

Nov. 22, 1938.

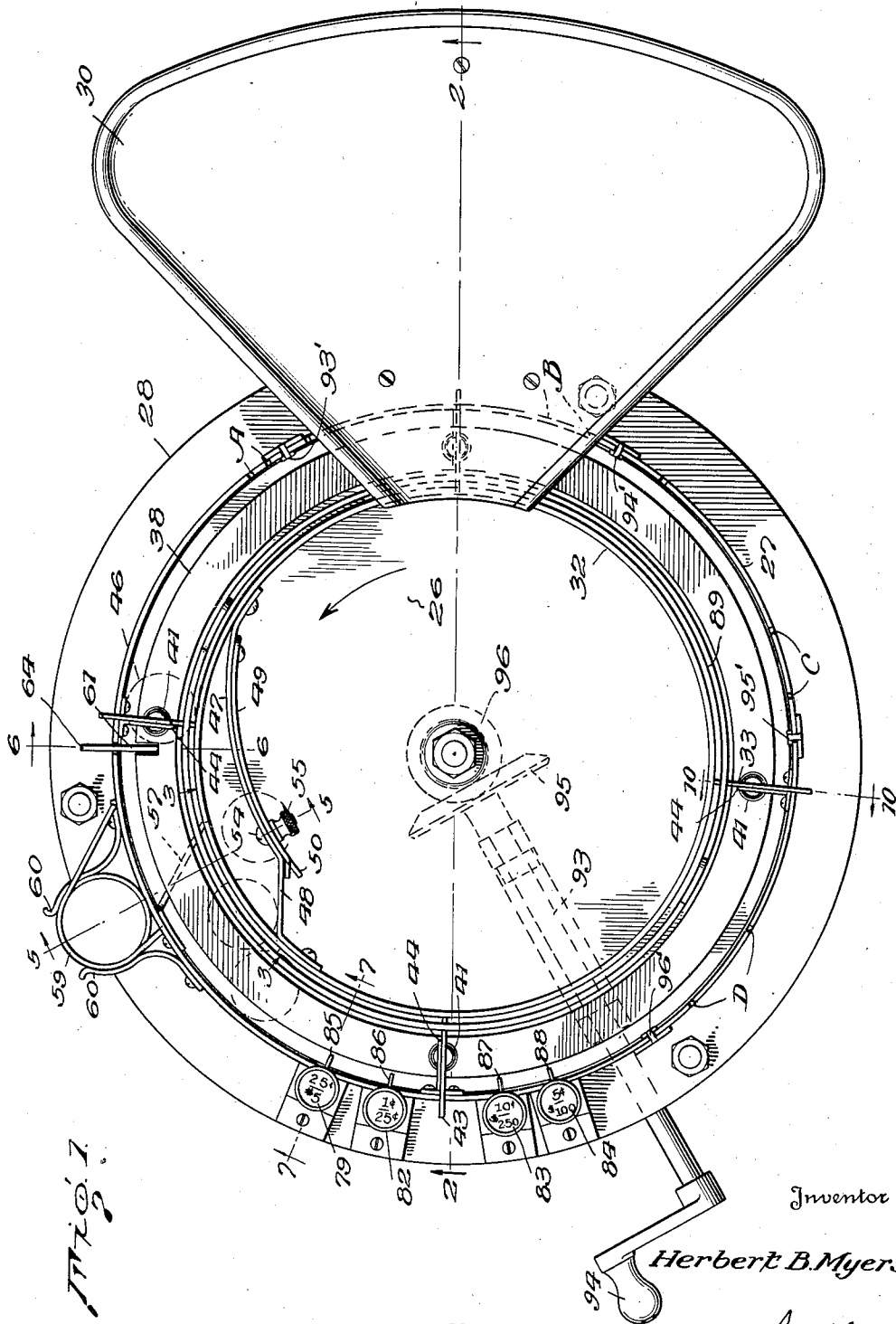
H. B. MYERS

2,137,501

COIN HANDLING MECHANISM

Filed Oct. 7, 1935

4 Sheets-Sheet 1



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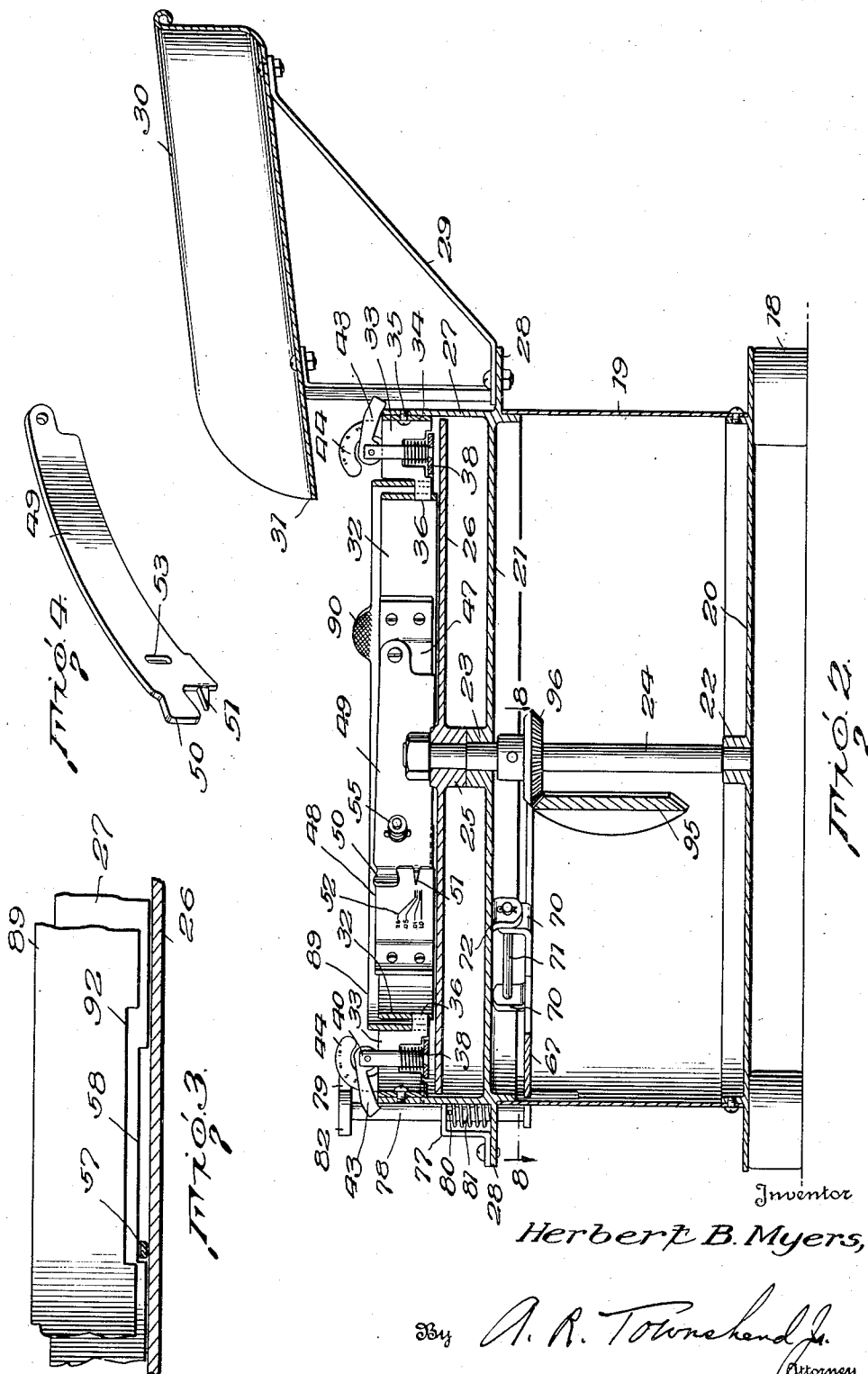
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Fig. 5

