired, depositing the same into an envelope or other suitable container.

The principal object of the present invention resides in the provision of novel means for automatically releasing a clutch and stopping the operation of the feed or propeller wheel, normally employed for carrying the coins past the counting mechanism and ejecting the same from the machine, on reaching a predetermined count of the coins.

Another object of our invention consists in the provision of a novel form of thickness or height gauge adapted to be adjusted for the thickness of the coins to be counted, means being provided to normally limit the upward adjustment of the gauge but releasable to permit a further raising thereof in case of emergency.

Still another object of our invention resides in the provision of means for adjusting the height of the feed or propeller wheel by the adjustment of the thickness or height gauge, the feed or propeller wheel having a normal movement of adjustment independently of the thickness or height gauge to accommodate coins of varying thicknesses.

With the above and other objects in view, which will appear as the description proceeds, our invention consists in the novel details of construction, and arrangement of parts, described in the following specification and illustrated in the accompanying drawings, and while we have illustrated and described the preferred embodiments of the invention, as they now appear to us, it will be understood that such changes may be made as will fall within the scope of the appended claims.

In the drawings:

Fig. 1 is a top plan of the machine.

Fig. 2 is a side elevation of the machine with the housing or casing for the propeller belts removed.

Fig. 3 is a fragmental front elevation, with parts omitted, more particularly illustrating the clutch operating mechanism.

Fig. 4 is a fragmental top plan of the thickness or height gauge and coin feed or propeller wheel.

Fig. 5 is a fragmental side elevation, with parts broken away, of the mechanism shown in Fig. 4.

Fig. 6 is a bottom plan of the top plate of the thickness or height gauge.

Fig. 7 is a longitudinal sectional view on the line 7—7 of Fig. 6.

Fig. 8 is a section on the line 8—8 of Fig. 3 looking in the direction of the arrows.

Fig. 9 is a bottom plan of the clutch operating mechanism.

Figs. 10 and 11 are views similar to Fig. 9, with parts removed for the sake of clearness and illustrating certain of the operating parts in different positions; and

Fig. 12 is a front elevation, with parts in vertical section, showing the drive clutch for the feed or propeller wheel in unclutched position.

As previously stated our machine is adapted for counting coins of various denominations and when desired to deposit the same into bags or similar forms of containers. This is of particular advantage in connection with pay rolls or the like and for packaging a predetermined number of coins of the desired denominations at banks or like places. A machine of this general type is illustrated in Patent No. 2,152,952, dated April 4, 1939 and assigned to the assignees of the present application. In a machine of this general type the coins to be counted are initially placed into a hopper and received on a rotatable plate which is operated for throwing the coins by centrifugal force through an outlet from the hopper and to a position to be engaged by the feed wheel or propeller and carried by a star wheel forming a part of the counting mechanism. Usually a feed or propeller wheel is provided for delivering the coins to the counting mechanism and to discharge them from the machine and various means have been provided for cutting off the supply of coins after a predetermined number have been counted. In some instances, such as that shown in the patent above-identified, gates have been provided for so cutting off the supply of coins and in such instance or instances the feed or propeller wheel will continue to rotate thereby wearing down the surface of the wheel. It is to overcome the disadvantages of such a construction that our present improvements are intended and which improvements include means for releasing a clutch when a predetermined number of coins have been counted and to stop operation of the feed or propeller wheel. In our improved form of machine the feed or propeller wheel is mounted so that it may yield for coins of different denominations or thickness. We also provide what might be termed a thickness or height gauge beneath which the coins are thrown by centrifugal force and guided to the discharge opening of the hopper. In our improvements this thickness or height gauge is connected to the feed or propeller wheel in such a manner that when

the thickness or height gauge is adjusted the feed or propeller wheel will likewise be adjusted although the feed or propeller wheel may yield independently of any adjustment of the thickness or height gauge. This will be brought out in detail in the description to follow.

