

**April 19, 1927.**

**1,625,242**

**D. L. CHANDLER**

COIN CONTROLLED AND CHANGE MAKING TURNSTILE APPARATUS

Filed June 30, 1924

9 Sheets-Sheet 1

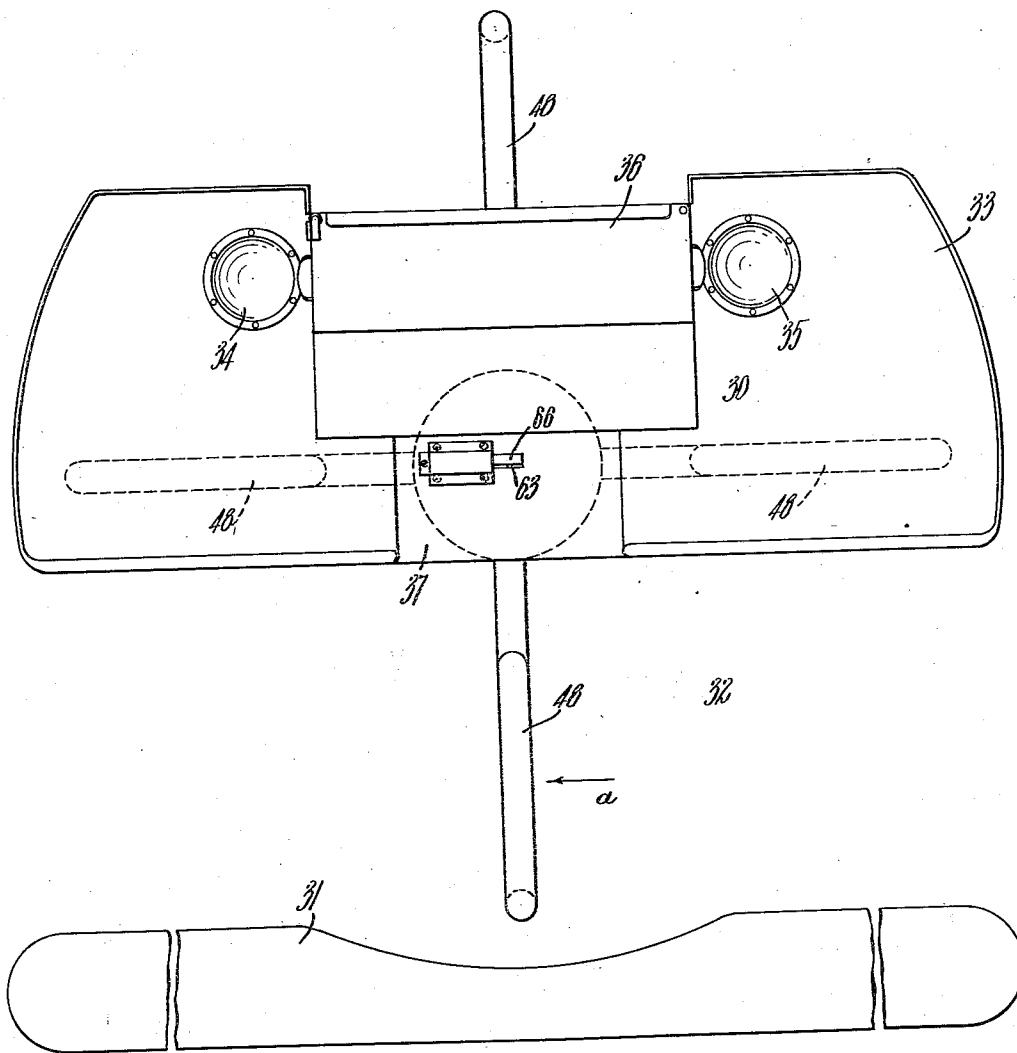


Fig. 1

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9 Sheets-Sheet 2

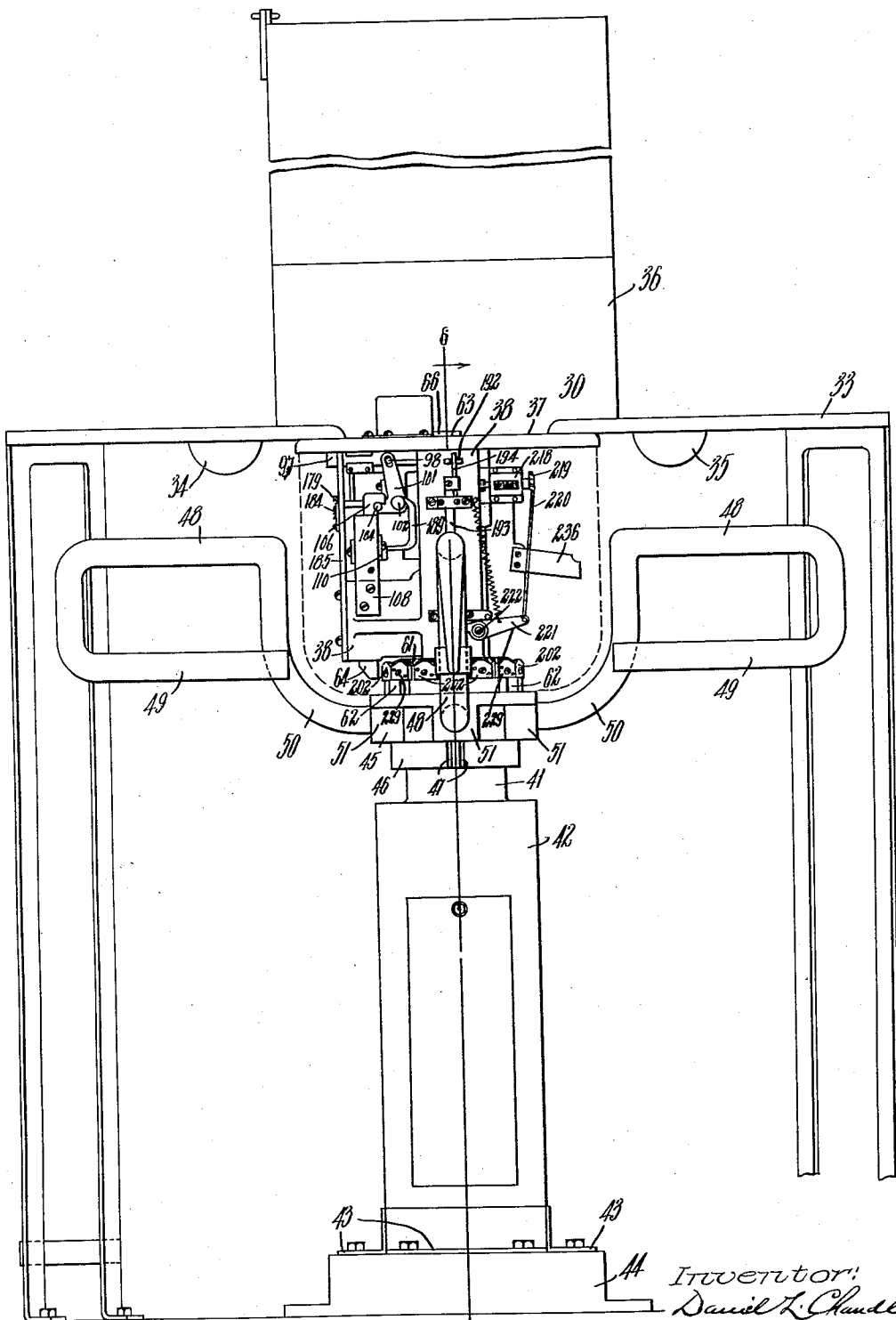


Fig. 2.