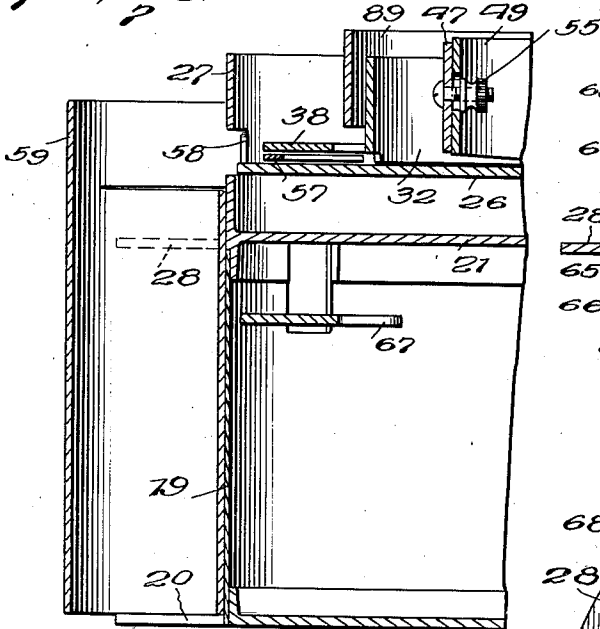


Fig. 6

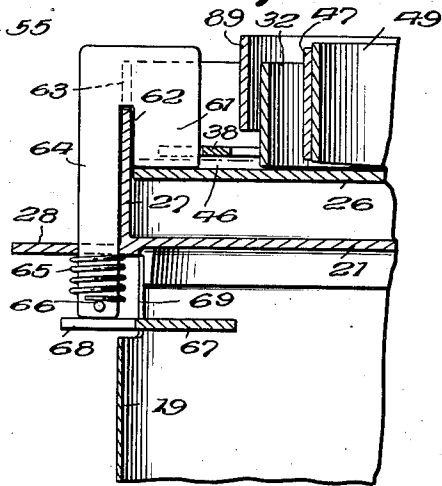


Fig. 7

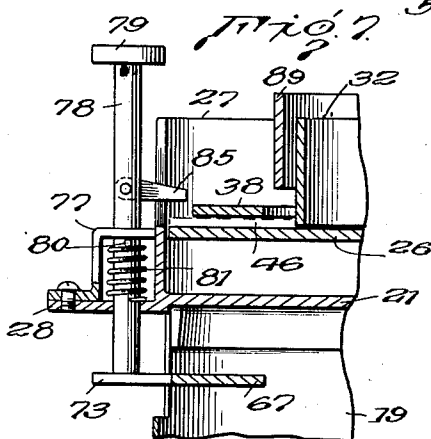
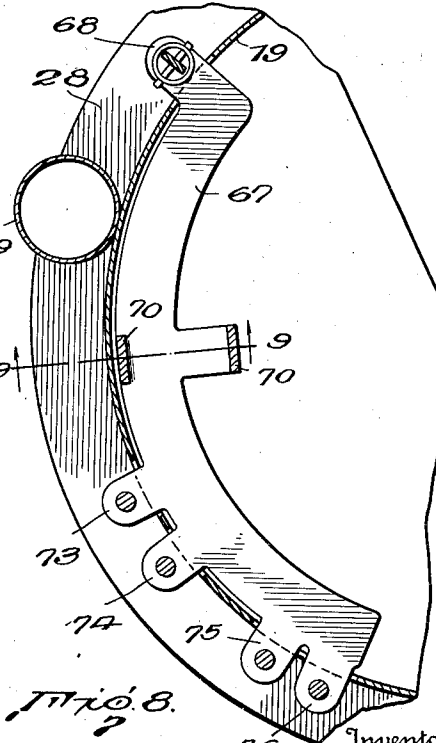