In the drawings 1 indicates a base on which is mounted a casing or housing 2 and an electric motor 3. A belt 4 is driven from the motor pulley 5 and is trained over and operates the pulley 6 which is mounted on a shaft, not illustrated, for driving the rotatable plate 7, forming a bottom for the hopper 8. As this driving mechanism forms no part of the present invention, and is of general well-known construction, a detailed illustration thereof has not been made. At 9 we have illustrated a hand wheel which is carried by the belt and pulley casing 10 and is slidably mounted relative thereto. This hand wheel is normally pressed outwardly by a spring and when pressed inwardly will engage the pins 11, projecting from the pulley 12, as shown more particularly in Fig. 2 of the drawings. This hand wheel 9 permits rotation of the bottom plate 7 by hand, when desired, such as to loosen a coin which may have become jammed. At 13 we have illustrated a counter or register for indicating the number of coins counted, at 14 we have indicated a lever adapted to be adjusted for determining the number of coins to be counted, and at 15 we have illustrated an adjustable member for setting a gauge which directs the coins of different denominations to the outlet from the hopper. As these features form no part of our present invention a further detailed illustration thereof is not thought necessary.

A pulley 16 is driven from the pulley 12, on the outer face of the pulley 6, by means of the belt 17. The pulley 16 is rotatably mounted on the sleeve 18 and carries the screws 19 having the ends of their shanks received in a circumferentially extending groove 20 formed in the sleeve, as shown more particularly in Fig. 12 of the drawings. The sleeve 18 is connected to the horizontal shaft 21, by means of the pin 22. The pulley 16 is formed in its inner face with a recess to receive the clutch plate 23, having the teeth or jaws 24. Slidably mounted on the sleeve 18 is the clutch member 25, having formed on its outer face the clutch teeth 26, adapted to be interlocked with the teeth 24 on the clutch plate 23. The clutch member 25 is held against rotation on the sleeve 18 by means of the pin 27 which passes through the slots 28, in the end of the sleeve and the elongated openings 29 in the shaft 21. Normally the clutch member 25 is forced towards the clutch plate 23 by means of the coiled spring 30, received within the end of the shaft 21. The clutch member 25 is also formed with the circumferentially extending groove 31 to receive the forked end 32 of the lever or arm 33, pivotally connected at 34 to lugs 35, carried by the underside of the top of the casing or housing 2. The shaft 21 is rotatably supported in the elongated bearing 36, pivotally mounted to the upwardly extending posts 37 and 38, and to the inner end of the shaft, or on that end opposite to that carrying the pulley 16, is secured the feed or propeller wheel 39 which is positioned to engage the upper surfaces of the coins as they are discharged through the hopper opening and carry the same into engagement with and past the star wheel 40, carried by the vertically extending rod or shaft 41, having the finger-engaging knurled portion 42 on its upper end. A beveled gear 43

is carried by the shaft or rod 41 and meshes with the beveled gear 44, mounted on the shaft 45, forming a part of the register or counter 13. A crank 46 is provided to reset the counter or register 13 to its zero position.

On the lower end of the rod or shaft 41 is an arm 47 for a purpose which will be later brought out.

The lever 14, when swung, will operate the vertical shaft 48 having the horizontal arm 49 at its lower end. The arm 49 is adapted to engage the pin 50, projecting upwardly from the ratchet wheel 51, to adjust the position of the pin in the arcuate opening 52, provided in the supporting plate 53, secured in the casing or housing 2. By adjusting the position of the pin 50 in the elongated opening 52 the predetermined number of coins to be counted is regulated and the extent of rotation of the ratchet wheel 51 is determined. As this particular form of setting mechanism forms no particular part of the present invention a detailed illustration thereof has not been made. A grooved wheel 54 is formed on or secured to the lower face of the ratchet wheel 51 and secured to this wheel at 55 is one end of a coiled spring 56 with its opposite end secured to the under surface of the plate 53 at 57. The coiled spring is received in the groove of the wheel 54 and as the ratchet wheel is operated in a computing movement the spring is placed under tension and will return the ratchet wheel to its initial or original position on release of the holding pawl to be later described. The ratchet or toothed wheel 51 is rotatably supported from the plate 53, on the pin 58, as quite clearly illustrated in the drawings.

The ratchet or toothed wheel 51 is advanced one tooth, step-by-step, for every five coins that are passed by the star wheel 40, carried by the shaft 41. The movement of the toothed wheel 51 is accomplished by the arm 47, also carried by the shaft 41, and in this construction the arm advances the toothed wheel on the counts of 2 and 3, 7 and 8, 12 and 13 and so on and not at the end of the counts of 5 to preset certain mechanism, later to be described, to operative position to be acted upon by the arm 47 when the predetermined count has been reached to cause disengagement of a clutch 25 and the holding pawl 74, to be described.