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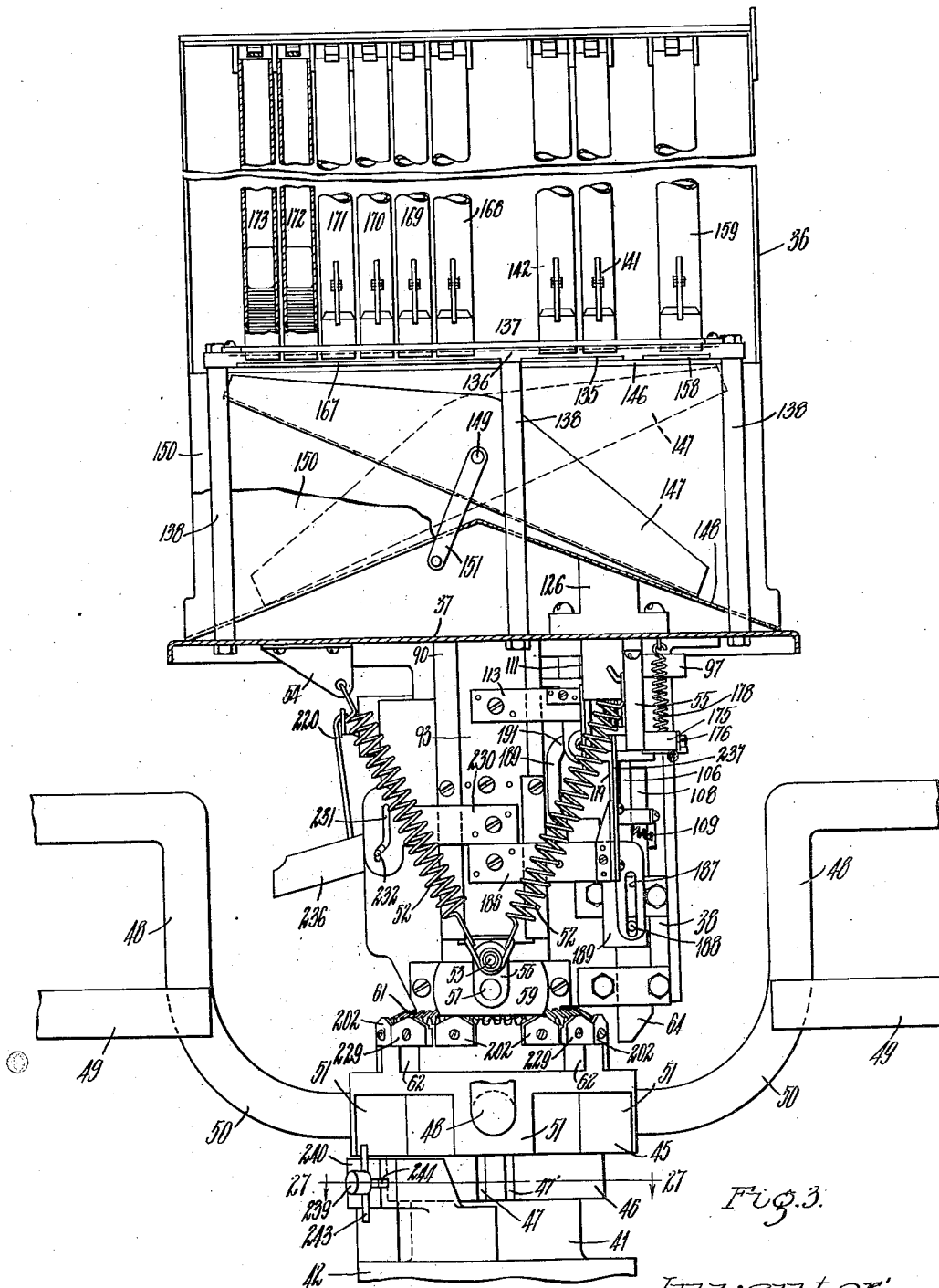
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9 Sheets-Sheet 4



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COIN CONTROLLED AND CHANGE MAKING TURNSTILE APPARATUS

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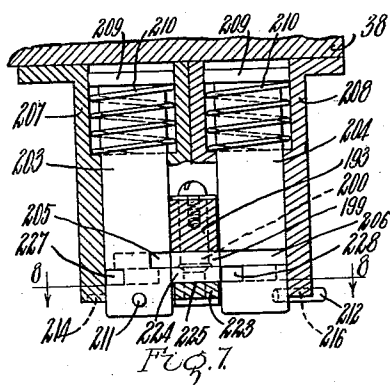


FIG. 7.

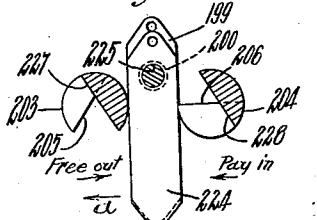
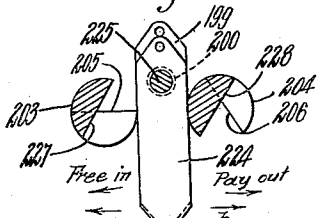


FIG. 8.



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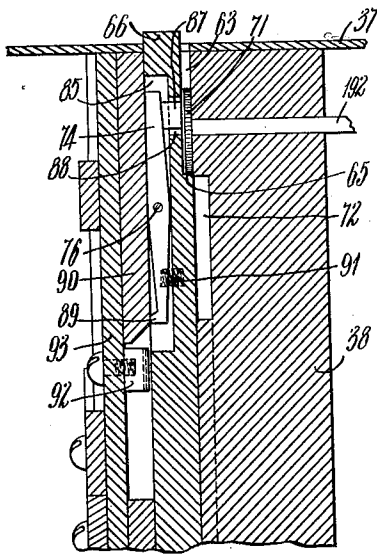


Fig. 12.

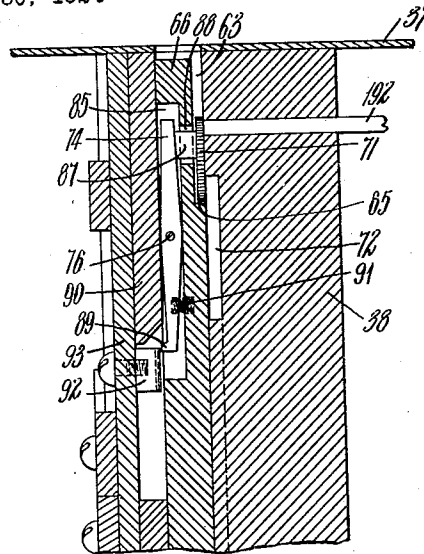


Fig. 13.

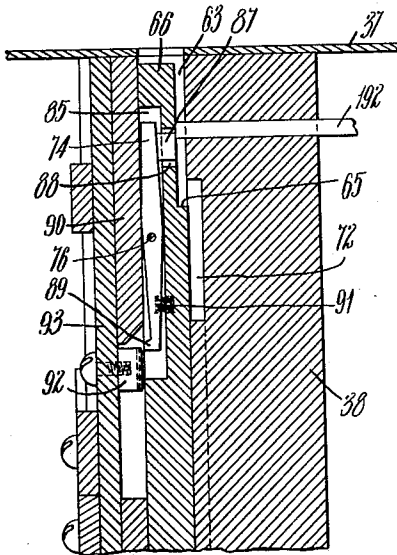


Fig. 14.

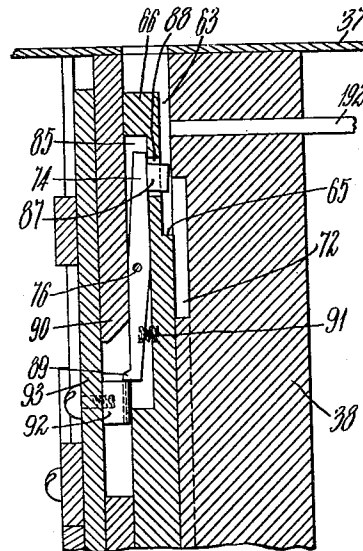


Fig. 15.

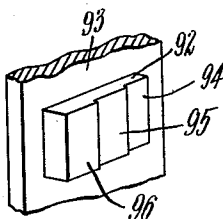


Fig. 16.

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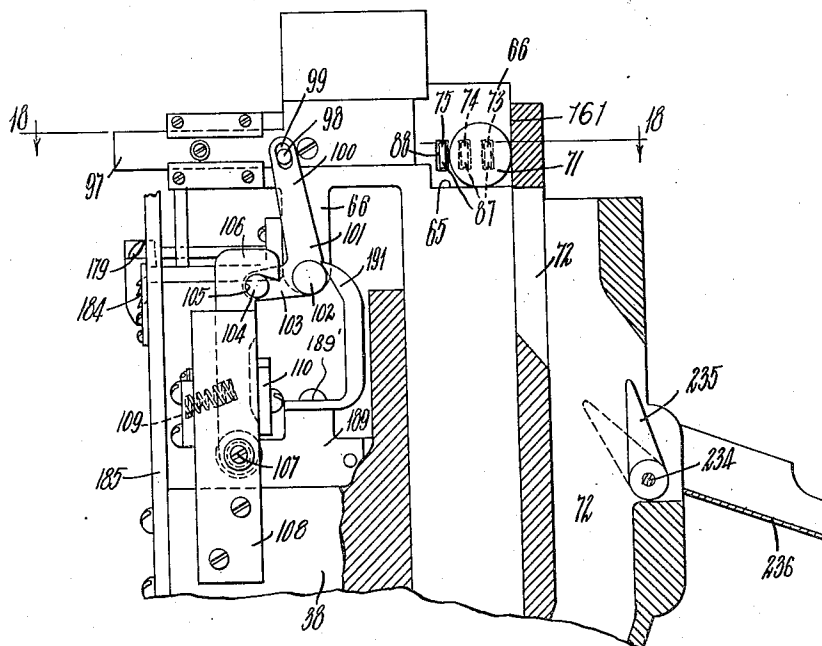


Fig. 17.

