

March 31, 1942.

D. H. GREER

2,278,008

REGISTERING COIN-SAVINGS BANK

Filed Aug. 15, 1938

3 Sheets-Sheet 1

FIG. 1.

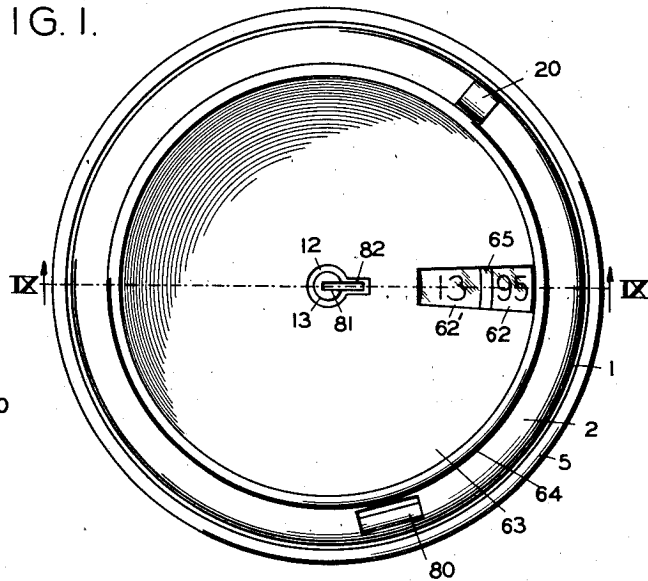


FIG. 3.

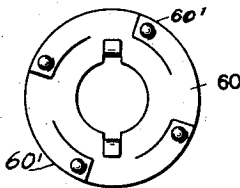


FIG. 2.

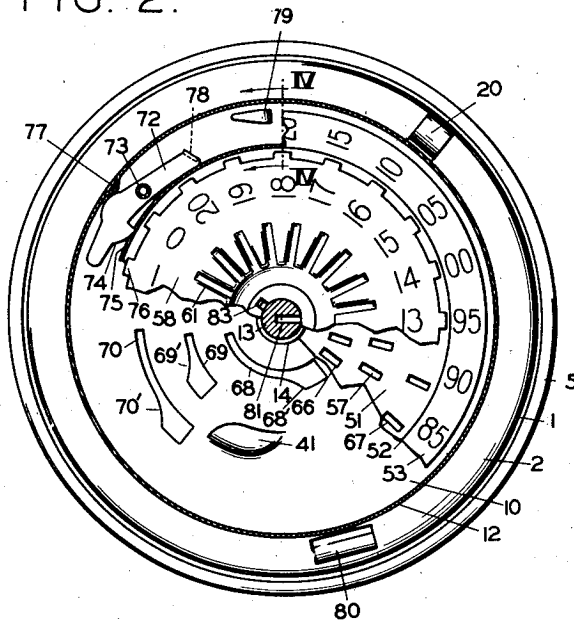


FIG. 4.

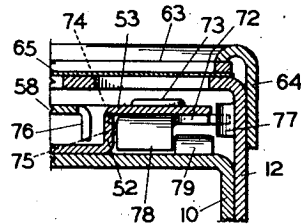
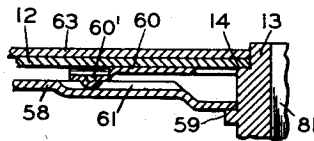


FIG. 13.



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FIG. 5.

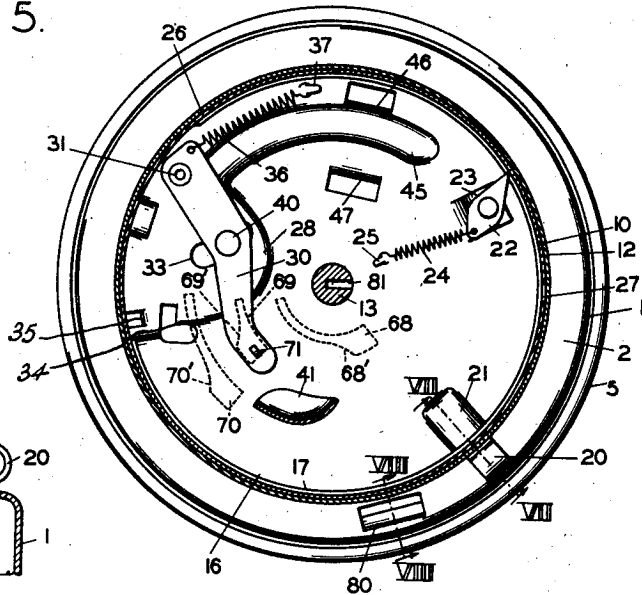


FIG. 7.

