E. P. DONNELLAN.

COIN COUNTING MACHINE.

APPLICATION FILED JUNE 12, 1920.

1,389,634.

Patented Sept. 6, 1921.

2 SHEETS—SHEET 1.

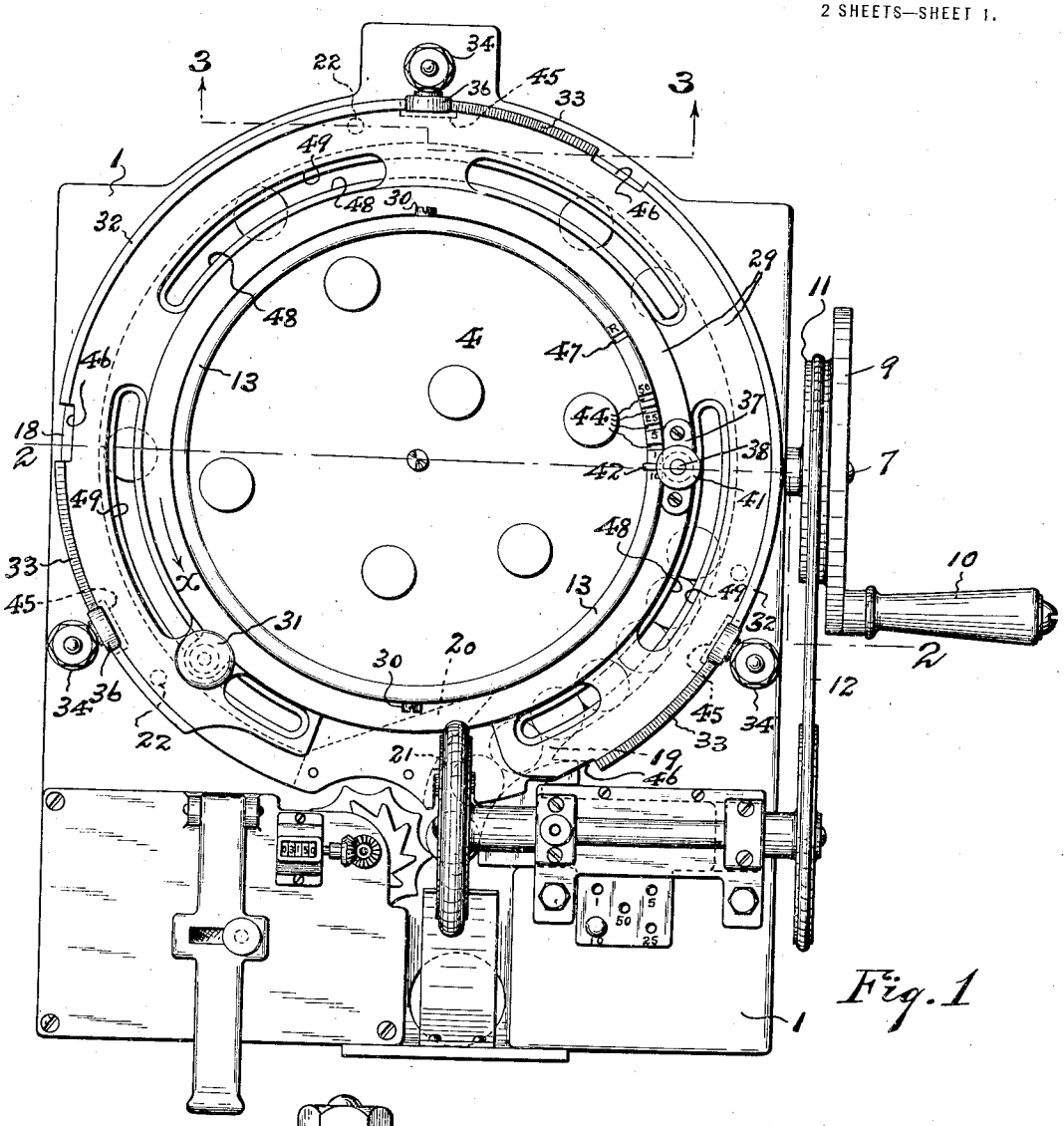



Fig. 1

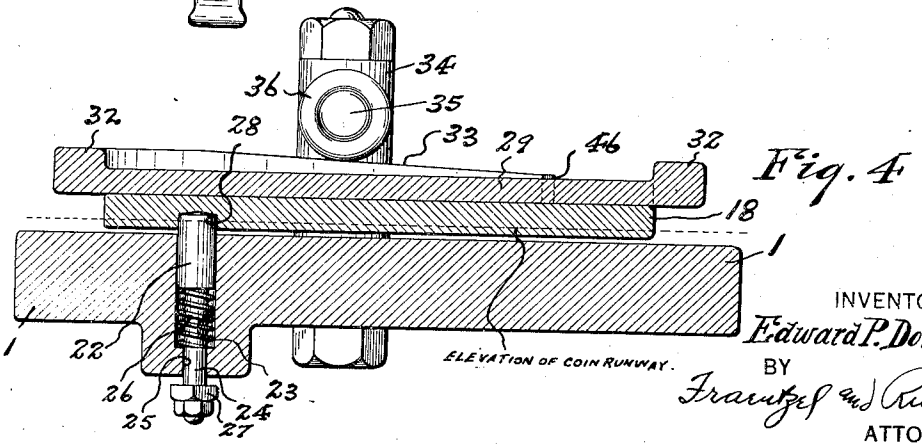