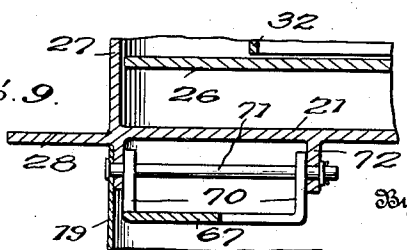


Fig. 9



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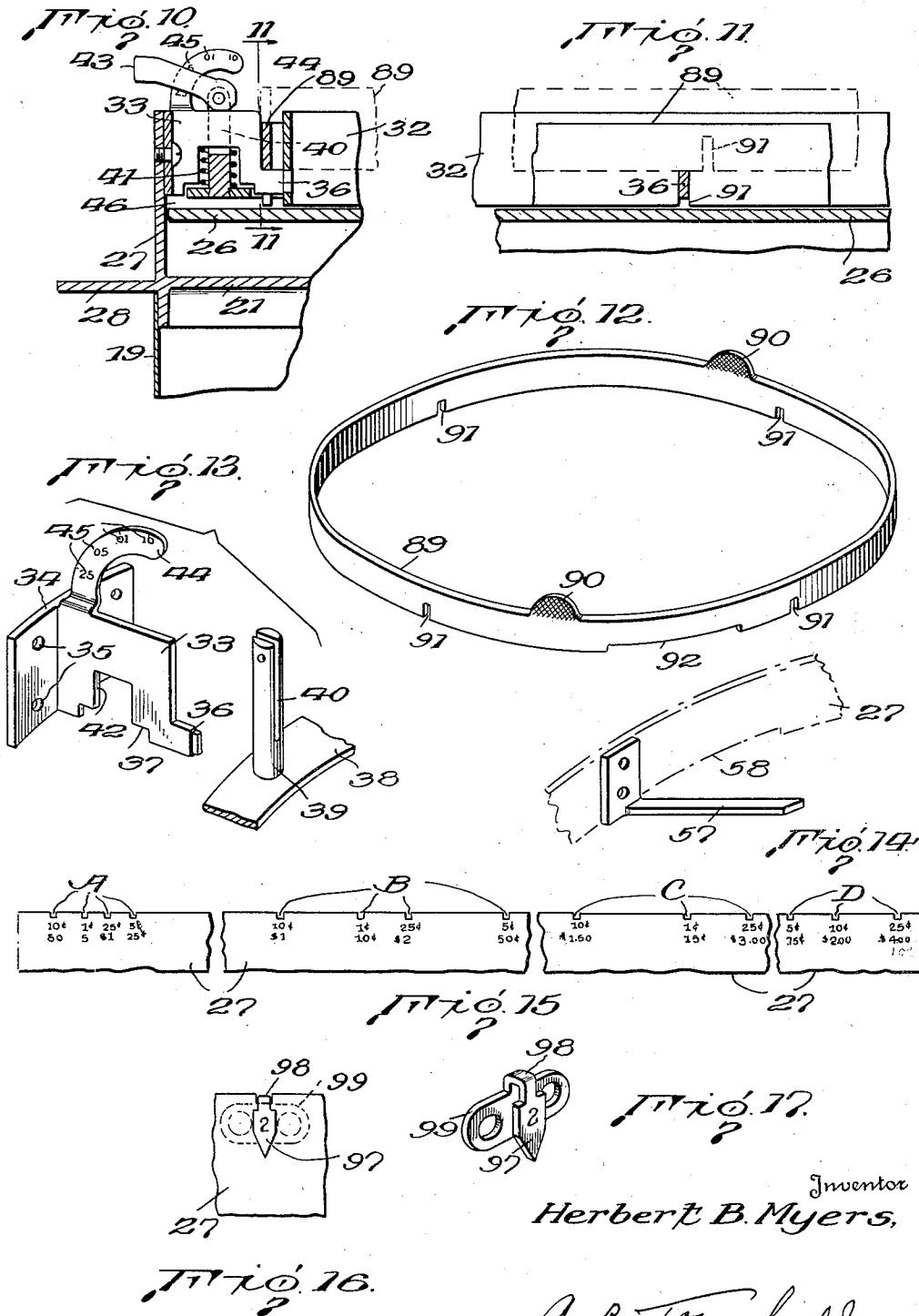
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COIN HANDLING MECHANISM