Also mounted on the pin 58, between the upper surface of the ratchet or toothed wheel 51 and the under surface of the supporting plate 53, is the arm 59 having its inner end of stepped formation to provide the extension 60 and the surface 61. A coiled spring 62 has one end connected to the extension 60 at 63 and the opposite end secured to the lug 64 on the bottom of the plate 53. This is quite clearly illustrated in Fig. 9 of the drawings and the spring holds the arm 59 normally in the position shown in this figure. This arm is to be operated by a pin or projection 64' projecting from the ratchet or toothed wheel 51 in a manner to be later brought out. Pivotally connected at 65 to the extension 60, of the arm 59, is a lever 66 which may be termed a preset lever or mechanism as the same is shifted to operative position prior to reaching the end of a predetermined count, said lever having the arms or extensions 67, 68 and 69, the arm 67 having an upwardly directed pin 70, the arm 68 having an upwardly directed pin 71 and the arm 69 having a downwardly directed pin 72. The pin 71, of the arm 68, operates in the opening 73 of the holding pawl 74 pivotally connected

to the plate 53 at 75. The opening 73 is of the shape shown more particularly in Fig. 9 of the drawings and the end 76 of the pawl is adapted to engage the teeth of the ratchet or toothed wheel 51. A lug or projection 77 is formed as a part of the pawl 74 and to this arm is connected one end of a coiled spring 78, the opposite end being connected to the lug 79, carried by the plate 53. The downwardly extending projection 72, of the arm 69, normally engages the bar 80, carried by the pin 81, from the plate 53 and which is provided with the elongated opening 82 to permit sliding movement of the bar relative to the plate. One end of the bar is formed with the beveled surface 83 while the opposite end is pivotally connected at 84 to the lower end of the arm 33.

Pivotally connected, at 86, to the upper face of the plate 53 is the arm 87 having a downwardly extending lug or projection 88 which passes through the opening 89, formed in the plate 53 and normally in position to engage the edge of the extension 60 and shoulder 90 of the stepped formation, as shown more clearly in Figs. 8 and 9 of the drawings. A coiled spring 91 has one end connected to a lug or projection 92, on the arm 87, and the opposite end connected to a lug or point 93, carried by the plate 53. This spring normally holds the arm 87 in the position shown in Fig. 8 of the drawings. A pin 94 extends upwardly from a lug or projection 95, formed on the arm 87, for a purpose to be later described.

Pivotally connected at 96 to the upper surface of the plate 53 is a plate 97 having the arms 98, 99 and 100, the arm 100 being provided with the arcuate-shaped elongated opening 101. Pivotally connected at 102, to the arm 100, is a dog 103, having the projection 104, and carrying the pin 105 which depends through the opening 101 and into an opening 106 of the plate 53 of the shape shown more clearly in Fig. 9 of the drawings. A coiled spring 107 has one end connected to the arm 98 and the opposite end connected to a lug or projection 108 carried by the plate 53. A coiled spring 109 has one end connected to the dog 103 at 110 and the opposite end connected to the lug or projection 111, carried by the arm 98. Secured to the arm 99, of the plate 97, is a forwardly projecting lever 112 which extends to a position beyond the front end of the machine, as shown more clearly in Fig. 1 of the drawings, and this lever is used to release the parts, in a manner to be later described, and return the clutch to operative position.

Posts 113, 114 and 115, spaced as shown more particularly in Fig. 4 of the drawings, extend upwardly from the top of the casing or housing of the machine. The post 114 is provided with the vertically extending recess to receive the coiled spring 116, shown by dotted lines in Fig. 4 of the drawings, and what might be termed the inner faces of the posts 113 and 115 are recessed to receive the keys 117, which form guides for the vertically adjustable thickness or height gauge, shown at 118. It will be understood that the bottom edge of this thickness or height gauge will be adjusted with respect to the top of the rotatable plate 7 to accommodate coins of different denominations. When the gauge is in its lowermost position 10¢ pieces may pass thereunder and it may be raised vertically to accommodate pennies, 25¢ pieces, 5¢ pieces and 50¢ pieces. A removable plate 119 is secured to the upper surface of the gauge 118 by means of the screws 120 or other suitable fastenings and this plate