Fig. 4

INVENTOR

Edward P. Donnellan,

BY

Fraser and Richards,

ATTORNEYS.

E. P. DONNELLAN.

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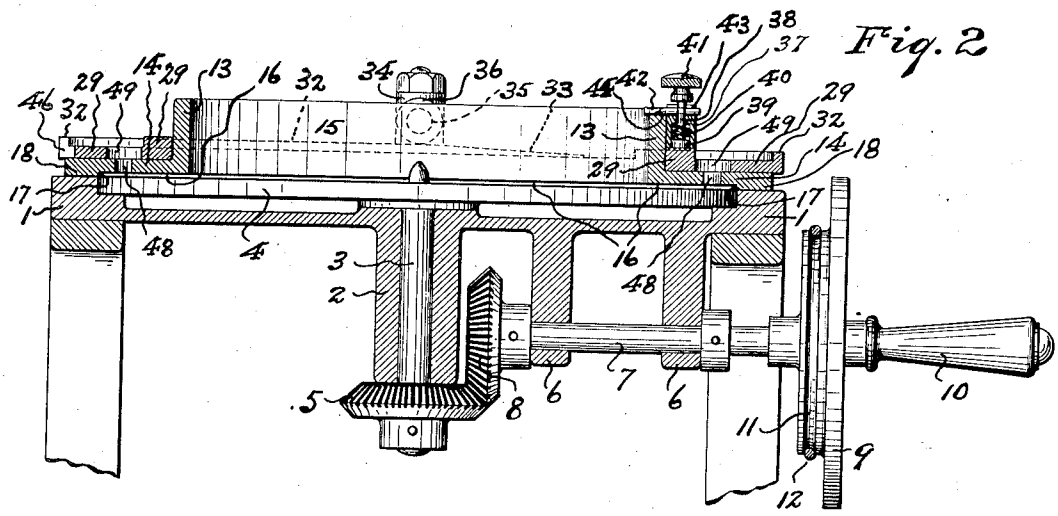