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4 Sheets-Sheet 4



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COIN HANDLING MECHANISM

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Application October 7, 1935, Serial No. 43,966

17 Claims. (Cl. 133—8)

This invention relates to machines for handling, delivering, and packaging quantities of coins, tokens, counters, etc., to facilitate computation and grouping in desired amounts.

5 An object of the invention is the provision of a machine for handling numerically indeterminate quantities of coins, etc., of the same denomination or size, into an ordered sequence for regulated discharge therefrom in serial groups of
10 desired amount, for packaging or otherwise handling.

Another object is the provision of a machine of such character having selectively operable means for permitting a limited and controlled
15 discharge of coins therefrom without affecting continual operation of coin carrier elements of the mechanism.

Another object is the provision in such a machine of means for serially banking coins flat-
20 wise in a visible sequence for cooperation with indicia means whereby the number, or value, of coins in the machine may be computed.

A further object is the provision in such a machine of means for adjusting the mechanism
25 thereof to the handling of coins of different denominations. Other objects will be readily apparent to those skilled in the art.

The embodiment of machine herein disclosed constitutes a practical means by which the in-
30 vention is reduced to practice. It is to be understood that the details shown and described are for purposes of exposition, and that any desired variations in structural details may be made which are not inconsistent with the scope of the
35 invention as claimed. In the drawings:—

Figure 1 is a top plan view of a machine constructed in accordance with the invention.

Figure 2 is a central vertical section there-
40 through on the line 2—2 of Figure 1.

Figure 3 is a section on the line 3—3 of Fig-
ure 1.

Figure 4 is a perspective view of an adjustable coin rake-off arm control.

Figure 5 is a section on the line 5—5 of Fig-
45 ure 1.

Figure 6 is a section on the line 6—6 of Fig-
ure 1.

Figure 7 is a section on the line 7—7 of Fig-
ure 1.

Figure 8 is a section on the line 8—8 of Fig-
50 ure 2.

Figure 9 is a section on the line 9—9 of Fig-
ure 8.

Figure 10 is a section on the line 10—10 of
55 Figure 1.

Figure 11 is a section on the line 11—11 of Figure 10.

Figure 12 is a perspective view of an adjusting ring for accommodating the machine to coins of
5 varying diameter.

Figure 13 is a group perspective view of details of another adjustable element.

Figure 14 is a detail of a coin abutment member.

Figure 15 is a broken inner face view of a coin
10 retaining ring provided with computing indicia means.

Figure 16 is a detail illustrating the manner of
15 mounting an adjustable indicator on the ring as shown in Fig. 15.

Figure 17 is a perspective view of one of the adjustable indicators employed.

In the embodiment here illustrated the machine comprises a base, generally indicated as at
18, supporting an upright cylindrical housing 19
20 having an annular bottom plate 20 and an annular top plate 21 each of which is provided respectively with axially aligned bearings 22 and 23 which journal an upright shaft 24 having se-
cured on its upper end above the housing top
25 plate 21 a hub 25 provided with an integral circular coin carrier plate or disc 26 having a diameter slightly less than the internal diameter of a vertical coin retaining ring 27 which ex-
tends axially above the housing top plate 21
30 in circumferential registry therewith. The coin carrier disc rotates with shaft 24 freely within the retaining ring 27, which ring is provided with an outward lateral flange 28 constituting a support for bracket means 29 carrying a coin
35 feed hopper 30 having a feed lip 31 disposed above the carrier disc 26 at a point slightly inward, or substantially so, of the circumferential plane of a fixed inner coin track ring 32 concentric with the outer ring 27 and rigidly connected
40 thereto by a plurality of circumferentially spaced radial bridge members 33, best shown in Figure 13, comprising plane partition members formed with an attaching flange 34 rigidly connected to the ring 27 by securing elements 35 and hav-
45 ing each at their opposite or inner ends a lug 36 rigidly seated in receiving sockets provided therefor in the lower portion of the inner ring 32, by which the bottom edge of the inner track ring is rigidly supported in slightly raised posi-
50 tion above the surface of the flat coin carrier 26.