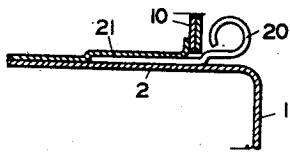


FIG. 6.

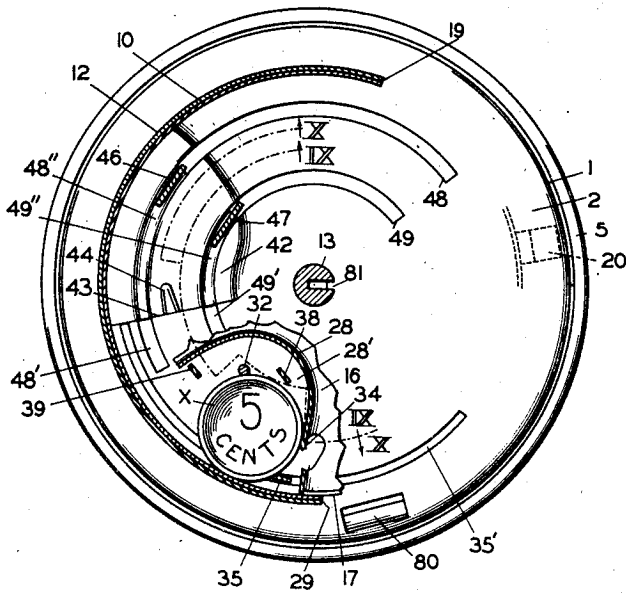
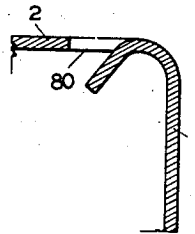


FIG. 8.



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FIG. 9.

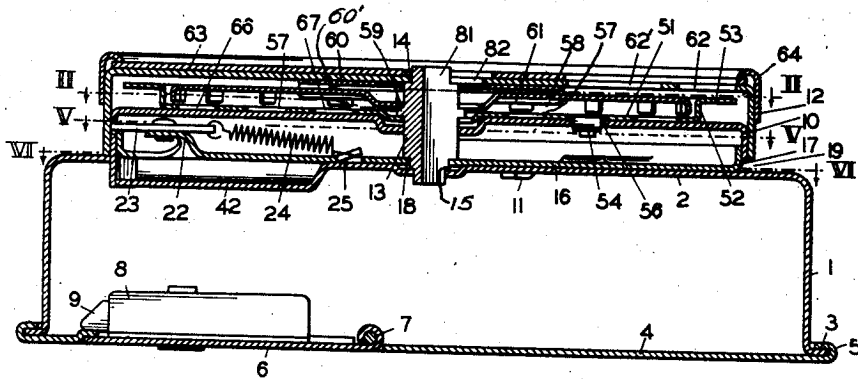


FIG. 10.

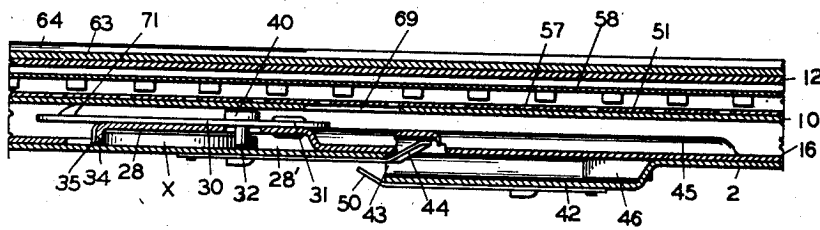


FIG. 11.

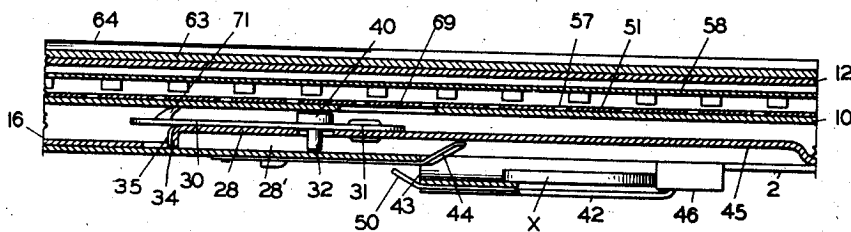


FIG. 12.