Fig. 2

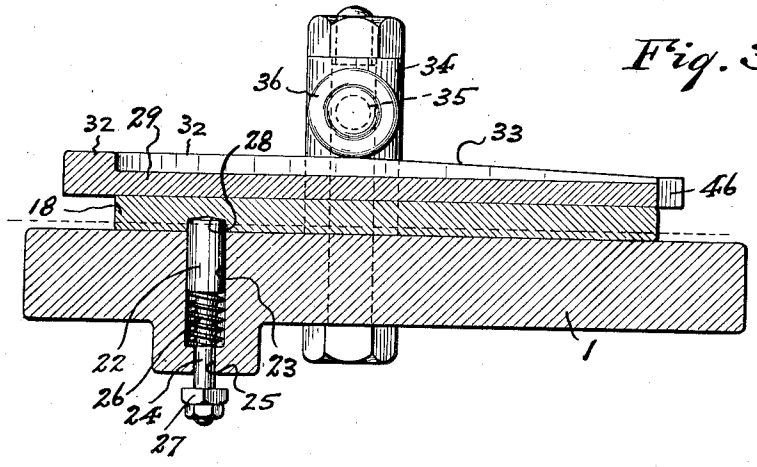



Fig. 3

INVENTOR

Edward P. Donnellan,

BY

Frantzel & Richards,

ATTORNEYS.

# UNITED STATES PATENT OFFICE.

EDWARD P. DONNELLAN, OF BROOKLYN, NEW YORK, ASSIGNOR TO STANDARD COIN COUNTER, INC., OF BROOKLYN, NEW YORK, A CORPORATION OF NEW YORK.

## COIN-COUNTING MACHINE.

1,389,634. Specification of Letters Patent. **Patented Sept. 6, 1921.**

Application filed June 12, 1920. Serial No. 388,408.

*To all whom it may concern:*

Be it known that I, EDWARD P. DONNELLAN, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Coin-Counting Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to characters of reference marked thereon, which form a part of this specification.

The present invention relates, generally, to improvements in coin-counting machines of the general type shown and described in previously issued Letters-Patent, #1,160,830, dated Nov. 16th, 1915; and the invention has reference, more particularly, to improvements in centrifugal coin feeding means for delivering the coins in a train or successively to the counting mechanism.

The invention has for its principal object to provide, in connection with the centrifugal coin feeding means, a novel and improved detachable and adjustable coin guiding and controlling means which is adapted to be quickly and easily adjusted by a simple manipulation to arrange the same for operation with any desired denomination of coin.

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

With the various objects of the present invention in view, the same consists, primarily, in the novel-improved coin-counting machine hereinafter set forth; and, furthermore, this invention consists in the novel arrangements and combinations of the various parts, as well as in the details of the construction thereof, all of which will be hereinafter more fully described in the following specification, and then finally embodied in the claims which are appended thereto.

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

Figure 1 is a plan view of the novel construction of improved coin-counting machine made according to and embodying the principles of the present invention.

Fig. 2 is a detail transverse vertical section, taken on line 2—2 in said Fig. 1.

Fig. 3 is a detail transverse vertical section, taken on line 3—3 in said Fig. 1, drawn on an enlarged scale; and Fig. 4 is a similar transverse vertical section illustrating the coin guiding and controlling means in an adjusted position adapted to operate with coins of the largest denomination.

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

Referring now to said drawings, the reference-character 1 indicates the bed-plate of the improved coin-counting machine, the same having a centrally disposed vertical bearing 2 in which is journaled a vertical spindle 3 to the upper end of which is fixed a rotatable table 4, the upper surface of which is preferably flush with the upper surface of said bed-plate. Secured upon the lower end of said spindle 3 is a bevel gear 5. Projecting from the under side of said bed-plate, at suitable locations, are a pair of alined bearings 6 in which is journaled a transverse shaft 7. Secured upon the inner end of said shaft 7 is a bevel gear 8 which meshes operatively with said bevel gear 5 of said spindle 3. Secured upon the outer end of said transverse shaft 7 is a hand-wheel 9, the same being provided with a suitable handle-member 10 for rotating the same and said shaft 7 whereby through the interconnecting transmission elements the table 4 is rotated. Connected with said hand-wheel 9 is a grooved pulley portion 11 for a driving belt 12, the purpose of which will be subsequently described.