Each bridge member 33 is provided in its bottom edge with a channel socket 37 to receive in vertically slidable engagement a flat annular guard 38 carried by vertical studs 39 vertically 55

slotted as at 40 for sliding engagement over the bridge member under the influence of an expansion spring 41 surrounding the shank of the stud within a housing recess 42. A cam lever 43 pivoted between the upper ends of the stud provides a means for selective adjustment of the spacing of guard member 38 above the carrier disc 26, the lever 43 cooperating with a sector lip 44 on the bridge member and having thereon indicia means 45 to indicate the proper setting of the lever for any denomination of coin carried along beneath the guard member 38 on the carrier disc. In Figure 1 one such coin is shown as at 46.

The inner retaining ring 32 mounts an arcuate coin flattening and rake-off arm 47 having its major portion curved in an arc, the cord of which is less than the diameter of the ring, one end of the arcuate portion being attached to the ring 32 and the other end terminating in an angled lip 48 which extends to and connects with the ring. The bottom edge of the rake-off arm is spaced above the flat surface of the carrier disc 26 only sufficiently to permit of free rotation of the carrier thereunder, and directly adjacent its junction with the angled lip 48 the bottom edge of the arm is recessed to provide a discharge port for the largest size of coins which the machine will handle. In order to insure that coins will slide flatwise through the port one at a time without sticking in superposed relation the arm carries a pivoted control guage member 49, see Figure 4, pivoted to the rake-off arm at one end and provided at its other end with a handle lip 50 by which the guage may be swung on its pivot to dispose its bottom edge portion at different elevations above the coin carrier disc, sufficient to permit only one coin to pass thereunder, the elevation adjustment for different thicknesses of coins being determined by a pointer 51 on the guage cooperating with a scale 52 on the angled lip 48 of the rake-off arm. The guage 49 is slotted as at 53 to work over a bolt 54 passed through the rake-off arm and having a clamping nut 55 threaded thereon by which the guage is clamped at any desired elevation setting.

Directly behind the guard portion 48 of the rake-off arm the coin ring 32 is provided in its bottom with a coin discharge recess port 56 through which coins, designated 46, pass on the flat face of the carrier disc 26 into the channel or trackway between the walls of the retaining rings 27 and 32 which are concentrically spaced sufficiently to accommodate the largest size of coin to be handled by the machine, the coins being guided serially into the trackway by an angled deflector 57 attached to the outer ring 27 and extending at an angle across the trackway to the ring 32 in the plane of the bottom of ring 32, as seen in Figure 3, and beneath the annular guard 38.

As shown by the arrow in Figure 1 the direction of rotation of the coin carrier disc 26 is counter-clockwise. Directly behind the deflector 57, with respect to the forward direction of rotation of the carrier disc, the outer coin track ring 27 is provided with a coin discharge port 58 through which coins pass to a container 59, such as an appropriately sized coin packaging tube, held detachably in spring clips 60 secured on the outer face of the ring 27. At a point in advance of the discharge port 58 and deflector 57 a coin stop or abutment member 61 extends transversely into the coin track channel, as shown in Figure 6, normally in position to arrest

the progress of coins within the trackway. The member 61 comprises a plane partition piece disposed radially of the machine and slotted as at 62 for vertical sliding movement over and upon the coin ring 27, said ring being radially slotted as at 63 to provide an operating guide for vertical reciprocatory movement of the stop member which is further formed with a depending leg 64 passed downwardly through a receiving aperture in the support flange 28 beneath which an expansion spring 65 surrounds the leg 64, bearing between the underface of the support flange and a stop pin 66 on the lower end of the leg whereby to urge the entire coin stop downwardly with the bottom of its inner portion substantially seating on the face of the coin carrier disc.

Within the casing 19 and pivotally suspended intermediate its ends is a quadrant shaped lever 67, see Figs. 2 and 8, provided at one end with a lateral ear 68 passed through and movable in a vertical slot 69 in the casing wall. Ear 68 lies beneath and engages the lower end of the coin stop member leg 64, being depressed thereby under the action of the spring 65. At its point of pivotal suspension the lever 67 is formed with a pair of upstanding apertured ears 70 pivoted on a pivot rod 71 mounted at one end in the casing wall and at its other end in a depending lug 72 carried by the plate 21. The lever 67 is flat, and is provided adjacent its other end portion with a circumferential series of spaced fingers 73, 74, 75 and 76 in the plane of the lever and respectively projecting laterally outward therefrom through vertical slots formed in the casing wall, in which the respective fingers are vertically movable as the lever 67 is rocked on its fulcrum.