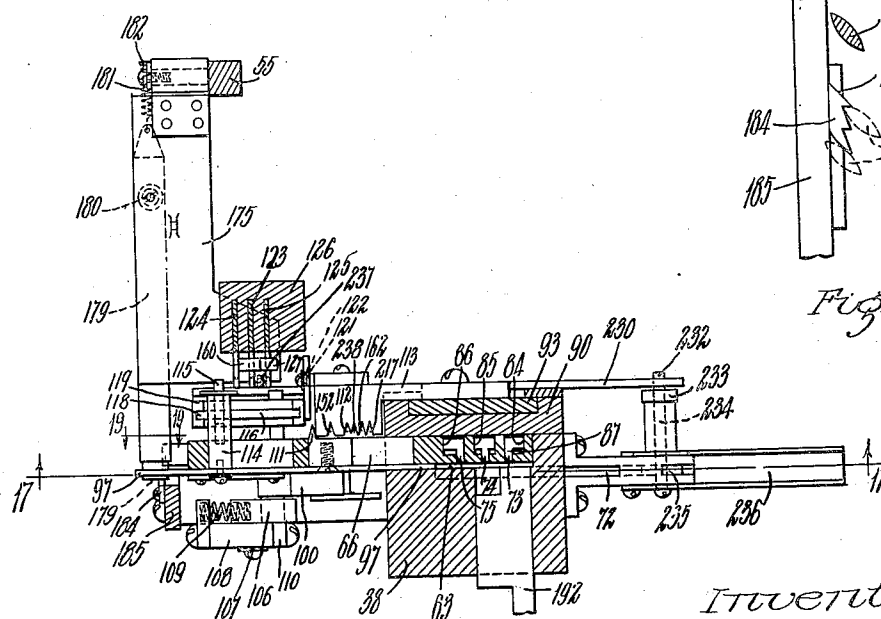
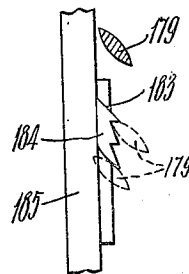


Fig. 18.



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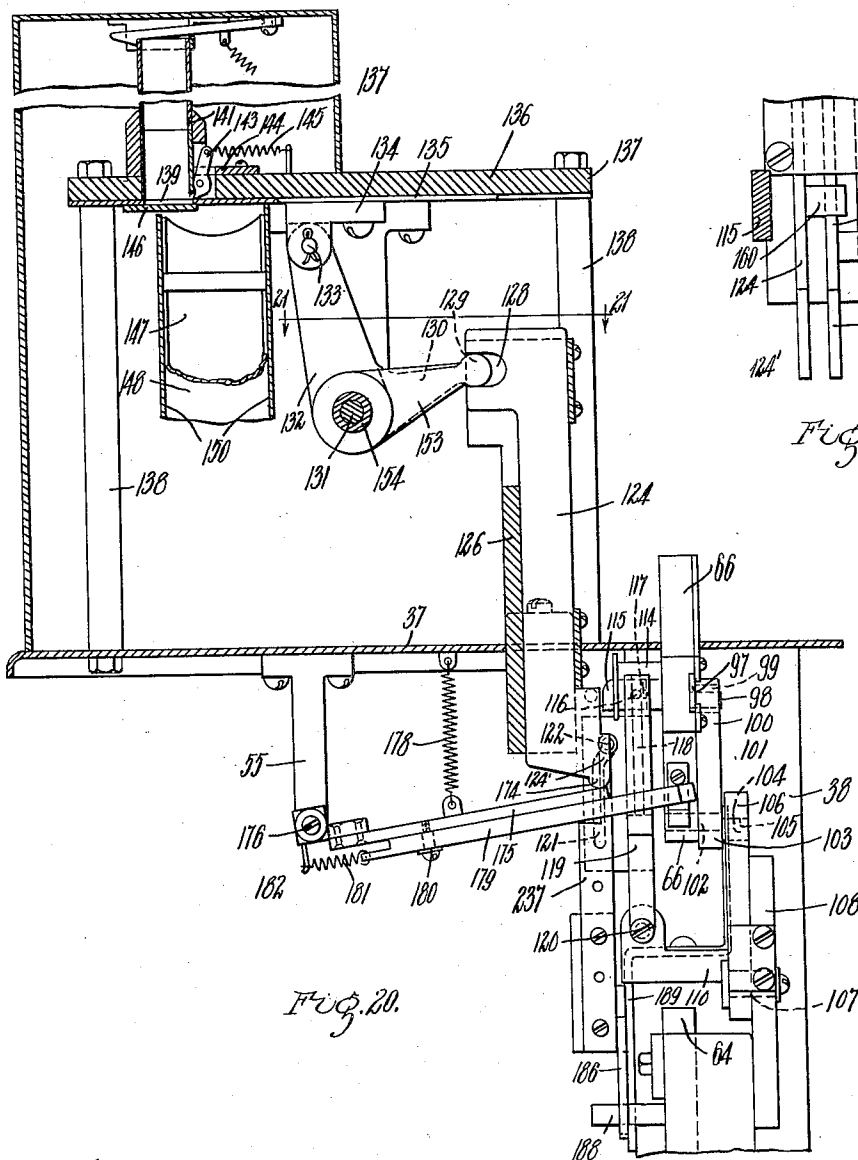


Fig. 20.

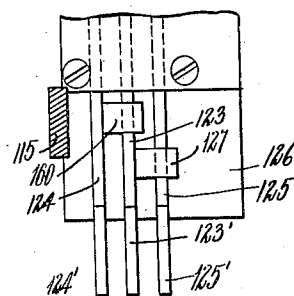
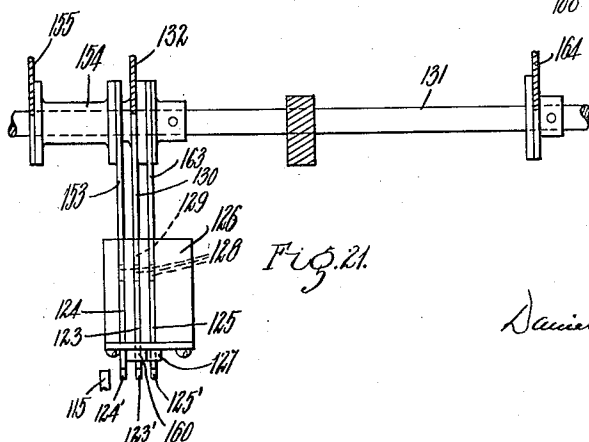


Fig. 22.





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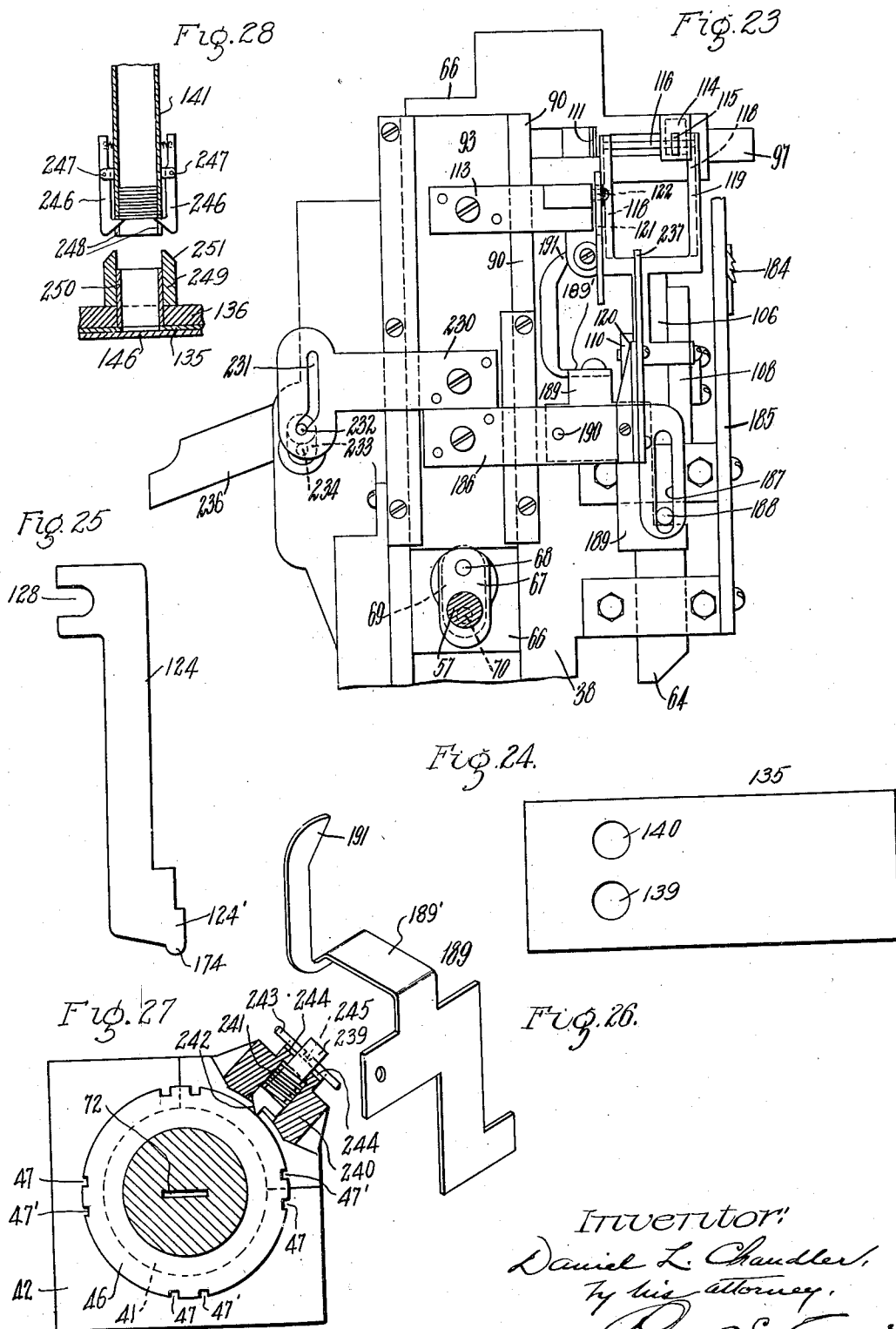
**1,625,242**

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COIN CONTROLLED AND CHANGE MAKING TURNSTILE APPARATUS

Filed June 30, 1924

9 Sheets-Sheet 9



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Patented Apr. 19, 1927.