Mounted upon said bed-plate 1, so as to be registered above said table 4, is a coin guiding and controlling means, comprising an annular vertical wall portion 13, from the lower end or bottom of which extends an outwardly projecting horizontally disposed flange portion 14. Said annular wall portion 13 provides or incloses a coin receiving space or chamber 15 in which the coins to be counted are deposited, said space or chamber 15 being open at the top, and said rotatable table 4 forming the bottom of the same. Said flange portion 14 is undercut at its under surface to provide an annular space or coin runway 16 intermediate said flange portion and the marginal portions of the rotatable table 4, said space or coin runway 16 being open toward the interior of the chamber 15. The said space or coin runway 16 is closed at its outer side by the shoulder 17

formed by the rim 18 of said flange portion 14, said shoulder 17 providing a circular guide whereby the coins entering said runway are guided to a place of escape as the same are carried around by the rotation of the table 4. A portion of said rim 18 is cut away to provide an escape passage 19 through which the coins may pass to the counting mechanism. Arranged at one side within said escape passage 19 so as to extend under said flange portion 14 and obliquely across the coin runway 16 is a turn out plate or tongue 20, the same being provided with a guiding edge 21, which, when engaged by the coins, serves to turn the latter for movement outwardly through said escape passage 19 into engagement with a suitable counting mechanism. When the rim 18 of said flange portion 14 is supported directly in contact with said bed-plate 1, the said coin runway 16 is so spaced relative to the rotatable table 4 as to be of proper height to admit edgewise into the same coins of the thickness of ten-cent pieces, without permitting the said coins to pile upon one another or overlap each other within said runway, but is not of sufficient height to admit edgewise thereinto coins of greater thickness, such as one-cent, five-cent, twenty-five cent or fifty-cent pieces; consequently, when it is desired to operate the machine to count coins of the latter denominations it is necessary to elevate said flange-portion 14, to thereby increase the height of said coin runway 16 to the degree necessary to permit the admission of coins having the thickness of the particular denomination which it is desired to count. To this end there are provided in connection with said bed plate 1, at suitable locations, a plurality of spring actuated lifting devices which normally exert an upward lifting pressure upon said coin guard and controlling means. Said lifting devices each comprise a vertically movable plunger 22 mounted in a perpendicular slideway 23 provided in said bed-plate 1. Connected with the lower end of said plunger 22 is a shank 24 of reduced diameter which extends downwardly to project exteriorly through a correspondingly sized opening 25 at the lower end of said slideway 23. Arranged about said shank 24, between the lower end of said plunger and the bottom of said slideway is a compression spring 26 which exerts an upwardly moving pressure upon said plunger. The exterior free end of said shank 24 is provided with suitably positioned stop nuts 27 which limit the upward movement of the plunger. The lifting devices thus constructed are positioned in the bed-plate so as to engage, at several points, the under side of the rim 18 of said flange portion 14, so as to exert an upward push or lifting pressure upon the latter. In order to prevent any accidental turning or shifting of said flange-portion 14 from its proper relation to said rotatable table 4, and from its operative position wherein the escape opening 19 is properly located relative to the coin counting mechanism, the under side of said rim 18 of the flange-portion 14 is provided with suitably located depressed or countersunk seats 28, which, when the coin guiding and controlling means is operatively assembled in the machine, receive the upper free ends of said plungers 22, thus engaging the flange-portion 14 in a manner not only serving to exert the desired vertical lifting pressure thereupon, but also serving to hold said flange-portion against shifts or turns in a horizontal plane.