Directly over each of the fingers the support flange 28 has secured thereto an upstanding vertical guide bracket 77, see Fig. 7, apertured in vertical alignment with an aperture in the support flange to receive in free vertical slidable engagement the shank 78 of a manually depressible key having an indicia carrying head 79. The shank of each key is normally retained in raised position by action of an expansion spring surrounding the shank between the upper face of the support flange and a pin 80 on the shank, which pin cooperates with the bracket to provide a stop means limiting upward movement of the key. The spring is designated as at 81. Four such keys are provided, 79, 82, 83 and 84, with the lower end of each key shank in position to contact and depress the respective fingers 73, 74, 75 and 76 of the quadrant lever as the keys are operated. The shanks of the respective keys, in the order named, are provided with rigidly connected lateral stop lugs 85, 86, 87 and 88 which extend radially inward a slight distance into the coin track between the coin rings 32 and 27 through vertical slots in the ring 27.

The lateral stop lugs of the respective manually depressible keys are, in the normal elevated position of the keys, spaced sufficiently above the coin carrier disc 26 to permit free passage of coins thereunder as they are carried along in the trackway, and the inner ends of the stop lugs terminate in spaced relation from the outer edge of the annular guard member 38 so that their action is in no way interfered with by the guard.

In order to accommodate the trackway to proper guidance of coins of small diameter I provide a filler ring 89 adapted for concentric nesting between the inner and outer coin rings 32 and 27.

This filler ring is provided with diametrically opposed handling lugs 90 by which it may be gripped manually and shifted into or out of position. The ring is further provided in its bottom edge with vertical slots 91 to receive the lugs 36 of the bridge members 33 connecting the inner and outer rings. In the operative position of the filler ring the slots 91 are registered with the bridge member lugs 36 whereby the filler ring is lowered in position to constitute the inner track ring, it being of larger diameter than the fixed inner ring 32. When its use is not desired the ring 89 is lifted until its slots disengage the spacer lugs 36 and is then rotatively shifted to seat its bottom edge upon the lugs whereby the ring will be held in spaced position above the carrier disc and inoperative. A coin discharge port recess 92 is formed in its bottom edge for registry with the discharge ports of the fixed coin track rings.

In operation, an undetermined number of coins, tokens or the like, of the same value or diameter are dumped in the hopper 30 whence they are delivered to the carrier disc 26. Through suitable power means, here shown as a shaft 93 driven by a handle 94 and having a bevel gear 95 meshed with a bevel gear 96 fixed on the carrier disc shaft 24, the coin carrier disc is rotated in a counter clockwise direction, the coins sliding towards its periphery by centrifugal force. Assuming the coins to be quarter dollar pieces the adjustable guage 49 on the rake-off arm 47 is set to allow only one such piece to pass flatwise thereunder at a time. As the carrier disc is rotated the coins are flattened by the rake-off arm and as they reach the discharge port behind the angled baffle 48 they are projected therethrough, the baffle 48 guiding them serially through the discharge port of the fixed inner track ring 32 into the trackway between the inner and outer rings, in which they are carried along by the rotating carrier disc 26 until arrested by the lowered abutment 61. The annular guard 38, adjusted for this size of coin, prevents the coins from piling on one another in the trackway so that in a short time the coins bank up serially in the trackway until no more can enter from the discharge ports of the inner ring assembly. Rotation of the carrier disc is then stopped.

The key 79, carrying on its head indicia indicating a total of \$5.00 in quarters, is then depressed and held down and the carrier disc is again rotated. The spacing of this key is so proportioned relative to the length of the trackway that its stop lug 85 will contact the face of the carrier disc in the space between the converging peripheries of the twentieth and twenty first coins counted clockwise from the abutment 61, serving to prevent travel of the twenty first and succeeding coins. The act of depressing key 79 rocks the quadrant lever 67 on its pivot so that its end ear 68 rises and lifts stop leg 64 to elevate the arresting abutment member 61 a distance sufficient to permit free passage of coins thereunder. As the carrier disc is rotated the twenty coins in the trackway are carried successively beneath the abutment against the angled rake-off arm 57 by which they are guided through the discharge port of the outer coin ring into the stacker receptacle 59. Pressure on key 79 is then released whereupon it rises, and the quadrant lever is rocked to lower the abutment 61 again into coin arresting position. The operation is then repeated and on its conclusion a standard package amount of \$10.00 in quarters will have been deposited in the stacker 59. The key 82 carries indicia denoting

twenty five cents in pennies, it being so positioned relative to the length of the trackway that its stop finger when depressed will engage between the twenty fifth and twenty sixth pennies counted clockwise from the abutment 61. In like manner the remaining keys are proportioned and arranged, the key 83 denoting \$2.50 in dimes, and the key 84 denoting \$1.00 in nickels. Depression of any of the keys rocks the quadrant lever as described, to lift the abutment 61, and on release of pressure the springs 65 and 81 restore the parts to normal position with the keys elevated and the abutment 61 in lowered position, as seen best in Figure 6. When using the machine for the smaller coins the filler ring 89 is shifted to operative position as described, insuring that the coins ride along the outer track ring.