carries the disc 121 on which the different denominations of coins are indicated. A threaded rod 122 is rotatably mounted in the plate 119 with its lower end received in the threaded socket 123 and its upper end provided with the handle 124. As the rod is rotated by the handle the gauge 118 will be raised and lowered at will to accommodate the coins of different thicknesses. Extending from that face of the gauge, removed from the hopper, is an arm 125 to which is pivotally connected at 126 a socket member 127 in which is threaded one end of the rod 128 which carries the collar or washer 129, adapted to engage the under surface of the forked extension 130, formed as a part of the elongated bearing 36, carrying the shaft 21 to which the feed or propeller wheel 38 is secured. A spring-controlled knob 131 is carried by the rod 128 and has the projections 132 adapted to be received in the notches 133 in the forked extension 130. Normally the wheel or propeller 39 may yield due to the fact that the knob 131 is spring-controlled so that coins of various thickness may pass under the wheel. When the gauge 118 is raised or lowered it will in turn raise and lower the wheel 39 due to the connection between the gauge and forked extension of the shaft bearing.

In order to prevent an overthrow of the lever 124, which is operated to raise and lower the thickness or height gauge, we provide the projection 134, which is carried by the leaf spring 135 secured to the under surface of the plate 119, by means of the rivets 136 or other suitable fastenings. It will be understood that the projection 134 projects through the plate 119, in the path of the pointer 137, forming a part of the lever. Also carried by the spring 135, at the free end thereof, is a finger-engaging member 138 which also passes through the plate 119, as quite clearly shown in Figs. 6 and 7 of the drawings. In normal operation the lever 124 is operated in a counter-clockwise direction to raise the gauge 118. As previously stated, when the gauge is in its lowermost position its lower edge will be positioned relative to the rotatable plate in the hopper to permit 10¢ pieces to pass thereunder and when in this position the pointer 137 will be in line with the designation "D" on the disc 121. If it is desired to raise the gauge so that pennies may be passed thereunder the lever will be swung in a counter-clockwise direction so that the pointer 137 will point to the designation "P." It can be appreciated that if the lever is set to position the gauge in one of its raised positions and the attendant leaves the machine some other person may come to operate the machine and continue to move the lever in a counter-clockwise direction to raise the gauge. For an example say that the gauge is set to accommodate 50¢ pieces, the points 137 will point to the designation "H" on the disc 121. The new attendant might want to position the gauge for counting 10¢ pieces and if he continues to move the lever in a counter-clockwise direction the gauge would be raised instead of lowered. To prevent any such operation we provide the projection 134 in the path of movement of the pointer 137 and if the new attendant should move the lever in a counter-clockwise direction the pointer would engage the projection and the lever held. The attendant would then know that he should operate the lever in a clockwise direction to lower the gauge. However, at times it might be desired to raise the height gauge beyond that adapted for the normal accommoda-

tion of 50¢ pieces, such as when coins may become jammed under the gauge. To accommodate a higher raising of the gauge the finger-engaging part 138 may be pressed downwardly to withdraw the projection 134 from the path of the pointer 137 and the projection must be held down so that after the coins are released the lever may be operated in a clockwise direction to lower the gauge.

From the above detailed description it is thought that our improvements will be clearly understood and it will be seen that such improvements lie in the clutch mechanism for stopping the operation of the feed or propeller wheel, the mechanism or means for raising and lowering the feed or propeller wheel as the gauge is raised and lowered and the means for stopping the movement of the lever which raises and lowers the gauge. It is thought that the manner in which the feed or propeller wheel is raised and lowered by operation of the height or thickness gauge will be understood from the description given as well as the operation of the lever for raising and lowering the gauge. It is also thought that the detailed construction of the clutch operating means will be understood and we will endeavor to now more clearly bring out the operation of the clutch. In Fig. 3 of the drawings we have illustrated the clutch in its operative position and in Fig. 12 it is shown in its released or inoperative position. In Figs. 3, 8 and 9 of the drawings the clutch operating parts are shown in their normal position ready for operation. When the motor 3 is started by throwing the switch 139 the table 7, on which the coins are received in the hopper, will be rotated through the belt 4, pulley 6, and associated parts to throw the coins by centrifugal force through the discharge opening of the hopper and in position to be engaged by the feed or propeller wheel 39, which is being rotated through the shaft 21, pulley 16, and belt 17, through the pulley 12. During this operation it will be understood that the teeth 26 of the clutch member 25 are in engagement with the teeth 24 of the clutch plate 23, carried by the pulley 16. The parts are shown for counting ten coins and the ratchet or toothed wheel 51 will be operated one notch for every five coins counted. This movement of the toothed wheel occurs some time during the counts of 5 and not at the end of such counts. As the coins are engaged by the feed wheel or propeller 39 they will be thrown into contact with the star wheel 40 having five notches for receiving coins and said star wheel will be operated one notch as each coin passes and through the beveled gears 43 and 44 operate the register or counter 13. With the members or parts in the position shown in Figs. 8 and 9 as the shaft 41, carrying the star wheel, is rotated it will in turn operate the arm 47 to engage the teeth of the wheel 51. As the second coin is counted the arm 47 engages one of the teeth of the wheel 51 and moves the same sufficiently to swing the pawl 74 and release the pointed end 76 from the recess between the teeth. When this happens toothed wheel 51 is prevented from being returned by the coiled spring 56 as the arm 47 is in driving contact with said toothed wheel. As the third coin is counted a spring 78 returns the pawl 74 to its normal position shown in Fig. 9, but in the third notch of the wheel instead of the fourth, as shown. As the seventh and eighth coins are counted the arm 47 again engages the teeth of the wheel 51 and the pawl is thrown on its pivot into the position shown