In order to adjust the coin guiding and controlling means to the desired height corresponding to the thickness of the coin denomination to be counted, and to hold the same in position when so adjusted, there is provided an annular adjusting ring 29 which surrounds the wall portion 13 so as to extend over and rest upon the upper surface of the flange-portion 14, the same being held against vertical displacement by means of stop studs or screws 30 which are engaged in said wall portion 13 above said adjusting ring. Said adjusting ring is rotatably movable in a horizontal plane upon said flange-portion 14, and is provided with a suitably located hand hold 31 which the operator may grasp as an aid to shifting the same. Said adjusting ring 29 is provided at its outer edge with an upstanding rim or flange 32, which is provided, at suitable points, with downwardly inclined cam portions 33. Fixed upon said bed-plate 1, in positions corresponding to the locations of said cam portions 33 of said adjusting ring, are vertical posts 34 having inwardly offset stop members in the form of lateral studs 35 carrying anti-friction rollers 36 against which said cam-portions 33 are engaged. Arranged upon said adjusting ring is a lock mechanism adapted to coöperate with the wall portion 13 to hold said adjusting ring in any desired adjusted position, said lock mechanism may be of a great variety of mechanical forms, and as illustrative of one form thereof which adequately serves the purpose intended, the lock mechanism shown in the drawings comprises a housing or casing 37 open at its lower end and having an opening of reduced diameter at its upper end through which extends outwardly a vertically movable shank 38. The inner end of said shank is provided with a flanged head 39, and between said head and the upper end of said casing is a compression spring 40 serving to normally retract to downwardly held position said shank 38. The exteriorly projecting end of said shank 38 is provided with a finger-piece 41, and below said finger-

piece said shank is provided with a transversely projecting latch-pin 42. The outer upper end of said housing or casing 37 is provided with a transverse groove 43 disposed substantially at right angles to the wall portion 13, the same serving as a seat for said latch-pin 42 whereby the same is prevented from turning away from its operatively projected position across the upper edge of said wall-portion 13. Said upper edge of said wall-portion 13 is provided with a series of transverse grooves or notches 44 with which the latch-pin 42 may be selectively engaged, each groove or notch having arranged adjacent thereto an identifying character indicative of the coin denomination for which the coin guiding and controlling means is set when the latch-pin is selectively engaged with one or the other of said grooves or notches. As illustrated in Fig. 1 of the drawings the latch-pin 42 is engaged in the groove or notch marked "10" whereby the adjusting ring 29 is positioned to hold the coin guiding and controlling means for service in counting ten-cent pieces. When said adjusting-ring is thus positioned the cam-portions 33 are so disposed relative to the stop rollers 36 that their highest portions are engaged under the latter, whereby the flange-portion 14 is pressed down against the upward pressure of the spring actuated lifting plungers 22, to hold the flange-portion at a level adjusting the height of said coin runway 16 thereof to receive ten-cent pieces. If it is desired to adjust the coin guiding and controlling means to receive one-cent pieces, the finger-piece 41 of the lock mechanism is grasped and pulled upwardly, thus raising the latch-pin 42 out of the groove or notch marked "10." When said latch-pin 42 is thus freed, the operator grasps the hand-hold 31 and slides the adjusting ring to the right (*i. e.* in the direction of the arrow X in Fig. 1), until the latch-pin is over the groove or notch marked "1," whereupon the finger-piece 41 is released to permit the actuating spring to draw down the shank 38 thereby permitting the latch-pin to seat itself in said last mentioned groove or notch. This movement of the adjusting ring moves the cam portions 33 relative to the stop rollers 36, so that the downwardly inclined surface of said cam portions are positioned relative to said stop rollers 36 to the proper degree necessary to allow the lift plungers 22 to raise the flange portion 14 a sufficient distance to increase the height of the coin runway 16 to admit coins of the thickness of one-cent pieces. The above described adjusting operation is very quickly and easily accomplished, so that the setting of the coin guiding and controlling means may be accomplished by the operator with a minimum amount of trouble, and without necessity of detaching or removing any of the machine parts. It will be understood that movement of the adjusting ring may be readily made to selectively engage the latch-pin with any groove or notch desired, and owing to the downward inclination of the cam portions 33 it will be apparent that as the different points of the downwardly sloping surface thereof are presented to the stop rollers 36 the flange-portion 14 is thereby permitted to yield upwardly under the pressure of the spring actuated plungers 22 to any degree required corresponding to the thickness of coins to be counted. This is illustrated in the section shown in Fig. 4 of the drawings.