1,625,242

# UNITED STATES PATENT OFFICE.

DANIEL L. CHANDLER, OF WORCESTER, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO WILLIAM H. WHITCOMB, OF NEWTON, MASSACHUSETTS.

## COIN-CONTROLLED AND CHANGE-MAKING TURNSTILE APPARATUS.

Application filed June 30, 1924. Serial No. 723,399.

This invention relates to a coin controlled and change-making turnstile apparatus.

The object of the invention is to provide an apparatus which can be installed at the entrance to railway stations, railway cars, or in any place where it is desired to have a fare or admission fee or exit fee paid by the patron.

The apparatus of this invention is particularly adapted to be used in railway stations and on railway cars. In street railway cars it is the custom in some instances for the passenger to pay when entering the car, and the operation of the apparatus in such an instance is hereinafter described as "Operation No. 1."

In other instances the custom is for the passenger to pay when passing out of the car, and the operation of the apparatus in this instance is hereinafter described as "Operation No. 2."

In still other instances the passenger is obliged to pay when entering the car and when passing out of the car, and in such a case the operation of the apparatus is hereinafter described as "Operation No. 3."

The apparatus of this invention may also be set so that the turnstile can be rotated to allow the patron to pass in, or to pass out, without paying anything and the operation of the apparatus to secure this result is hereinafter described as "Operation No. 4."

The apparatus is also capable of ejecting a coin which is not of predetermined diameter and thickness, or any spurious coin, or so-called slug which is not of predetermined thickness and diameter, and the manner in which this is accomplished by the apparatus of this invention is hereinafter described as "Operation No. 5."

The apparatus of this invention is capable of operation for any of these different conditions, and to these ends the apparatus may be set to operate as follows:—

### *Operation No. 1.*

Assuming that the apparatus is to be used on a railway car, or in a railway station, or at the entrance to a theatre, concert hall, or the like, and that it is desired that the patron shall pay before he enters the station or other place set forth, and that he shall pay a certain amount of fare or entrance fee, the apparatus of this invention is so constructed and can be so set that the patron,

as he enters, passes through a passageway, upon one side of which is preferably arranged a rail, and on the opposite side of the passageway the apparatus of this invention is located.

The apparatus embodies therein a rotary member provided with a plurality of radially extending arms constituting a turnstile and when the apparatus is in its normal position, one of these arms extends transversely of the passageway to prevent the patron from passing through unless he first deposits a coin in the apparatus.

The particular embodiment of my invention hereinafter described and claimed is adapted to be used where the fare is anything from 5¢ to 50¢. Assuming that 10¢ is the fare and that 10¢ is deposited in a slot provided in the apparatus and the patron then moves forward, he pushes the arm of the turnstile which extends across the passageway and rotates the rotary member by said arm, through an angle of 90°. This allows him to pass through the passageway, and another arm of the turnstile will extend across the passageway as before. If the patron does not push the arm of the turnstile through the entire 90°, the apparatus operates to continue the movement of the turnstile until the arm has passed through an angle of 90°, if he moves it at least 45°. If the patron, instead of inserting the exact fare, ten cents, in this particular instance, should insert a twenty-five cent coin, the operation would be the same as hereinbefore set forth, but in addition thereto, the apparatus would deliver to the patron change of fifteen cents. If the patron inserts fifty cents in the apparatus, then he will be enabled to pass through the passageway and receive in change forty cents. If the fare is five cents and the patron deposits ten cents, he will receive back a nickel. If the fare is seven cents and the patron deposits ten cents, he will receive back three cents, and so on for any denomination of coin where the fare is from five cents to fifty cents.

The apparatus is so constructed that the rotary member can be moved through an angle less than 45° without a coin being inserted in the slot, but in such an instance, the arms of the turnstile of this invention would turn through an angle substantially less than 45°, and this would prevent the

patron from passing through the passageway. Then upon releasing the turnstile, the rotary member and the arms of the turnstile would be automatically returned to their initial positions. The same would be true if the patron inserted in the slot a coin, whether spurious or not, which did not measure a predetermined diameter and thickness.

The apparatus is, however, so constructed that if the turnstile is moved more than 45°, it will be locked against return movement. This is to prevent a patron from rendering the turnstile operable to violate and allow him to enter, and when the turnstile is rotated through a portion of 90°, say slightly over 45°, turning the turnstile backwardly enough to allow another patron to pass by the turnstile without paying the fare, so that two patrons can not pass by the turnstile on a single fare.

In this particular embodiment of my invention, the diameter and thickness of the coin or other article inserted in the slot must be of the diameter and thickness of a five cent piece, a ten cent piece, a twenty-five cent piece, or a fifty cent piece in order for the turnstile to be operated to allow the patron to pass through. Anything other than an article of such dimensions would not enable the patron to rotate the turnstile so that he could pass through the passageway, and would be returned by the rotation of the rotary member to an angle less than 45°, as aforesaid, to the patron. Under these circumstances upon releasing the arm of the turnstile, after the article has been returned to the patron, the rotary member and the arms of the turnstile will be automatically returned to their initial positions.

After having paid his fare and his change having been returned to him, in the manner hereinbefore set forth, and the patron has passed into the car, station, or other place where the apparatus is installed, he can, when the apparatus is set for this particular operation, return through the passageway and rotate the turnstile in the opposite direction without depositing any coin.

#### *Operation No. 2.*

In operation No. 2 the apparatus is set so that the patron can pass outwardly through the passageway upon depositing a coin in the coin slot of a predetermined thickness and diameter, and can pass inwardly without deposit of any coin.

#### *Operation No. 3.*

The apparatus is provided with a manually operable mechanism which can be changed so as to set the machine to operate as set forth in "Operation No. 1," that is, can be set so that the turnstile is rendered operable to allow the patron to enter by the deposit of a coin of predetermined thickness

and diameter, as in "Operation No. 1," and also the patron would be obliged to insert in the coin slot a coin of predetermined thickness and diameter, in order to be able to rotate the turnstile and pass outwardly through the passageway. In this operation of the apparatus, change is returned to the patron, as hereinbefore described in "Operation No. 1" and the turnstile is rendered non-rotatable to an extent sufficient to allow the patron to pass inwardly or outwardly, when a coin, spurious or otherwise, which is not of a predetermined diameter or thickness is inserted in the coin slot, and such coin is returned to the patron as hereinbefore set forth in "Operation No. 1."

#### *Operation No. 4.*

In certain conditions it is desirable that the turnstile should be operable by the patron without inserting a coin either when he is passing out of the car, station, or other place where the apparatus is installed, and the apparatus of this invention may be so set that it may be operated in this manner.

#### *Operation No. 5.*

Under any of the conditions hereinbefore set forth in operations Nos. 1, 2 and 3, if the patron deposits in the coin slot of the apparatus, a coin which is not of a predetermined diameter or thickness, or both, then the turnstile cannot be operated to allow the patron to pass through the passageway, but the coin will be ejected from the apparatus and the turnstile will be locked to prevent the patron passing through. This will be true of any article which differs in diameter or thickness from the diameter and thickness of the coin intended to be used in the apparatus. In this particular embodiment of my invention, therefore, any coin which differs in thickness or diameter from a five cent piece, ten cent piece, twenty-five cent piece, or a fifty cent piece when inserted in the coin slot of the apparatus will not render the apparatus operable to operate the turnstile and allow the patron to pass through.

#### *Operation No. 6.*

The apparatus of this invention is adapted to be used for a five cent fare as well as for a ten cent, twenty-five cent, or fifty cent fare, or for fares anywhere from five cents to fifty cents.

The invention consists of a change-making turnstile apparatus embodying mechanism whereby the foregoing operations may be performed, and in the combination and arrangement of parts disclosed in the following specification and particularly pointed out in the claims.

This invention is in some respects, and in its broader aspects similar to an invention for which I have made application for U. S.

Letters Patent entitled "Change-making turnstile apparatus" filed January 11, 1924, Serial No. 685,581, but differs therefrom in the mechanism whereby the foregoing operations are performed, and, furthermore, the machine of this application will return change from one cent to fifty cents inclusive.

Referring to the drawings:

Figure 1 is a plan view of my improved change-making turnstile apparatus, the side rail of the passageway being shown broken away.

Fig. 2 is a front elevation of the same, with the casing which encloses the instrumentalities removed and shown in dotted lines.

Fig. 3 is a rear elevation partly in section on a larger scale than Fig. 2, illustrating the different instrumentalities of the apparatus and also illustrating the coin tubes from which change is obtained for the change-making operation of the apparatus, certain parts of the apparatus are broken away to save space.

Fig. 4 is a front elevation enlarged of the instrumentalities of the apparatus, the top plate being shown in section, and other parts being broken away to save space in the drawings.

Fig. 5 is a sectional plan taken on line 5—5 of Fig. 4 illustrating a portion of the rotary member with cams attached thereto.

Fig. 6 is a sectional elevation taken on line 6—6 of Fig. 2, particularly illustrating the mechanism by which the primary and auxiliary slides are operated.