in Fig. 10. This is due to the fact that pin 64' has now engaged the lever 59 swinging the same to a new position toward the arm 47 and carrying with it the lever 66 which is pivotally mounted on the extension 60 of the lever 59. This movement of the lever 66 now places pin 70 in the path of the arm 47, the pin 71 in a different position in the slot 73 causing the partial disengagement of pawl 74 from the toothed wheel 51; this is due to the fact that lever 66 has been slightly rotated when contacting the stop lug 66' and pin 72 in engagement with the beveled edge 83 of the bar 80. This new location of parts is termed the preset position and the parts are now arranged for final operation of clutch disengagement by means of contact of pin 72 with the bar 80, the return of the toothed wheel 50 to normal position by the withdrawal of the holding pawl 74 through the medium of pin 71, and the locking of the star wheel by engagement of arm 47 with the edge of the lever 59. When the predetermined count of coins has been reached the arm 47 engages pin 70 to swing the lever 66 and accomplish the above operations. This relocation of parts, termed the preset position, is clearly illustrated in Fig. 10. As lever 59 has been moved toward the arm 47, projection 88 of the arm 87, will pass into position on the surface 61 of lever 59 and this holds or locks the parts as moved. This locking of lever 59 is necessary to permit the desired operation of lever 66 by the arm 47. As the tenth coin is counted the member 66 is swung so that the pin 72, on the arm 69, will ride on the beveled surface 83 of the bar 80 and slide the bar longitudinally, this action being due to the fact that arm 47 has engaged the pin 70. As this is done the arm or lever 33 is swung on its pivot 34 to release the clutch member 25 into the position shown in Fig. 12. When this is done the drive of the feed or propeller wheel 39 will be disengaged and the star wheel locked by engagement of the arm 47 with the edge of the lever 59 previously described so that no further coins can be counted. The swinging movement of lever 66 also causes the pin 71 to release the holding pawl so as to permit the toothed wheel 51 to return to normal position under the tension of the spring 56. When it is desired to reset the parts the lever 112 is engaged, swings the plate 97 on its pivot 96, and brings the projection 104 of the dog 103 into engagement with the projection 94 on the arm 108. This swings the member 87 to release its projection 88 from the surface 61 and the arm 59 returns to its original position with the other parts. This permits the bar 80 to return to its normal position and in turn operate the lever 33 to throw the clutch member 25 into clutching engagement with the pulley 16. It will be understood that when the pawl is positioned, as shown in Fig. 11, that the coiled spring 56 will return the ratchet or toothed wheel 51 to its original position. With the parts reset the machine is again ready for counting.

The counted coins are discharged through the chute indicated generally at 140 for discharge into a suitable receptacle.

Having fully described our invention what we claim as new and desire to secure by Letters Patent is:

1. A coin counting machine including a control means, a hopper, means for discharging coins from the hopper, a star wheel operated by contact of the discharged coins, counting mechanism including a rotating arm operated by the star wheel, a feed wheel engaging the coins for force-

ing the same past the star wheel, and disengageable means for rotating the feed wheel, said control means comprising a member normally out of the path of movement of the arm, means included in the counting mechanism for moving said member to operative position in the path of said arm to be engaged and actuated thereby, and means operable by said member when actuated by said arm and after a predetermined count of coins has been reached to disengage the means for rotating the feed wheel.