In order to permit of quick and easy detachment or removal of the coin guiding and controlling means from the machine, if for any reason it is desirable to remove the same, there are provided in the periphery of the flange-portion 14 a series of gate or clearance notches 45, which, when said flange-portion 14 is in normally attached relation to said bed-plate 1, are located in alinement beneath said stop rollers 36. Said adjusting ring 29 is also provided in its outer periphery with similar gate or clearance notches 46 located beyond the lowermost point of each cam portion 33. The wall-portion 13 is provided with a release groove or notch 47. When it is desired to remove said coin guiding and controlling means, the lock mechanism is released, and the adjusting ring 29 moved to the right until said latch-pin is registered with and engaged in said release groove or notch 47. This movement of the adjusting ring carries its gate or clearance notches 46 beneath said stop-rollers 46 and into alinement with said gate or clearance notches 45 of the flange-portion 14. When the parts are thus positioned the flange portion 14 with the adjusting ring 29 may be lifted upwardly off and away from the bed-plate 1, the alined gate or clearance notches 45 and 46 permitting the same to clear and pass by said stop rollers 36. It will thus be apparent that the coin guiding and controlling means may be readily and quickly removed with a minimum of manipulation.

In order to give access to the coin runway 16 to dislodge mutilated, bent or obstructing coins while the coin guiding and controlling means is in operatively attached relation to the machine, the flange-portion 14 is provided with slots 48 of a width less than a coin of smallest diameter, said slots 48 being located above said runway 16 so as to give access to a dislodging instrument adapted to be inserted therethrough and engaged with the coin to be dislodged. Said adjusting ring 29 is likewise provided with slots 49 which register over the slots 48 of said flange portion, so that the dislodging instrument

may be inserted through said adjusting ring and thence through said flange portion.

The coin counting mechanism and the propelling mechanism, driven by the driving belt 12, to which the coins to be counted are guided and fed by the above described improved coin guiding and controlling means is substantially the same, both in construction and manner of operation as those described in the previous Letters-Patent #1,160,830, above referred to, and consequently detailed description thereof is not necessary relative to the present invention.

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

I claim:—

1. In a coin counting machine, the combination with a rotatable feed table of an annular coin guiding means vertically movable to accommodate the thickness of coin desired to be counted, stop means for limiting the upward movement of said guiding means, and means movable between said stop means and said guiding means for determining the desired elevation of the latter.

2. In a coin counting machine, the combination with a rotatable feed table of an annular coin guiding means vertically movable to accommodate the thickness of coin desired to be counted, means for exerting lifting pressure upon said guiding means, stop means for limiting the upward movement of said guiding means, a movable cam ring interposed between said guiding means and said stop means for determining the desired elevation of the former, and means for holding said cam ring in desired adjusted position.

3. In a coin counting machine, the combination with a rotatable feed table of a guide ring having a coin runway arranged over the marginal portions of said table, spring actuated means for exerting a lifting pressure upon said guide ring, stop means for limiting the upward movement of said guide ring, and adjustable means intermediate said stop means and said guide ring for regulating the elevation of the latter relative to said table.

4. In a coin counting machine, the combination with a rotatable feed table of a guide ring having a coin runway arranged over the marginal portions of said table, spring actuated means for exerting a lifting pressure upon said guide ring, stop means for limiting the upward movement of said guide ring, a cam ring capable of rotative movement interposed between said stop means and said guide ring for regulating the elevation of the latter relative to the table, and means for holding said cam ring in desired adjusted position.

5. In a coin counting machine, the combination with a bed-plate of a rotatable feed table, a guide ring having a coin runway arranged over the marginal portions of said table, spring actuated lifting means mounted in said bed-plate to exert an upward pressure upon said guide ring, stop means fixed to said bed-plate to limit the upward movement of said guide-ring, a rotatable adjusting ring movable between said guide-ring and said stop means, inclined cam members on said adjusting ring engageable with said stop means to determine the desired elevation of said guide ring, and means for holding said adjusting ring in desired adjusted position.