In order to adapt the machine to the counting of batches of coins in relatively small numbers the outer track ring 27 has its upper edge provided with four circumferentially spaced groups of serially arranged notches, each of which bears a definite relation figured clockwise from the coin arresting member 61. The four groups are respectively designated as at A, B, C and D, see Figure 15, and each group consists of four notches each arranged to seat the bridge shank of the selective indicator for the particular group. The four respective indicators are designated as at 93', 94', 95' and 96', see Figure 1, and are of identical construction. As shown in Figures 16 and 17, each indicator comprises an index head 97 integrally connected by a narrow shank 98 with a retaining head 99 laterally enlarged with respect to the shank and in parallel spaced relation to the index head, the shank being bridged or arched to seat in the selected notch with the retaining head 99 engaging the outer face of the coin ring and the index head engaging its inner face; the indicators bearing appropriate identification characters. In Figs. 16 and 17 the indicator shown is that of the second or B group and bears the group identification numeral 2, denoting a double of the amounts designated in group A, the first group.

The first notch in group A, reckoning clockwise from the member 61, is so placed that five dimes will build up between the stop member and the notch, and beneath the notch the coin ring is provided with indicia indicating the amount of 50¢ in dimes; the second notch denotes the spacing for five cents in pennies; the third notch for \$1.00 in quarters; and the fourth notch for twenty five cents in nickels. In group B the same relation prevails, the totals being doubled. In groups C and D the same relation prevails, the totals being, respectively, tripled and quadrupled.

For example, suppose an indeterminate number of pennies have built back from the stop member 61 to just past the third group C. Selective indicator 94 is placed in the 1¢ notch, indicating 15¢, to which computation is added the remaining pennies to arrive at the total. Any of the keys may then be depressed to lift the stop member 61 so that the accumulated pennies may be discharged from the machine as the carrier disc is rotated.

I claim:—

1. In a coin handling apparatus, a movable coin conveyor, means for guiding coins onto said conveyor seriatim, stop means normally positioned to arrest advancing progress of coins on the conveyor while the conveyor is moving, de-
tent means operable to engage between an adjacent pair of arrested coins, coin discharge means

beyond said stop means and detent means, and means operatively associated with both said stop means and detent means to render said stop means inoperative upon actuation of said detent means.

2. In a coin handling apparatus, a movable coin conveyor, means for guiding coins serially thereonto, means for removing coins therefrom, stop means normally operative in advance of said removing means to arrest progress of coins while the conveyor is moving, and selectively operable means in advance of said stop means for rendering said stop means inoperative.

3. In a coin handling apparatus, a movable coin conveyor, means for guiding coins thereonto at one point, means for removing coins therefrom at another point, means between said points normally positioned to arrest progress of coins while the conveyor is moving, a detent spaced in advance of said arresting means and operable to restrain movement of all coins on the conveyor behind the detent, and means for rendering said arresting means inoperative by actuation of said detent.

4. In a coin handling apparatus, a movable coin conveyor, means for removing coins therefrom, means in advance thereof normally blocking the passage of coins while the conveyor is moving, means for guiding coins onto said conveyor, means for releasing said blocking means, and a manually operable coin detent spaced in advance of said blocking means the distance of a predetermined number of coins arrested by said blocking means.

5. In a coin handling apparatus, a coin conveyor, means for guiding coins serially thereonto at one point, a coin deflector extending across the conveyor for removing coins therefrom at another point, means between said points normally blocking the passage of coins, a movable coin detent spaced in advance of said blocking means a distance equal that occupied by a predetermined number of blocked coins on the conveyor, and means connecting said detent and blocking means whereby to release said blocking means on actuation of said detent.

6. In a coin handling apparatus, a coin conveyor, means for guiding coins thereonto, a coin deflector extending across the conveyor for removing coins therefrom, means normally blocking passage of coins to the removing means, a normally inoperative coin detent spaced in advance of said blocking means a distance equal that occupied by a predetermined number of blocked coins, means for actuating said detent to block passage of all coins on the conveyor behind the detent, and means for releasing said blocking means.

7. In a coin handling apparatus, a coin conveyor, means for guiding coins thereonto, a coin deflector extending across the conveyor for removing coins therefrom, means normally blocking passage of coins to the removing means, a movable coin detent biased to inoperative position in advance of said coin blocking means, a depressible key connected to said detent for moving it to operative position, and lever means connecting said key and blocking means to release said blocking means on depression of said key.