Fig. 7 is a detail sectional plan taken on line 7—7, Fig. 6, and illustrating the mechanism for determining in which direction the turnstile can be rotated upon the deposit of a coin of predetermined dimensions in the apparatus, and also for determining the operation, or non-operation of the counter mechanism.

Fig. 8 is a detail sectional elevation taken on line 8—8 of Fig. 7, of a portion of the device illustrated in Fig. 7.

Figs. 9, 10 and 11 are detail sectional elevations similar to Fig. 8 and taken on the same line, but with the parts set in different positions.

Figs. 12, 13, 14 and 15 are enlarged sectional elevations taken on line 6—6 of Fig. 2, and illustrating enlarged that portion of the coin thickness detector mechanism which is shown in the upper part of Fig. 6, and showing the parts in different positions assumed relatively to each other in the operation of the machine.

Fig. 16 is a perspective view of a plate and a portion of the auxiliary slide.

Fig. 17 is a vertical sectional elevation taken on line 17—17 of Fig. 18.

Fig. 18 is a sectional plan taken on line 18—18 of Fig. 17.

Fig. 19 is a detail sectional elevation taken on line 19—19 of Fig. 18.

Fig. 20 is a side elevation partly in section as viewed from the left of Fig. 1, and illustrating the details of the change-making mechanism.

Fig. 21 is a detail sectional plan taken on line 21—21 of Fig. 20.

Fig. 22 is a detail front elevation partly in section as viewed from the right of Fig. 20, and illustrating a portion of the change-making mechanism.

Fig. 23 is an enlarged rear elevation partly in section principally illustrating the primary and auxiliary slides and mechanism and parts actuated thereby.

Fig. 24 is a detail plan view of one of the coin slides.

Fig. 25 is a detail side elevation of one of the vertical slides of the coin feed mechanism.

Fig. 26 is a perspective view of the stop slide latch.

Fig. 27 is a sectional plan taken on line 27—27 of Fig. 3, illustrating a locking device.

Fig. 28 is a detail vertical section of one of the coin tubes showing the upper part detached from the lower part and ready to be lowered into engagement therewith.

Like numerals refer to like parts throughout the several views of the drawings.

#### *Operation No. 1.*

The apparatus of this invention will first be described, when the mechanism is set to operate in the manner hereinbefore set forth in "Operation No. 1", where the patron is allowed to pass through the passageway to enter the car, station, or other place by depositing a coin of predetermined thickness and diameter, but not otherwise, and is allowed to pass outwardly through the passageway without depositing a coin.

In the drawings, Figs. 1 and 2, 30 is the change-making turnstile apparatus. 31 is the side rail and 32 the passageway between the apparatus and the side rail. 33 is a table which is positioned horizontally at approximately the same height as the side rail 31 and which is provided with pockets 34 and 35 constituting receptacles for the change which is returned to the patron by the apparatus. 36 is a casing which contains a plurality of tubes for the change which is to be returned to the patron, and this casing is supported upon a top plate 37 which is fastened to the frame 38 of the apparatus. The frame 38 terminates at the lower end thereof in a cylindrical portion 39, Fig. 6, which fits into a corresponding opening 40 in the top member 41 of the hollow base 42. The base 42 is provided with flanges 43 fast to the lower end thereof, and fastened to a sup-

port 44 upon which the apparatus stands, by screws or bolts, see Figs. 2 and 6.

The frame 38 has a rotary member 45 rotatably mounted on the cylindrical portion 39 of said frame. This rotary member has fastened to the lower end thereof a collar 46 provided with a plurality of pairs of vertical grooves 47, and the collar 46 rests upon the upper end of the top member 41 of the base. The rotary member 45 constitutes the operating member of the apparatus, and has fastened thereto four arms 48, said arms and the rotary member constituting a turnstile. The arms, as seen in Fig. 2, consist of a rectangular portion 49 which is connected by an angle portion 50 to a boss 51 on the rotary member 45, and by these arms a rotary motion is imparted to the rotary member. Each pair of grooves 47 are located adjacent to and on opposite sides of the median vertical plane of one of said arms 48.

The rotary member 45 and the arms 48 are kept in a normal position, as illustrated in Fig. 3, with one of the arms extending across the passageway 32 by a pair of springs 52, the lower ends of which are connected to a crank pin 53, and the upper ends of which are connected to brackets 54 and 55 which are fastened to the top plate 37. It will be noted that the springs 52 diverge from each other as they extend upwardly from said crank pin 53. The crank pin 53 is fastened to a crank 56, Figs. 3 and 6, which is fastened to the outer end of a shaft 57 rotatably mounted in bearings 58 forming a part of a bracket 59 which is fastened to the frame 38 of the machine.

Fastened to the shaft 57 between the brackets 58, see Fig. 6, is a bevel pinion 60 which meshes into an annular bevel gear 61 fastened to the rotary member 45. As the rotary member 45 is rotated, the gear 61 will rotate with it and thus rotate the pinion 60, whereby the crank 56 will be rotated, together with the crank pin 53, thus increasing the tension on the springs 52, which will always bring the crank pin 53 and the crank 56, to which it is fastened, to the position illustrated in Figs. 3 and 6, and through the pinion 60 and annular gear 61 the rotary member 45 and the turnstile, as a whole, will be thus brought back to normal position, or forward to a similar normal position with another arm extending across the passageway in the latter case.

The turnstile is prevented from being rotated through an angle over 45°, except when a coin of predetermined diameter and thickness is deposited in the coin slot, by a series of stops 62 forming a part of the rotary member 45.

When the turnstile is operated by the patron without inserting a coin in a coin slot 63 provided in the upper end of the

frame 38, the rotary member 45 will be free to move with its stops 62 until one of said stops engages a stop slide 64, Figs. 2, 3 and 4, which is slidably mounted on the frame 38. When one of the stops 62 thus engages the stop slide 64, no further movement can be imparted to the rotary member by the arms 48 of the turnstile in the direction of the arrow *a*, Fig. 1, or in a clockwise direction, this being the direction in which it is assumed that the patron is moving through the passage 32 in the present operation of the apparatus.

When the patron releases the turnstile, the rotary member 45 will be carried back to its initial position by the springs 52, crank pin 53, crank 56, shaft 57, bevel pinion 60, and bevelled gear 61.

Assuming now that the patron inserts in the coin slot 63 a twenty-five cent piece, the coin will enter the slot and rest upon a shoulder 65 adjacent the upper end of a vertical movable primary slide 66, as illustrated in Figs. 6, 12, 13 and 17. A vertical reciprocatory motion is imparted to the primary slide 66 by a crank 67, see Figs. 6 and 23, which is fastened to the rear end of the shaft 57 and has a crank pin 68 projecting laterally therefrom into the upper end of a link 69. The lower end of the link 69 is connected by a pin 70 to the lower end of the primary slide 66 so that as the shaft 57 is rotated in the manner hereinbefore described, the primary slide 66 will move upwardly and downwardly in the frame of the machine.

Assuming that the parts are in the relative positions illustrated in Figs. 1, 2, 3, 12 and 23, and the patron has inserted a twenty-five cent coin in the coin slot as hereinbefore set forth, he then pushes on the arm of the turnstile, which extends across the passageway, thus rotating the rotary member and operating the connections hereinbefore set forth to move the primary slide 66 downwardly with the coin 71 until said coin arrives in alignment with an auxiliary coin slot 72, whereupon it will be ejected from the coin slot 63 into the auxiliary coin slot 72 by a pair of detector fingers 73 and 74 which, together with another detector finger 75 are pivoted upon a pin 76 to the primary slide 66 and are actuated to eject the coin 71 by springs 91 after the primary slide 66 has passed downwardly from the position illustrated in Fig. 12 to a position in which the lower ends of the fingers are below a plate 92, which is fastened to an auxiliary slide 93, as hereinafter fully described.

It will be understood that the fingers do not perform the operation of ejecting the coin 71 into the coin slot 72 until the primary slide has moved downwardly to a sufficient extent to bring the upper edge of the coin 71 below the upper edge of the coin slot

72, whereupon the springs 91 will expand and move the lower ends of the detector fingers 73 and 74, in this particular case, toward the left, thus moving the upper ends of said detector fingers toward the right and ejecting the coin from the primary slide 66 into the coin slot 72. The coin 71 having been ejected from the primary slide into the auxiliary coin slot 72 will roll down said auxiliary coin slot 72, see Figs. 6 and 17, and into a receptacle 77 positioned in a chamber 78 in the base 42. If such a receptacle is not provided, however, the coin could drop into the chamber 78. The receptacle 77 is provided with a cover 79 hinged at 80 to the top of the receptacle 77, and in the front side of the receptacle there is provided a door 81 which is provided with a lock 82 to lock it in closed position to the receptacle. The cover 79 is also provided with a lock 83 which locks it in closed position to the receptacle.

It will be understood that the twenty-five cent coin during the operation hereinbefore described was first placed in the coin slot 63, and assumed the position illustrated in Figs. 6, 12 and 17. When in this position the coin is measured, both as to diameter and thickness. The detector fingers 73, 74 and 75 measure the thickness of a coin placed in said coin slot, and in the case of a twenty-five cent coin the thickness is measured by the detector fingers 73 and 74. The detector finger 73 is the detector finger for dimes, the detector fingers 73 and 74 are for quarters, and the detector fingers 73, 74 and 75 are for halves. These fingers are all substantially duplicates, and are positioned in recesses 84, 85 and 86 respectively in the primary slide 66.