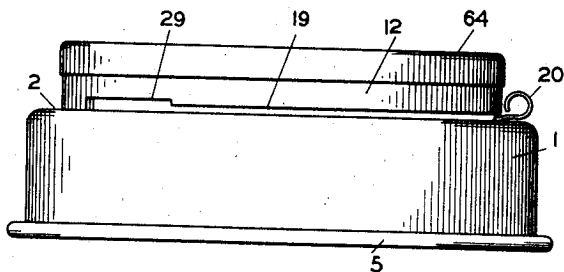


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2,278,008

REGISTERING COIN-SAVINGS BANK

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Application August 15, 1938, Serial No. 224,984

3 Claims. (Cl. 235—100)

This invention relates to improvements in registering coin savings banks and, more particularly, to savings banks which cumulatively register the value of coins of varying denominations which may be inserted thereinto.

Among the objects of this invention is to provide a savings bank of the present type which is very inexpensive of manufacture and substantially "fool-proof" in operation.

Another object is to enable the automatic registering of the values of coins of several denominations.

Another object is to provide a bank which may be almost completely composed of sheet metal.

Another object is to render the manner of operating the bank obvious to the uninitiated.

Another object is to simplify the cancellation of the amount registered on the totalizer dials when the savings bank is emptied by the bank teller.

Other objects and advantages appear as this description progresses.

In this specification and the accompanying drawings, the invention is described in its preferred form. But it is to be understood that it may be embodied in other forms within the purview of the claims following the description.

In the three sheets of drawings:

Fig. 1 is a plan view of a registering savings bank constructed in accordance with this invention.

Fig. 2 is a horizontal section of the same taken along the line II—II in Fig. 9 and showing the structural details of the totalizer mechanism. The structure is broken away in parts to show the underlying mechanism.

Fig. 3 is a detail bottom plan view of the spring rosette for normally holding the "dollars" totalizing disk against rotation.

Fig. 4 is an enlarged fragmentary detail view in radial section taken on the line IV—IV viewed in the direction of the arcuate arrows in Fig. 2 and showing the "dollars" transfer means.

Fig. 5 is a horizontal section of the bank taken at the level indicated by the line V—V in Fig. 9. However, the operative parts are illustrated at a different point in their cycle of operation from that shown in Fig. 9. In Fig. 5 the pawl for driving the totalizer mechanism is shown at the commencement of an operation.

Fig. 6 is a similar view taken along the line VI—VI in Fig. 9 and showing the means for selectively setting the totalizer driving pawl in accordance with the denomination of the coin inserted. The mechanism is shown in this view at

an earlier stage in its operation than in Fig. 5.

Fig. 7 is an enlarged fragmentary vertical section taken along the line VII—VII in Fig. 5 showing the finger lug for driving the registering mechanism.

Fig. 8 is a greatly enlarged vertical section taken on the line VIII—VIII in Fig. 5 showing the slot for inserting paper currency into the bank.

Fig. 9 is an enlarged vertical section of the bank taken along the line IX—IX in Fig. 1, the registering mechanism being in normal idle position.

Fig. 10 is an arcuate vertical section taken along the line X—X in Fig. 6 and showing the mechanism in position for and about to commence the driving of the totalizer to register the value of the coin shown.

Fig. 11 is a similar view taken along the line XI—XI in Fig. 6 and showing the mechanism during the restoration movement about to eject the coin into the coin receptacle.

Fig. 12 is a front elevation of the bank showing the notch for receiving the coins and the finger lug for operating the bank.

Fig. 13 is a fragmentary vertical section taken along the same line as Fig. 10, showing the parts during the inoperative restoration movement of the mechanism and illustrating the manner in which the hook member of the driving pawl disengages itself from the totalizer.

Fig. 14 is a fragmentary vertical section taken along the same line as Fig. 11, with certain parts in another position and showing the mode in which the spring detent frictionally prevents movement of the totalizer except when driven by the coin control mechanism of the bank.