6. In a coin counting machine, the combination with a bed-plate of a rotatable feed table, a guide ring having a coin runway arranged over the marginal portions of said table, a vertical annular wall extending upwardly from the inner margin of said guide ring, spring actuated lifting means mounted in said bed-plate to exert an upward pressure upon said ring, stop means fixed to said bed-plate to limit the upward movement of said guide-ring, a rotatable adjusting ring movable between said guide-ring and said stop means, inclined cam members on said adjusting ring engageable with said stop means to determine the desired elevation of said guide ring, a latch means on said adjusting ring, and said vertical annular wall of said guide ring having a plurality of latch seats selectively engageable by said latch means to hold said adjusting ring in desired adjusted position.

7. In a coin counting machine, a bed-plate, a rotatable feed table, a coin guiding ring arranged over the marginal portions of said table, a plurality of upwardly pressed spring actuated plungers mounted in said bed-plate, said guiding ring having in its under side sockets to receive the ends of said plungers, said plungers serving to exert an upward lifting pressure upon said guiding ring, fixed posts extending upwardly from said bed-plate, laterally projected stop rollers carried by said posts, and a rotatable adjusting ring provided with inclined cam portions supported on said guiding ring in engagement with said stop rollers.

8. In a coin counting machine, a bed-plate, a rotatable feed table, a coin guiding ring arranged over the marginal portions of said table, a plurality of upwardly pressed

spring actuated plungers mounted in said bed-plate, said guiding ring having in its under side sockets to receive the ends of said plungers, said plungers serving to exert an upward lifting pressure upon said guiding ring, fixed posts extending upwardly from said bed-plate, laterally projected stop rollers carried by said posts, a rotatable adjusting ring provided with inclined cam portions supported on said guiding ring in engagement with said stop rollers, and means for holding said adjusting ring in desired adjusted position.

9. In a coin counting machine, a bed-plate, a rotatable feed table, a coin guiding ring arranged over the marginal portions of said table, a plurality of upwardly pressed spring actuated plungers mounted in said bed-plate, said guiding ring having in its under side sockets to receive the ends of said plungers, said plungers serving to exert an upward lifting pressure upon said guiding ring, fixed posts extending upwardly from said bed-plate, laterally projected stop rollers carried by said posts, a rotatable adjusting ring provided with inclined cam portions supported on said guiding ring in engagement with said stop rollers, and means for holding said adjusting ring in desired adjusted position, said means comprising a latch device on said adjusting ring, and said guiding ring having suitably located latch-seats selectively engageable by said latch device.

10. In a coin counting machine, the combination with a vertically movable coin guiding ring, of stop means for limiting the upward movement of said guiding ring, a rotatable adjustable cam ring intermediate said guiding ring and said stop means, said guiding ring having clearance notches alined with said stop means, and said cam ring having similar clearance notches alinable with said notches of said guiding ring by rotative movement of said cam ring, whereby both rings may be removed from the machine.

11. In a coin counting machine, the combination with an annular coin guiding means, of stop means therefor, a rotatable element associated with said guiding means intermediate the same and said stop means, and said rotatable element having peripherally located clearance notches alinable with said stop means by rotation of the same whereby said guiding means may be removed from the machine.

12. In a coin counting machine, the combination with a rotatable feed table, of a guide ring having a coin runway arranged over the marginal portions of said table, said guide ring having slots giving access to the interior of said runway.

13. In a coin counting machine, the combination with a rotatable feed table, of a vertically adjustable guide ring having a coin runway arranged over the marginal portions of said table, a cam ring on said guide ring for controlling the adjustment of the latter, said guide ring having slots giving access to the interior of said runway, and said cam ring having similar slots alined with the slots of said guide ring.

In testimony that I claim the invention set forth above I have hereunto set my hand this 7th day of June, 1920.

EDWARD P. DONNELLAN.

Witnesses:
GEORGE D. RICHARDS,
JAMES L. DONNELLAN.