When a ten cent piece is positioned in the coin slot 63, the detector finger 73 will contact therewith during the operation of the rotary member. When a twenty-five cent piece is located in the coin slot 63, the fingers 73 and 74 will contact therewith, during the operation of the machine, and when a fifty cent piece is located in the slot 63, all three of the detector fingers will contact therewith during the operation of the machine.

In the present instance, a twenty-five cent piece having been inserted in the coin slot 63, two of the fingers 73 and 74 will contact therewith during the operation of the machine. At first, however, when the twenty-five cent piece is inserted in the coin slot 63, the fingers 73, 74 and 75, all of which are substantial duplicates, will be locked relatively thereto, as illustrated in Fig. 12, that is, the upper end of each of said fingers has a flat projection 87 thereon which projects into a slot 88 in the primary slide, but does not project into the coin slot 63. The fingers 73, 74 and 75, as stated, are substan-

tial duplicates of each other and operate in substantially the same manner and, therefore, the description of the finger 73 will apply equally well to the fingers 74 and 75.

These fingers, as hereinbefore set forth, are pivoted upon a pivotal pin 76 fast to the primary slide 66. The lower end of each of the fingers has a projection 89 thereon, which, when the parts are in the relative positions illustrated in Fig. 12, and the primary slide 66 is in its uppermost position, will bear against a plate 90 which is rigidly fastened to, and therefore forms, in effect, a part of the frame 38 of the machine, and the lower ends of said fingers will be held against said plate by springs 91.

A plate 92 is fastened to an auxiliary slide 93, which is adapted to slide vertically on the plate 90, and said plate 92 has three teeth 94, 95 and 96 formed thereon Fig. 16. The tooth 94 is in alignment with the lower end of the finger 73, the tooth 95 is in alignment with the lower end of the finger 74, and the tooth 96 is in alignment with the finger 76. In addition to the detector fingers 73, 74 and 75 which contact with the face of the coins as hereinbefore described and measure the thickness thereof, there is a detector slide 97 which measures the diameter of the coin which is inserted in the coin slot 63. This slide is illustrated in Figs. 3, 4, 17 and 18, and as illustrated in Fig. 17 is drawn back to its extreme backward position. In said figure a twenty-five cent coin 71 is shown in position. The detector slide 97 has a pin 98 fast thereto which projects into a slot 99 in the upper end of an arm 100 forming a portion of a lever 101. The lever 101 is pivoted at 102 to the primary slide 66. The lever 101 has another arm 103 thereon which is provided in its outer end with a pin 104 which, when the parts are in the relative positions illustrated in Fig. 17, projects into a notch 105 provided in the edge of an arm 106 pivoted at 107 to a plate 108 fast to the frame of the machine. A spring 109 normally holds the arm 106 in contact with a plate 110 fast to the plate 108.

As the primary slide is moved downwardly from its uppermost position as illustrated in Fig. 17, the lever 101 will be rocked upon its pivot 102 on account of the arm 103 being temporarily held in the notch 105, and this will move the detector slide 97 forwardly or toward the right, Fig. 17, until its front edge engages the periphery of the coin 71 which is located at that time in the coin slot. As soon as the front edge of the slide 97 engages the periphery of the coin, further downward movement of the primary slide will rock the arm 106 toward the left, Fig. 17 and the pin 104 on the lever arm 103 will move out of the notch 105 so that further downward movement of the

primary slide will carry the coin downwardly, but will not move the detector slide 97 any further toward the right in Fig. 17. Upon further downward movement of the primary slide 66, the coin will be ejected from the coin slot into the auxiliary coin slot, and drop downwardly into the receptacle 77 as hereinbefore described.

The mechanism which moves the primary slide downwardly will also cause the same to be moved upwardly after the crank pin 57 has passed the lower center, and the parts will be returned to the relative positions illustrated in Fig. 17. The detector slide being moved toward the left by the pin 104 entering the notch 105 and being thus prevented from any further upward movement, the lever 101 will be rocked on its pivot to move the arm 100 to the left, and thus move the detector slide 97 back to its original position.

The patron, during the operation hereinbefore described, has been allowed to pass through the passageway 32 and has returned to him his change, that is, in this particular instance, fifteen cents. When the detector slide 97 engages the periphery of the twenty-five cent coin, as hereinbefore described, a V-shaped tooth 111 which projects on the rear face of the slide 97 will be in vertical alignment with a V-shaped recess 112 which is provided in a plate 113 fast to the auxiliary slide 93 and constituting a detector slide stop.

During the downward movement of the primary slide hereinbefore described, as the coin under consideration is a twenty-five cent coin, the patron must receive back in change fifteen cents, and this is accomplished by the mechanism now about to be described. The detector slide 97 carries a bracket 114 which projects horizontally and rearwardly from said detector slide 97, see Figs. 20, 21, 22 and 23. In this bracket is mounted a slide 115, the rear end of which projects beyond said bracket 114. A horizontal pin 116 extends through a hole in the slide 115, and through slots 117 provided in the opposite sides of said bracket 114. The opposite ends of said pin project into grooves 118 constituting ways provided in a rocker frame 119 pivoted at its lower end at 120 to the plate 110. The rocker frame 119 has a cam slot 121 provided therein into which a stud 122 projects, said stud being fastened to the plate 113 which, in turn, is fastened to the auxiliary slide 93.

By this construction it will be seen that the slide 115 can be caused to retreat into the bracket 114 when both the primary and auxiliary slides move downwardly, as hereinafter more fully described in connection with operation No. 5. The slide 115 is caused to retreat in this manner only when a coin which is not of predetermined thick-

ness and diameter is deposited in the machine by the patron, or when the patron deposits no coin in the machine and attempts to pass through in the direction in which he is supposed to pay.

When the detector slide 97 is brought into engagement with the periphery of the twenty-five cent piece 71, as hereinbefore described, the projecting end of the slide 115 is located above and in alignment with a lateral projection 123' of a slide 123. The slide 123 is one of a plurality of slides 124, 123 and 125, and the slides 124 and 125 each have lateral projections 124' and 125' respectively. These slides are slidably mounted in an auxiliary frame 126 which is fastened to the top plate 37. The slide 123 operates mechanism to return fifteen cents, the slide 124 operates to return change for a fifty cent piece, namely, in this instance forty cents, and the slide 125 operates only to return change when the fare is under ten cents.

To continue with the operation of the slide 123, this slide has a pin 127 projecting laterally therefrom, and adapted to engage the slide 125, so that when the slide 123 is moved downwardly by the rear end of the slide 115, both of the slides 123 and 125 will be moved downwardly. The slides 123, 124 and 125 at their upper ends are all alike in that they are provided with a notch 128. The notch 128 in the slide 123 receives the end of one arm 129 of a bell crank lever 130 which rocks on a shaft 131, and the other arm 132 of which projects upwardly and is connected by a pin 133 to a bracket 134 fastened to the under side of a coin slide 135.

The coin slide 135 is mounted to slide upon the under side of a plate 136 which forms a part of the coin slide frame 137 comprising, as a whole, the plate 136 and standards 138 which are fastened at their lower ends to the top plate 37. The coin slide 135 has two openings 139 and 140 extending therethrough, see Fig. 24, and these openings 139 and 140 are normally in alignment with and located beneath coin tubes 141 and 142 which are fastened to the plate 136. The coin tubes each have a coin detent 143 pivotally mounted on a bracket 144 which is fastened to the plate 136. A spring 145 is fastened to the detent lever 143 and holds the same normally in the position illustrated in Fig. 20, but when the coin slide 135 is moved, the lower end of the detent prevents more than one coin from being withdrawn from the bottom of the column of coins contained in the coin tube.

In the particular case under consideration when the slide 135 is moved toward the right, Fig. 20, by the mechanism hereinbefore described, two coins, namely a five and a ten, will be fed from the bottom of



the columns of coins, and as the slide 135 moves forwardly they will be pulled off of a stationary plate 146 located therebeneath and dropped into a chute 147, and roll down said chute onto another chute 148 which leads to the change pocket 34.

The chute 147 is fastened to a rock shaft 149 which is journaled to rock in bearings at its opposite ends in the vertical oppositely disposed sides 150 of the chute 148. The rock shaft 149 has a handle 151 fast thereto by which it can be rocked when it is desired to tip the chute 147 from the position illustrated in full lines, Fig. 3, to the position illustrated in dotted lines in said figure. The chute is tipped in this manner in order to deliver change to the pocket 35, that is, in case the fare is paid when coming out from a one-man car, for example.

The turnstile has now been rotated about 45°. The turnstile has received his money. Upon further rotation of the turnstile, the primary slide, the detector fingers 73, 74 and 75, and the detector slide are all returned to their normal positions, as illustrated in the drawings, and the machine is then ready for another patron to pass along the passage 32 of the car, or other place, and to repeat the operation hereinbefore described.