In detail, the construction illustrated in the drawings, referring more particularly to Figs. 1 and 9, comprises the cylindrical coin receptacle 1 having the top 2 and the outwardly disposed flange 3 at its lower end. The bottom 4 has its margins crimped over the flange 3 at 5 and has the door 6 hinged thereto at 7. The conventional lock 8 is fixed to the door 6 and has the bolt 9 operatively engaging over the adjacent edge of the bottom 4. The door may be unlocked for the removal of the accumulated money in the receptacle by the use of an appropriate key.

The totalizer actuating mechanism is contained within the cylindrical shell 10 which is fixed on the top 2 of the coin receptacle by means of tongues such as 11 which extend through narrow slits in the top 2 and are then bent over. The cover 12 encloses the totalizer mechanism

and is telescoped over the shell 10. It is similarly fixed to the top 2 of the coin receptacle by means of a similar tongue and slit connection. The axial pintle 13 extends upward through the top 2 of the coin receptacle, the shell 10, and the cover 12, and is rotatable with respect thereto. The opposed shoulders 14 and 15 bearing against the top 2 and the cover 12 prevent longitudinal movement of the pintle.

The plate 16 rests on the top 2 of the coin receptacle within the shell 10 and rotatably engages the pintle 13. It has the upstanding circumferential flange 17 abutting the shell 10. The shoulder 18 on the pintle prevents the plate 16 from rising from the top 2.

The shell 10 and the cover 12 are cut away adjacent the coin receptacle 1 as shown in Fig. 12 to form the opening 19 extending around approximately one third of their circumference. The finger lug 20 extends through the opening 19 and is spot welded underneath the plate 16 in the recess 21 provided therein. The finger lug normally occupies the position shown in Figs. 1 and 2. Its travel is limited by the two ends of the opening 19.

The plate 16 has the upset lug 22 with the unidirectional pawl 23 pivoted thereon. The spring 24, contracting between the tail of the pawl 23 and the ear 25 struck up from the body of the plate 16 urges the sharp nose of the pawl 23 against the interior surface of the shell 10 which may be knurled or otherwise roughened. Premature backward movement of the plate 16 is prevented by the nose of the pawl 23 locking in the surface of the shell 10. At the termini of the movements of plate 16, the nose of the pawl 23 enters the notches 26 or 27. The succeeding reverse movement of the plate 16 then throws the nose of the pawl over center to reverse its position with respect to the shell 10. The pawl then repeats its function in permitting only unidirectional movement of the plate 16 throughout its reverse travel.

The plate 16 has the upset area 28 contiguous to its margin forming a horizontal coin recess 28' in conjunction with the top 2 of the receptacle 1. When the plate 16 is in its normal inactive position, as in Fig. 1, the recess 28 registers with the notch 29 in the circumferential opening 19 in the shell and cover 10, 12, see Fig. 12. When the plate 16 is out of its idle position, the flange 17 closes the notch 29, preventing the entry of coins.

The actuating pawl 30 is pivoted at 31 on the raised area 28. It has the pin 32 (see Fig. 10) fixed therein and extending downwardly through the arcuate slot 33 in the area 28 into the coin recess 28'. The lugs 34—35 struck downwardly from the plate 16 form gages to maintain the coin *x* in a predetermined constant position in the recess 28' during the initial cycle of operation of the registering mechanism, as shown in Fig. 6. The pin 32 is thus displaced in slot 33 a distance depending upon the denomination of the coin *x*, selectively setting the pawl 30 for its succeeding register actuating operation. The lug 35 (Fig. 6) extends slightly below the level of the top 2 of the coin receptacle through the arcuate slot 35' which is formed in the top 2. This insures against any unduly thin coin becoming jammed beneath the gages 34, 35.

The spring 36, which contracts between the pawl 30, and the ear 37 struck up from the body of the plate 16, urges the pin 32 into operative engagement with the coin. The lugs 38 and 39

struck down from the area 28 limit the travel of the coin *x* toward the adjacent side of the coin recess, thus safeguarding against the coin *x* becoming wedged between the margin of the raised area 28 and the top 2 of the coin receptacle on the succeeding restoration movement of the plate 16.

The actuating pawl 30 has the stud 40 thereon. The cam 41 is struck down from the body of the shell 10 and is arranged to be engaged by the stud 40 when the plate 15 is in its initial idle position. This swings the pawl inward against the tension of the spring 36 to move the pin 32 away from the coin entry notch 29 to facilitate the insertion of a coin.