2. A coin counting machine including a control means, a hopper, means for discharging coins from said hopper, a star wheel operated by contact of the discharged coins, counting mechanism including a rotating arm operated by the star wheel, a feed wheel engaging the coins for forcing the same past the star wheel and disengageable means for rotating the feed wheel, said control means comprising a pivoted member normally out of the path of movement of the arm, pivoted means carrying said member and actuated by the counting mechanism to place said member in operative position in the path of said arm to be engaged and operated thereby, and means operable by the member when actuated by said arm and after a predetermined count of coins has been reached to disengage the means for rotating the feed wheel.

3. A coin counting machine including a control means, a hopper, means for discharging coins from the hopper, a star wheel adapted for operation by contact of the discharged coins, counting mechanism including a toothed wheel, means to return the toothed wheel to its initial position, an arm operable by rotation of the star wheel and engaging the toothed wheel for rotating the same in a step-by-step movement, a feed wheel adapted to engage the coins for forcing the same past the star wheel, means for rotating the feed wheel and a disengageable holding pawl normally in engagement with the toothed wheel for preventing its reverse rotation, said control means comprising a pivotally mounted arm, a pivoted member carried by the pivotally mounted arm having operative connection with said pawl for disengaging the same, said pivotally mounted arm and the member carried thereby being normally out of the path of movement of said arm operable by the star wheel, and means carried by the toothed wheel and adapted to engage and swing the pivotally mounted arm during the count of a predetermined number of coins to place the pivotally mounted arm and the member carried thereby into the path of movement of said arm operable by said star wheel to be engaged thereby at the end of said predetermined count of coins, the arm operated by the star wheel, the pivotally mounted arm and the pivoted member carried thereby being so formed and correlated that the member carried by the pivotally mounted arm is operated first to disengage the pawl from the toothed wheel through its connection therewith and to thereafter lock the star wheel by engagement of the arm rotated by the star wheel with the pivotally mounted arm to prevent overthrow of the star wheel.

4. A coin counting machine including a control means, a hopper, means for discharging coins from the hopper, a star wheel adapted for operation by contact of the discharged coins, counting mechanism including a toothed wheel, means for returning the toothed wheel to its initial position, an arm operable by rotation of the star wheel and adapted to engage the toothed wheel

for rotating the same in a step-by-step movement, a feed wheel adapted to engage the coins for forcing the same past the star wheel, disengageable means for rotating the feed wheel and a disengageable holding pawl normally in engagement with the toothed wheel for preventing its reverse rotation, said control means comprising a pivotally mounted arm, a pivoted member carried by the pivotally mounted arm having operative connection with said pawl for disengaging the same, said pivotally mounted arm and the member carried thereby being normally out of the path of movement of said arm operable by the star wheel, means carried by the toothed wheel and adapted to engage and swing the pivotally mounted arm during the count of a predetermined number of coins to place the pivotally mounted arm and the member carried thereby into the path of movement of said arm operated by the star wheel to be engaged thereby at the end of said predetermined count of coins, the arm operated by the star wheel, the pivotally mounted arm and the pivoted member carried thereby being so formed and correlated that the member carried by the pivotally mounted arm is operated first to disengage the pawl from the toothed wheel through its connection therewith, and to thereafter lock the star wheel by engagement of the arm rotated by the star wheel with the pivotally mounted arm to prevent overthrow of the star wheel, and means operable by movement of the member carried by the pivoted arm to cause the means for rotating the feed wheel to become disengaged.

5. A coin counting machine including a control means, a hopper, means for discharging coins from the hopper, a star wheel adapted for operation by contact of the discharged coins, counting mechanism including a toothed wheel, means for returning said toothed wheel to its initial position, an arm operable by rotation of the star wheel and adapted to engage the toothed wheel for rotating the same in a step-by-step movement, a feed wheel adapted to engage the coins for forcing the same past the star wheel, means for rotating the feed wheel including a clutch, a clutch disengaging means and a disengageable holding pawl normally in engagement with the toothed wheel for preventing its reverse rotation, said control means comprising a pivotally mounted arm, a lever member carried by the pivotally mounted arm having operative connection with said pawl for disengaging the same and having operative engagement with the clutch disengaging means, said pivotally mounted arm and the member carried thereby being normally out of the path of movement of the arm operated by the star wheel, and means carried by the toothed wheel and adapted to engage the pivotally mounted arm during the count of a predetermined number of coins to place the pivotally mounted arm and the member carried thereby into the path of movement of said arm operated by said star wheel to be engaged thereby at the end of said predetermined count of coins, the arm operated by the star wheel, the pivotally mounted arm, the pivoted member carried thereby and the clutch disengaging means being so formed and correlated that the member carried by the pivotally mounted arm is operated first to disengage the pawl from the toothed wheel through its connection therewith and to actuate the clutch disengaging means and to thereafter lock the star wheel by engagement of the arm rotated by the

star wheel with the pivoted arm of the control means to prevent overthrow of the star wheel.