Assuming that a patron inserts a fifty cent piece in the coin slot 63 instead of a twenty-five cent piece, the operation of the parts hereinbefore described for feeding the coin thus deposited in the receptacle 77 and for delivering to the patron the change, which would in that case be forty cents, is in all respects very similar to the operation of the mechanism hereinbefore described in relation to the twenty-five cent coin. In such an instance, however, all three of the detector fingers 73, 74 and 75 will bear against the face of the fifty cent piece during the downward movement of the primary slide 66 and all three of said fingers will operate as hereinbefore set forth in relation to the fingers 73 and 74.

The detector slide will be operated in the same manner as hereinbefore described, except that it will not move so far to the right in Figs. 17 and 18, as when a twenty-five cent piece was located in the coin slot, and, therefore, the V-shaped projection 111 on the back of the detector slide 97 will be brought into alignment with another V-shaped recess 152 in the stationary plate 113. Then the detector slide and the primary slide are in position to move downwardly and the fifty cent coin will be ejected from the coin slot 63 by all three of the fingers 73, 74 and 75, and into the auxiliary coin slot 72 and downwardly into the coin receptacle 77 as hereinbefore described in relation to the twenty-five cent coin.

At the same time during this operation change of forty cents must be delivered to the patron, and this is accomplished by the slide 115 in the same manner as hereinbefore described, except that in this instance the said slide will be above and in alignment with the slide 124 which at its upper end is provided with a notch 128 into which the outer end of an arm 153 projects. This arm is fastened to a sleeve 154 which rocks upon the shaft 131 and the other end of said sleeve has a vertically projecting arm 155 fast thereto, the upper end of which is connected by a pin 156 to a bracket 157 fast to the under side of a slide 158. This slide is provided with one hole extending therethrough, and normally in alignment with a coin tube 159 which contains twenty-five cent pieces. The slide 158 is operated, therefore, to withdraw a twenty-five cent piece from the bottom of the column of twenty-five cent pieces in the tube 159 and drop it into the chute 147 from which it is delivered to the chute 148 and to the pocket 34.

At the same time that the slide 124 is thus operating the coin change making mechanism to deliver change of twenty-five cents to the patron, a pin 160 which projects laterally from the slide 124 engages the slide 123, and the pin 127 on the slide 123 engages the slide 125, therefore all of said slides 123, 124 and 125 move downwardly together, and a ten cent coin and a five cent coin are delivered from the coin tubes 141 and 142 and pass down the coin chutes to the same pocket 34 as the twenty-five cent piece. The tubes 168 to 173 inclusive are in this case, where the fare is 10¢, left empty and the only time a coin is delivered from these tubes, namely 168 to 173 inclusive, is when the fare is less than 10¢.

The patron can now take from said pocket forty cents, which is the correct change which he should receive when depositing a fifty cent piece, and when the fare is ten cents.

Assuming that the patron deposits a ten cent coin in the coin slot, in this case no change would be returned to him as ten cents is assumed to be the full amount of the fare charged in the case under consideration. The ten cent fare having been placed in the coin slot 62, the detector finger 73 only will contact with the face thereof during the downward movement of the primary slide 66, and the detector slide 97 will be brought forward to engage the edge of the ten cent piece and hold it against the wall 161 of the frame 38, see Figs. 17 and 18 as hereinbefore described in relation to the twenty-five cent piece and fifty cent piece. In this case the ten cent piece being smaller than the twenty-five cent piece, the detector slide 97 will be moved over further toward the right. Figs. 17 and 18, and the V-shaped



projection 111 on the back of the detector slide will be brought into alignment and above a V-shaped recess 162 in the plate 113, see Fig. 18, this movement of the detector slide being accomplished by mechanism hereinbefore described. The remainder of the operation of carrying the coin downwardly, ejecting the same into the receptacle 77 and returning the parts to their initial positions is the same as hereinbefore described in relation to the operation of said mechanisms when a twenty-five cent coin, or a fifty cent coin is being handled, except that no change is returned to the patron in view of the fact that the fare is ten cents.

The machine of this invention is adapted also to return change for fares of seven cents, eight cents, or any fare from five cents to fifty cents. Assuming the fare to be seven cents and a patron drops a ten cent piece into the coin slot 63, then the detector slide will operate together with the primary slide as before described to position the end of the slide 115 over and in alignment with the projecting lower end of the slide 125. Now upon a further movement of the turnstile and a downward movement of the primary slide 66 and of the slide 115 the projecting end of said slide 115 will engage the projecting lower end of the slide 125 and move it downwardly. The upper end of this slide, as in the slides 123 and 124, is provided with a notch 128, and into this notch projects the outer end of an arm 163 which is fastened to the shaft 131. A vertical projecting arm 164 is fastened to the shaft 131 and is connected by a pin 165 to a bracket 166 on the under side of the coin slide 167. The coin slide 167 is provided with six holes, these holes being located beneath six coin tubes 168, 169, 170, 171, 172 and 173. The coin tubes 169 to 173 inclusive are tubes adapted to contain pennies, while the tube 168 is for five cent pieces.

In the present instance where the fare is assumed to be seven cents, the patron is to get back in change three cents, therefore only three of the penny tubes are supplied with pennies, the other penny tubes and the five cent tube are left empty. The coin slide 167 being operated in the same manner as hereinbefore described, feeds three pennies from three of the penny tubes down the chutes 147 and 148 and into the pocket 34. The parts now return to their normal positions upon further rotation of the turnstile to complete an angle of rotation of 90°.

If the fare is six cents, then four cents should be returned to the patron when he places ten cents in the coin slot, and in such a case four of the penny tubes are supplied with pennies. In case the fare is five cents, then all the penny tubes are left vacant, the five cent tube is supplied with five cent pieces, and then when the patron deposits

ten cents, the mechanism hereinbefore described is operated to return five cents change.

Assuming that the fare is seven cents and the patron deposits twenty-five cents, he will have returned to him eighteen cents, that is, the mechanism will operate the coin slide 135 to return a ten cent piece and a five cent piece, and will operate the slide 167 to return three pennies. When a fifty cent piece is inserted in the coin slot and the fare is seven cents, the same operation is performed except that the slide 158 is also operated to return to the patron twenty-five cents, which together with ten cents, five cents and three pennies gives him forty-three cents.

It is necessary that the slides 123, 124 and 125 should be moved downwardly to the extreme lowermost point before they are moved upwardly again to their normal positions, and this is accomplished by the mechanism now to be described. Each of the slides 123, 124 and 125 has a rounded lug 174 on its lower edge, and these rounded lugs bear against an arm 175 which is pivoted at 176 to a bracket 55 fast to the under side of the top plate 37. This arm is held in its normal position as in Fig. 20 by a spring 178. Another lever 179 which acts as a detent to prevent the arm 175 from returning to its normal position before the slides 123, 124 and 125 have descended to their lowermost positions is pivoted upon a stud 180 fast to the arm 175 so that it can swing horizontally, the arm 175 swinging in a vertical direction. The rear end of the lever 179 is connected by a spring 181 to a pin 182 fast to the rear end of the arm 175. The forward end of the lever 179 is made oval in cross section as illustrated in Fig. 19 and when the slides are in their normal positions as illustrated in Fig. 20, this oval end of the lever 179 is located above the bevelled upper end 183 of a rack 184 which is fast to a stationary plate 185 on the frame 38. Now as either one of the slides 123, 124 or 125 is moved downwardly to actuate the change-making mechanism as hereinbefore described, the lug 174 on the lower end thereof will engage the arm 175 so as to move the arm downwardly at the right hand end thereof, Fig. 20, and this will carry with it the lever 179. The oval end of the lever 179 will thus engage the teeth on the rack 184 until it passes below the lowermost tooth of the rack and then upon the return movement of the arm 175 the oval outer end of the lever 179 will engage the bevelled lower end of the rack and pass upwardly on the rear edge of the rack 184, all as illustrated by the dotted positions of said lever 179 in Fig. 19. It will thus be seen that the arm 175 will return the slides 123, 124 and 125, the bell crank levers and the coin slides operated thereby to their initial positions to receive

a new set of coins with which to supply change.

In "Operation No. 1" now under consideration, the patron pays going in, but does not pay going out, in other words the patron pays when the rotary member is rotated in a clockwise direction, and does not pay when the rotary member is rotated anti-clockwise. As no coin is inserted in the coin slot by the patron, provision must be made for something to take the place of the ten cent piece, twenty-five cent piece, or fifty cent piece, otherwise the primary slide 66 through the detector fingers will cause the auxiliary slide 93 to move downwardly, and this would allow the stop slide 64 to move downwardly into the path of the stops 62, and, therefore, the turnstile could not be rotated to allow the patron to pass out. This dropping of the stop slide 64 and placing it in locking position is accomplished by the auxiliary slide 93 moving downwardly. The said slide 93 has an arm 186 rigidly fastened thereto, see Fig. 23. This arm projects laterally from the slide 93 and then downwardly at its outer end and in this downwardly projecting outer end there is provided a slot 187 into which a pin 188 projects. The pin 188 is fastened to and projects laterally from the stop slide 64, and said pin normally rests upon a latch 189 which is pivoted at 190 to the arm 186 on the auxiliary slide 93.

Assuming, therefore, that the auxiliary slide is carried downwardly by the primary slide through the detector fingers, or through the detector slide, or both, then the latch 189 and the auxiliary slide will move downwardly together, and the stop slide will thus be allowed to drop into the path of one of the stops 62.