The top 2 of the coin receptacle has the depressed area 42 with which the coin recess 28' is adapted to register at the end of the initial operative movement of the plate 16. When the coin recess 28' is brought into alignment with the depressed area 42, the coin *x* drops thereinto. The opening 43 discharging into the coin receptacle 1 is provided at one side of the area 42.

The spring finger 44 is fixed underneath the top 2 and extends laterally through the opening 43 into the space above the depressed area 42. This finger retains the coin *x* in the area 42 as in Fig. 11, and prevents its being carried back by the coin recess 28' on the restoration movement of the plate 16. The arcuate embossment 45 forming a continuation of the raised portion 28 provides clearance for the end of the finger 44 throughout the movement of the plate 16.

The lugs 46—47, struck down from the plate 15, are adapted to engage and force the coin *x* through the opening 43 into the coin receptacle 1 during the restoration movement of the plate 16. The concentric arcuate slots 48—48', 49—49' in the top 2 are arranged to pass the lugs 46—47 to provide clearance throughout their travel. The lugs 46—47 extend very slightly below the level of the depressed area 42 which is provided with the arcuate indentations 48'', 49'' to clear the ends of the lugs. This insures the lugs 46—47 properly ejecting even coins which are unduly thin from long use. The spring deflector 50 is fixed underneath the depressed area 42 and extends upwardly across the throat of the opening 43 to prevent the return of coins through this opening after they have once dropped into the coin receptacle.

The "cents" totalizer disk 51 rests on top of the shell 10 and is rotatable on the pintle 13. It is flanged upwardly at 52 and outwardly at 53. The marginal flange 53 bears suitable numerals as shown in Fig. 2. The spring detent 54 is fixed underneath the top of the shell and extends upwardly through the hole 55 into engagement with the circularly arranged series of slots 57 provided in the disk 51. The detent serves to frictionally hold the disk 51 against idle movement and to positively prevent reverse movement of the disk.

The "dollars" totalizer disk 58 is of lesser diameter than the upwardly disposed flange 52 and carries index numerals near its periphery, see Fig. 2. It is rotatable on the pintle 13 and is spaced from the "cents" disk 51 by the collar 59 on the pintle, see Fig. 9. The spring rosette 60 (Figs. 3 and 13) which is fixed to the cover 12 has arms 60' frictionally engaging the radially disposed series of indented serrations 61 (see Figs. 2 and 13) which are provided in the totalizer disk 58 coaxial with the pintle 13 and ar-

ranged to prevent movement of the totalizer disk 58 except when operatively actuated.

The top of the cover 12 has the windows 62, 62' therein, through which the readings of the totalizer disks 51, 58 may be observed. The facing sheet 63 of fabricoid or analogous material is secured on the top of the cover 12 by the bezel 64. The sheet 63 may carry the name of a bank or similar advertising matter. A segment of isinglass such as 65 may be interposed between the cover 12 and the sheet 63 to seal the windows 62, 62' against the entry of dust.

The totalizer disk 51 has the series of concentrically arranged slots 66, 67, and 67 therein, the angular spacing of which corresponds to the spacing of the index numerals at 53. The arcuate openings 68, 69, 70 in the top of the shell 10 are of lengths predetermined as later described and so located as to underlie the three series of slots 66, 67, 67 respectively. The resilient actuating pawl 30 has the hook 71 thereon which is adapted to snap up into any of the openings 68, 69, 70 and enter any one of the slots 66, 67, 67 in the totalizer 51. The opening 68, 69, or 70 selected depends upon the denomination of the coin inserted as will be hereinafter described. The initial portions of the openings 68, 69, 70 are sufficiently wide to allow for inaccuracies in the positioning of the pawl 30 due to minor variations in the diameters of coins of a given denomination.

The openings 66, 67, 67 have the cam portions 68', 69', 70' which are adapted to move the hook inwardly as it revolves therepast. This swings the pawl 30 on its pivot and removes the pin 32 from engagement with the coin *x* for purposes hereinafter described.

When the "cents" totalizer disk 51 completes one rotation, the "dollars" totalizer disk 58 is advanced one step by the following transfer means: The dog 72 is pivoted at 73 underneath the flange 53 of the "cents" disk 51. The tooth 74 on the dog 72 is adapted to project through the hole 75 provided in the upwardly disposed flange 52 and is arranged to operatively engage the interspaced lugs 76 which are struck downwardly from the periphery of the dollars disk 58. The dog normally occupies a position as shown in Fig. 2 with the tooth 74 retracted from engagement with the lugs 76.