6. A coin counting machine including a control means, a hopper, means for discharging coins from the hopper, a star wheel adapted for operation by contact of the discharged coins, counting mechanism including a toothed wheel, means for returning the toothed wheel to its initial position, an arm operable by rotation of the star wheel and adapted to engage the toothed wheel for rotating the same in a step-by-step movement, a feed wheel adapted to engage the coins for forcing the same past the star wheel, means for rotating the feed wheel including a clutch, a clutch disengaging means, and a disengageable holding pawl normally in engagement with the toothed wheel for preventing its reverse rotation, said control means comprising a pivotally mounted arm, a lever member carried by the pivotally mounted arm having operative connection with said pawl for disengaging the same and having operative engagement with the clutch disengaging means, said pivotally mounted arm and the member carried thereby being normally out of the path of movement of the arm operable by the star wheel, means carried by the toothed wheel and adapted to engage the pivoted arm during the count of a predetermined number of coins to place the pivotally mounted arm and the member carried thereby into the path of movement of said arm operable by said star wheel to be engaged thereby at the end of said predetermined count of coins, the arm operated by the star wheel, the pivotally mounted arm, the pivoted member carried thereby and the clutch disengaging means being so formed and correlated that the member carried by the pivotally mounted arm is operated first to disengage the pawl from the toothed wheel through its connection therewith and operate the clutch disengaging means and to thereafter lock the star wheel by engagement of the arm rotated by the star wheel with the pivoted arm of the control means to prevent overthrow of the star wheel, and means for resetting the clutch, the pivotally mounted arm, the lever member carried thereby and the pawl to their original position for another cycle of operation.

7. A coin counting machine including a control means, a hopper, means for discharging coins from the hopper, a star wheel adapted for operation by contact of the discharged coins, counting mechanism including a toothed wheel, means to return the toothed wheel to its initial position, an arm operable by rotation of the star wheel and adapted to engage the toothed wheel for rotating the same in a step-by-step movement, a feed wheel adapted to engage the coins for forcing the same past the star wheel, means for rotating the feed wheel and a disengageable holding pawl normally in engagement with the toothed wheel for preventing its reverse rotation, said control means comprising a pivotally mounted arm, a pivoted lever member carried by the pivotally mounted arm having operative connection with said pawl for disengaging the same, said pivotally mounted arm and the member carried thereby being normally out of the path of movement of said arm operable by the star wheel, means carried by the toothed wheel and adapted to engage and swing the pivotally mounted arm during the count of a predetermined number of coins to place the pivotally mounted arm and the member carried thereby into the path of movement of said arm operable by said star

wheel to be engaged thereby at the end of said predetermined count of coins, the arm operated by the star wheel, the pivotally mounted arm and the pivoted member carried thereby being so formed and correlated that the member carried by the pivotally mounted arm is operated first to disengage the pawl from the toothed wheel through its connection therewith and to thereafter lock the star wheel by engagement of the arm rotated by the star wheel with the pivotally mounted arm to prevent overthrow of the star wheel, and means for locking the pivotally mounted arm in the path of the arm rotated by the star wheel.