8. In a coin handling apparatus, a movable coin conveyor, means for guiding coins thereonto, means for removing coins therefrom, means for blocking passage of coins to the removing means while the conveyor is moving, means operable to release the blocking means, and a coin detent

operatively engageable with a coin on the conveyor on actuation of said releasing means.

9. In a coin handling apparatus, a movable coin conveyor, a supporting frame therefor, a lever pivoted in said frame, a coin stop normally extending over said conveyor in operative position and having a portion contacting said lever, a depressible key adjacent said conveyor and spaced from said stop a distance equal that occupied by a predetermined number of coins arrested thereby on said conveyor, said key being biased to raised position, and a coin detent carried by said key for engaging a coin on said conveyor on depression of the key, said key being arranged to rock said lever upon depression whereby to move said stop member to inoperative position.

10. In a coin handling apparatus, a rotatable coin carrier, means for guiding coins thereonto, a fixed coin track member associated therewith to guide coins carried by said carrier, a coin discharge port in said track member, means on said member for guiding coins through said port, a coin stop movably mounted on said track member and normally blocking passage of coins to said port, means for moving said stop to inoperative position, an actuator for said moving means, and means carried by said actuator for arresting the movement of all coins behind a point spaced along the track member a distance equal that occupied by a predetermined number of coins blocked by said stop member.

11. In a coin handling apparatus, a pair of concentrically spaced coin track rings, a coin carrier disc having a peripheral portion between said rings, means for feeding coins to said disc, means for rotating said disc to move coins thereon by centrifugal force, the inner of said rings having a coin port, means for guiding coins on said disc through said port serially onto the peripheral portion of the disc between said rings to be carried thereby as a circumferential series between said rings, the outer ring being provided with a coin discharge port, a vertically movable coin stop member in advance of said discharge port and normally in lowered position between said rings to block passage of coins to said discharge port, a depressible key biased to raised position in advance of said coin stop a distance equal that occupied by a predetermined number of coins blocked by the stop between said rings, and means carried by said key for engaging between an adjacent pair of coins on depression thereof.

12. Coin handling mechanism comprising a support, a coin track ring carried thereby, a coin carrier disc rotatable in said support within said ring, means for rotating said carrier disc to move coins thereon by centrifugal force, an inner coin track ring concentric with said first ring, bridge members carried by said first ring and supporting said inner ring above the carrier disc, said inner ring having a coin passage port, means on said inner ring for flattening and guiding coins singly through said port to the peripheral zone of the carrier disc between said rings, means on said first ring for removing coins from said carrier disc, a flat annular coin guard between said rings above said carrier disc, means supporting said guard for vertical spacing adjustment above the carrier disc, a coin stop normally positioned between said rings to block passage of coins, key means in said support and depressible to effect discharge of a predetermined number of coins, and a lever pivoted in said support between said key means and coin stop

for actuation by depressing movement of the key means to lift said stop to inoperative position.

13. In a coin handling apparatus, a movable conveyor, a wall member at one edge of the conveyor and extending thereabove, means for guiding coins serially onto said conveyor for movement along said wall member, means for removing coins from said conveyor through the wall member, a releasable stop on said wall member and blocking the passage of coins to said removing means while the conveyor is moving, and indicator means adjustably engageable with said wall member at points spaced therealong in accordance with space occupied on said conveyor by a predetermined number of blocked coins.

14. In a coin handling apparatus, a movable conveyor, a stationary wall along one edge thereof, releasable coin stop means thereon for blocking passage of coins on the conveyor while it is moving, and index means on said wall at points spaced therealong in accordance with space occupied on said conveyor by a predetermined number of blocked coins.

15. In a coin handling apparatus, a rotatable coin carrier disc, a stationary coin guard ring around the periphery thereof, means for delivering coins to said disc, means for removing coins therefrom, an inner guard ring above said disc and concentrically spaced from said fixed ring, bridge members rigidly connecting said rings above the disc, said rings and disc defining a coin track, and means for selectively varying

the width of the track, said means comprising a filler ring supported on said bridge members and shiftable thereon to operative or inoperative position.

16. In a coin handling apparatus, a rotatable coin carrier disc, a stationary coin guard ring around the periphery thereof, means for delivering coins to said disc, means for removing coins therefrom, an inner guard ring over said disc and concentrically spaced from said fixed ring, bridge members connecting said rings above the disc, said rings and disc defining a coin track, a flat annular coin guard between said rings above said disc and below said bridge members, and means for adjusting the vertical spacing of said guard above the disc.

17. In a coin handling apparatus, a rotatable coin carrier disc, a stationary coin guard ring around the periphery thereof, means for delivering coins to said disc, means for removing coins therefrom, an inner guard ring over said disc and concentrically spaced from said fixed ring, bridge members connecting said rings above the disc, said rings and disc defining a coin track, means for selectively varying the width of the track comprising a filler ring supported on said bridge members and shiftable thereon to operative or inoperative position, a flat annular coin guard between said rings above the disc and beneath the bridge members, and means for adjusting the vertical spacing of said guard above the disc.

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