When the "cents" disk 51 is about to complete a revolution the dog 72 is thereby brought into engagement with the projection 77 on the stationary cover 12. This swings the dog 72 to bring the tooth 74 into engagement with the adjacent lug 76. The continuing movement of the "cents" disk 51 is then transmitted to the "dollars" disk 58 by the dog 72. After the dollars disk has been advanced one step, the depending nose 78 of the dog 72 impinges upon the cam 79 struck up from the body of the shell 10. This cam restores the dog 72 to inoperative position with the tooth 74 disengaged from the lugs 76. The "dollars" disk 58 then remains stationary, being held by the spring rosette 60.

The mechanism operates substantially as follows: When the finger lug 20 is in its initial position as shown in Figs. 1 and 2, the coin recess 28' is opposite the coin entry notch 29. The present bank is arranged to receive nickels, dimes, and quarters.

After insertion of a coin such as *x*, the finger lug 20 is manually revolved in a clockwise direction. The coin assumes a pre-determined position in the recess 28', impinging upon the

gages 34, 35 and the adjacent side wall of the shell 10. The pin 32 is urged into engagement with the opposite side of the coin by the spring 36. The actuating pawl 30, on which the pin 32 is fixed, thus assumes a selective position which depends upon the size and consequently the denomination of the coin inserted.

The continued rotation of the plate 16 by means of the finger lug brings the hook 71 into one of the three arcuate openings 68, 69, or 70. The particular opening entered by the hook depends upon the position of the pawl 30 as automatically determined by the size of the coin. Upon the hook entering the one of the openings 68, 69, or 70, the resilience of the end of the actuating pawl 30 snaps the hook into one of the slots 66, 67, or 67 immediately thereabove.

The various openings 68, 69, and 70 are of angular lengths proportional to the monetary value of the denominations to which they correspond. The opening 69 corresponding to the five cent denomination is of a length equivalent to the angular distance of a one step movement of the totalizer disk 51. Similarly, the openings 68 and 70 corresponding to the quarter and dime denominations respectively, are of angular lengths equivalent to five and two steps movement of the totalizer, respectively.

The final portion of the rotation of the plate 16 then drives the "cents" totalizer disk 51 a number of steps which depends upon the monetary value of the coin inserted. The spring detent 54 safeguards against overcarry of the disk 51 at the conclusion of its operative movement. The transfer dog 72 will "carry over" into the "dollars" totalizer disk 58 should the "cents" disk 51 complete a revolution, as previously described.

As the hook 71 revolves in one of the openings 68, 69, or 70 during the actuation of the totalizer disk 51, it is moved laterally by one of the oblique cam portions 68', 69', 70'. This swings the pawl against the tension of its spring 36, removing the pin 32 from engagement with the coin *x*. The coin *x* then drops freely into the depressed portion 42 of the top 2 of the coin receptacle after having first ridden over the spring finger 44.

After the finger lug 20 reaches the limiting end of the opening 19, it is revolved in the reverse direction back to its original position. The inclined upper surface of the hook 71 is of such a shape (see also Fig. 13) that it is deflected downwardly by the edge of the slot 57, 66, 67 in which the hook is engaged, thus disengaging the hook from the totalizer. The totalizer is held stationary by the spring detent 54. During this movement, the lugs 46 and 47 engage the coin *x* and force it under the spring finger 44 through the opening 43 into the coin receptacle 1. When the finger lug returns to its original position, the mechanism is ready for another cycle of operation.

Should the finger lug 20 be operated without first inserting a coin into the recess 28', the mechanism will merely perform an idle operation. Since the pin 32 will not have been operatively displaced by a coin, the hook 71 will not enter any of the openings 68, 69, or 70. The totalizer disks 51 and 58 will consequently not be operated.

If a penny should be inserted in the recess 28', the pin 32 will displace the pawl 30 a slightly greater distance than would be the case were a dime inserted. When the finger 20 is operated the hook 71 will ride beneath the top of the shell 12 between the arcuate openings 69 and 70. The

totalizer will consequently not be actuated. At the conclusion of the cycle of operation of the plate 16, the penny will be ejected into the coin container 1 in the manner hereinbefore described.

Paper currency may be inserted into the receptacle 1 through the chute 80 if desired. It will not be registered.