8. A coin counting machine including a control means, a hopper, means for discharging coins from the hopper, a star wheel adapted for operation by contact of the discharged coins, counting mechanism including a toothed wheel, means to return the toothed wheel to its initial position, an arm operable by rotation of the star wheel and adapted to engage the toothed wheel in a step-by-step movement, a feed wheel adapted to engage the coins for forcing the same past the star wheel, disengageable means for rotating the feed wheel, and a disengageable holding pawl normally in engagement with the toothed wheel for preventing its reverse rotation, said control means comprising a pivotally mounted arm, a pivoted lever member carried by the pivotally mounted arm having operative connection with said pawl for disengaging the same, said pivotally mounted arm and the member carried thereby being normally out of the path of movement of said arm operable by the star wheel, means carried by the toothed wheel and adapted to engage and swing the pivotally mounted arm during the count of a predetermined number of coins to place the pivotally mounted arm and the member carried thereby into the path of movement of said arm operable by the star wheel to be engaged thereby at the end of said predetermined count of coins, the arm operated by the star wheel, the pivotally mounted arm and the pivoted member carried thereby being so formed and correlated that the member carried by the pivotally mounted arm is operated first to disengage the pawl from the toothed wheel through its connection therewith and to thereafter lock the star wheel by engagement of the arm rotated by the star wheel with the pivotally mounted arm to prevent overthrow of the star wheel, means for locking the pivotally mounted arm in the path of the arm rotated by the star wheel, and means operable by the movement of the member carried by the pivoted arm to cause the means for rotating the feed wheel to become disengaged.

9. A coin counting machine including a control means, a hopper, means for discharging coins from the hopper, a star wheel adapted for operation by contact of the discharged coins, counting mechanism including a toothed wheel, means to return the toothed wheel to its initial position, an arm operable by the rotation of the star wheel and adapted to engage the toothed wheel for rotating the same in a step-by-step movement, a feed wheel adapted to engage the coins for forcing the same past the star wheel, means for rotating the feed wheel including a clutch, a clutch disengaging means and a disengageable holding pawl normally in engagement with the toothed wheel for preventing its reverse rotation, said control means comprising a pivotally mounted arm, a lever member carried by

the pivotally mounted arm having operative connection with said pawl for disengaging the same and having operative engagement with the clutch disengaging means, said pivotally mounted arm and the member carried thereby being normally out of the path of movement of the arm operable by the star wheel, means carried by the toothed wheel and adapted to engage the pivotally mounted arm during the count of a predetermined number of coins to place the pivotally mounted arm and the member carried thereby into the path of movement of said arm operable by said star wheel to be engaged thereby at the end of said predetermined count of coins, the arm operated by the star wheel, the pivotally mounted arm, the pivoted member carried thereby and the clutch disengaging means being so formed and correlated that the member carried by the pivotally mounted arm is operated first to disengage the pawl from the toothed wheel through its connection therewith and to operate the clutch disengaging means and to thereafter lock the star wheel by engagement of the arm rotated by the star wheel with the pivoted arm of the control means to prevent overthrow of the star wheel, means for locking the pivotally mounted arm, and means including a manually operated lever for releasing the locking means for the pivotally mounted arm to permit movement of the clutch, the pivotally mounted arm, the lever member carried thereby and the pawl to their original position for continued operation.

10. A coin counting machine including a control means, a hopper, means for discharging coins from the hopper, a star wheel adapted for operation by the discharged coins, counting mechanism including a toothed wheel, a feed wheel adapted to engage the coins for forcing them past the star wheel and means for rotating the feed wheel including a clutch, said control means having means for disengaging the clutch included in the means for rotating the said feed wheel when

a predetermined number of coins have been counted, said means including a pivotally mounted arm and a pivoted member carried thereby, said pivotally mounted arm and the pivoted member being normally in an inoperative position, means carried by the toothed wheel for moving the pivotally mounted arm and pivoted member of the clutch disengaging means to operative position, and common means operable by the rotation of the star wheel adapted to engage the toothed wheel for rotating the same in a step-by-step movement and to engage and operate the pivoted member carried by the pivotally mounted arm of the means for disengaging the clutch for clutch disengagement.

11. A coin counting machine including a control means, a hopper, means for discharging coins from the hopper, a star wheel adapted for operation by the discharged coins, counting mechanism including a toothed wheel, a feed wheel adapted to engage the coins for forcing the same past the star wheel and means for rotating the feed wheel including a clutch, said control means comprising means for disengaging the clutch included in the means for rotating the feed wheel when a predetermined number of coins have been counted, said means including a pivotally mounted arm and a pivoted member carried thereby, said pivotally mounted arm and pivoted member being normally in an inoperative position, means carried by the toothed wheel for moving the pivotally mounted arm and pivoted member of the clutch disengaging means to operative position, and a single arm operable by the rotation of the star wheel adapted to engage the toothed wheel for rotating the same in a step-by-step movement and to engage and operate the pivoted member carried by the pivotally mounted arm of the means for disengaging the clutch for clutch disengagement.

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