When the accumulation of coins and currency is removed from the receptacle 1 through the door 6, the amount registered on the totalizer disks 51 and 58 can be cancelled by the following means to again display zeros at the windows 62, 62'. The pintle 13 has the longitudinal groove 81 therein which is adapted to register with the key hole 82 in the cover 12 to receive a suitable key. The disks 51 and 58 both have notches such as 83 which are arranged to be engaged by the bit of the key. The key is rotated until it drops through both of the notches 83 and its rotation continued until the disks both display zero at the windows 62, 62'. The key is then removed.

Having thus described the invention, what I claim and desire to secure by Letters Patent is:

1. A coin bank of the class described comprising a coin receptacle; a casing surmounting said receptacle having a coin notch therein in juxtaposition to said coin receptacle; a horizontally disposed plate rotatable in said casing and resting on said coin receptacle; said plate having a recess therein adapted to register with said coin entry notch when said plate is in its initial position; manual means for oscillating said plate; said receptacle having a top provided with a depressed portion in juxtaposition to said plate and with which said recess is adapted to register at the end of the operative cycle of the operation of said plate; said receptacle top having an opening therethrough contiguous with said depressed portion; a driving pawl pivoted on said plate and adapted to engage the periphery of a coin in said recess in said plate thus assuming a predetermined position which depends upon the size of the coin in said recess; a horizontally disposed totalizer disk rotatable in said casing, means associated with said disk and adapted to be engaged by said pawl, whereby the disk is driven by movement of the plate, means restraining said pawl from engagement with said means until a point which depends upon the position of said pawl as selected by the size of the coin in said recess in the movement of said member and said pawl; means for discharging the coin from said recess into the depressed portion on said coin receptacle when said recess registers therewith near the end of the operative cycle of movement of said plate; and lugs on said plate arranged to engage the coin in said depressed portion and to force it through said contiguous opening during the restoration cycle of movement of said plate.

2. A coin bank of the class described comprising a coin receptacle; a casing surmounting said receptacle having a coin entry notch therein in juxtaposition to said coin receptacle; a horizontally disposed plate rotatable in said casing and

resting on said coin receptacle, said plate having an upset recess therein adapted to register with said coin entry notch when said plate is in its initial position, said plate also having a circumferential flange arranged to close said coin entry notch when said plate is moved out of its initial position; manual means for oscillating said plate; a driving pawl pivoted on said plate and adapted to engage the periphery of a coin in said recess and to thereby assume a predetermined position depending upon the size of the coin in said recess; a horizontally disposed totalizer disk rotatable in said casing; a member associated with said totalizer disk adapted to be engaged by said pawl whereby said totalizer disk is driven by the movement of said plate; means for holding said pawl out of engagement with said member associated with said totalizer disk until said plate has been moved a selected distance which depends upon the position of said pawl as determined by the denomination of the coin in said recess; and means for discharging the coin from said recess subsequent to the displacement of said pawl into a predetermined position by the periphery of said coin.

3. A coin bank of the class described comprising an upstanding substantially cylindrical coin receptacle; a hollow cylindrical shell fixed on said receptacle, the top of said receptacle being spaced from the top of said shell; said shell and cover having a peripheral opening with a coin entry notch therein in juxtaposition to said coin receptacle; a pintle extending axially through said shell and cover; a horizontally disposed plate in said shell rotatable on said pintle and resting on the top of said coin receptacle, said plate having an upset recess therein adapted to register with said coin entry notch when said plate is in its initial position; a finger lug fixed to said plate and extending through the peripheral opening in said shell and cover; a driving pawl pivoted on said plate and adapted to engage the periphery of a coin in said recess and thereby assume predetermined positions depending upon the size of the coin in said recess; a horizontally disposed totalizer disk rotatable on said pintle in the space between the top of said shell and said top of the receptacle; the top of said shell having a plurality of arcuate openings spaced varying distances from the axis of said pintle, any of which is arranged to be entered by said pawl, the selection of which depends upon the position of said pawl as determined by the denomination of the coin in said recess; means associated with said totalizer disk adapted to be engaged by said pawl upon its entering one of said openings whereby the succeeding rotation of said plate is transmitted to said totalizer disk; said coin receptacle top having an entry opening thereinto adjacent said plate; means for discharging the coin from said recess through said coin receptacle opening subsequent to the entry of said pawl into one of the openings in the top of said shell; and a window in said cover through which said totalizer disk may be observed.

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