The latch 189 in this mechanism is provided for the purpose of dropping the stop slide in alignment with the rear edge of the stop 62 just as soon as it passes the stop slide 64 during the rotation of the turnstile, and the object of this invention is to prevent a patron moving the turnstile around sufficiently for himself to pass through, but not to an entire quarter turn and then pushing the turnstile backwardly and allowing another patron to pass through without paying a fare. The latch 189 is operated to rock on its pivot and allow the pin 188 to drop to the bottom of the slot 187, and so allow the stop slide 64 to drop in alignment with one of the stops 62 upon its rear side by the primary slide which, at a certain time in its downward movement, is properly timed to drop the stop slide after one of the stops 62 has just passed it, by reason of the pivot 102 of the lever 101 mounted on the primary slide striking the horizontal portion 189' of the latch and causing the same to tip in the proper direction to allow the pin 188 to drop downwardly in the slot 187, and thus allow

the stop slide 64 to drop a short distance into the path of one of the stops 62 upon the rear side of the same. It will be seen by reference to Fig. 3 that the lower end of the stop slide 64 is normally just cleared by the stops 62 during the rotation of the rotary member 45, so that the dropping of the stop slide 65 a short distance, as hereinbefore set forth, is sufficient to bring the lower end of the stop slide into the path of rotation of the stops 62, and therefore, prevent the rotary member from being turned backward, as hereinbefore set forth.

When the latch 189 is disengaged from the pin 188, it is held in that position by friction.

Upon the return movement of the primary slide to its normal position, a tooth 191 on said latch 189 is engaged by the pivot 102 of the lever 101, and as this pivot is fast to the primary slide, the upward movement of the primary slide through said pivot engaging the tooth 191 will tip the latch back to its normal position, and this will raise the pin 188 away from the bottom of the slot 187 and will raise the stop slide 64 out of the path of the stops 62.

In order, therefore, that the stop slide 64 shall not operate as hereinbefore described to stop the rotation of the turnstile, the detector fingers are held out of engagement with the teeth 94, 95 and 96 on the stop plate 92 during the downward movement of the primary slide, and this is accomplished by the detector slide 97 and by a coin replacement slide 192. A reciprocatory movement is imparted to the coin replacement slide 192 in order to bring it forwardly or toward the left, Fig. 6, to contact with the detector finger 73 by a slide 193, Figs. 4 and 6. An arm 194 is pivoted at 195 to the upper end of this slide and a spring 196 allows the arm 194 to yield when subjected to abnormal pressure. The arm 194 is provided with an inclined slot 197 into which a pin 198, fast to the slide 192 projects, so that it will be seen that a reciprocatory movement imparted to the slide 193 will impart a reciprocatory movement to the coin replacement slide 192. This reciprocatory movement is imparted to the slide 193 by an arm 199 which is pivoted at 200, to the lower end of said slide 193 and is held normally in a vertically depending position, as illustrated in Figs. 4, 6 and 8 by a spring 201, one end of which is connected to the arm 199 and the other to the slide 193. The arm 199 hangs downwardly when in its normal position in the path of a series of cam plates 202 which are fastened to the bevel gear 61 which is fast to the rotary member 45. The arm 199 hangs between two horizontal stop members 203 and 204, and these stop members are provided respectively with notches 205 and 206, see Figs. 7 and 8.

The horizontal stop members 203 and 204 are rotatably mounted in brackets 207 and 208 respectively which are fastened to the frame of the machine. Each of the stop members 203 and 204 are provided at their inner ends with a flange 209 and are encircled by springs 210 bearing against said flanges, and tending to move the stop members 203 and 204 backwardly in their respective brackets. The stop members 203 and 204 are provided with laterally extending pins 211 and 212 respectively, and these pins may be positioned by turning the stop members so as to enter slots 213 and 214 in the bracket 207 and 215 and 216 in the bracket 208.

In the present case, the stop members 203 and 204 are positioned in a manner hereinbefore described as illustrated in Figs. 7 and 8, so that the arm 199 can swing toward the left when one of the cam plates 202 engages the same, and the turnstile is being rotated to allow the patron to enter because the said arm can swing into the notch 205 when it is positioned, as shown in Fig. 8, but when the turnstile is turned in the opposite direction, and one of the cam plates 202 engages the arm, the said arm cannot swing because it cannot move into the notch 206 on its respective stop member 204, consequently the cam plate upon being further advanced, will push against the arm 199 and the result will be that the arm will move upwardly and thus move the slide 193 upwardly and through the slotted arm 194. The coin replacement slide 192 will be moved toward the left, Fig. 6, and the end of the coin replacement slide will be advanced into the coin slot, and will replace a coin in so far as the finger 73 is concerned. The other fingers will be taken care of by the detector slide 97 so that the primary slide will be allowed to descend without operating the auxiliary slide in the same manner as though a coin had been inserted in the coin slot, and during the downward movement of the primary slide the V-shaped projection on the back of the detector slide will pass through a V-shaped slot 217 so that the auxiliary slide will not be moved downwardly by the V-shaped projection. This slot may be termed a pass slot. At the same time the slide 115 which engages the different slides for operating the change making mechanism will be passed beyond those slides and will not operate the change-making mechanisms to deliver any coin.

#### *Counter mechanism.*

When the turnstile is operated to turn in a clockwise direction by the patron as he enters the passageway in "Operation No. 1," as has been hereinbefore described, a coin is deposited by the patron in the coin slot and in order to register each ten cent fare which has been deposited in the apparatus as here-

inbefore described, a counter mechanism 218 of well known construction is provided, and this counter mechanism is operated by an arm 219 thereon which is rocked by a link 220 pivotally connected thereto and extending downwardly to a spring actuated lever 221 pivoted to a stud 222 fast to the frame of the machine. An arm 223 on the lever 221 has a depending arm 224 pivoted thereto at 225, see Figs. 4, 6, 7 and 8. This arm is held normally in a vertical position by a spring 226, and is in alignment with notches 227 and 228 in the stop members 203 and 204 respectively. When the turnstile is being operated in the direction of the arrow *a*, the arm 224 will be engaged by any one of a series of cam plates 229 which are fastened to the bevel gear 61 and the arm 224 cannot swing into its notch 227 so that said arm will be moved upwardly and will rock the lever 221 to move the link 220 downwardly, thus rocking the arm 219 and operating the counter mechanism 218 to register a fare.

When the turnstile is moved in the opposite direction in "Operation No. 1," there is no fare to be recorded, and this is accomplished by the arm 224 when engaged by one of the cam plates 229 swinging into its notch 228 and then no motion will be imparted to the counter operating mechanism.

#### *Operation No. 2.*

In this operation the patron pays when going out, but does not pay when passing in. The relative positions of the stop members 203 and 204, under these conditions, are manually positioned as illustrated in Fig. 9, that is, the stop member 203 is positioned so that the arm 199 cannot swing into the notch 205, and, therefore, the different parts will be operated as hereinbefore set forth in relation to Fig. 8, that is, the coin replacement slide will be operated by the slide 193 being moved upwardly. During this part of the operation, the turnstile is being moved in the direction of the arrow *a*. When the patron passes out, the turnstile will be operated in the opposite direction of the arrow *a*, or in the direction of the arrow *b*, Fig. 9, and in this case the arm 199 can move into the slot 206 when it is rocked on its pivot by one of the cam plates 202, the patron having placed a coin in the coin slot, either a ten, twenty-five or a fifty cent piece, and the change will be returned to him as hereinbefore described, in "Operation No. 1." At the same time the stop members 203 and 204 are so positioned that the notches 227 and 228 are positioned as in Fig. 9, and, therefore, in going in the arm 224 will be rocked into the notch 227 on the stop member 203, therefore the counter mechanism will not be operated when said arm 224 is rocked on its pivot by one of the cam plates 229, but in moving in the other direction, that is, in the

direction of the arrow *b*, Fig. 9, when the patron is passing out, he having deposited a coin in the coin slot, the arm 224 cannot rock on its pivot, therefore when engaged by one of the cam plates 229 it will be moved upwardly and operate the counter mechanism in a manner hereinbefore described in relation to "Operation No. 1," and if the coin is a ten cent piece, no change will be returned, and if it is a twenty-five cent piece, fifteen cents will be returned, and if a fifty cent piece, forty cents will be returned.

During "Operation No. 2" the chute 147 is tipped by means of the handle 151 to the position illustrated in dotted lines in Fig. 3 so that the change will pass from the chute 147 to the chute 148 and thence will roll down into the pocket 35. At the same time the rocker arm 224 when engaged by one of the cam plates 229 cannot rock on its pivot, therefore it will move upwardly and operate the counter to register a fare.

#### Operation No. 3.

In this operation the apparatus is set so that the patron is obliged to pay when coming in, and also when going out. In order to set the machine for this operation, the stop members are manually positioned as illustrated in Fig. 11, and when in this position the arm 199 can swing in either direction because it is in alignment with its respective notches in the stop members 203 and 204, therefore the replacement slide will not be operated.

The counter mechanism, however, will be operated because its respective notches 227 and 228 in the stop members 203 and 204 are out of alignment with the arm 224 and, therefore, the mechanism operated by the arm 224 as it is moved up by the cam plates 229 will operate the counter. The change-making mechanism in this instance will operate as hereinbefore described, the stop slide 64, in this instance, will not be operated to stop the rotation of the turnstile, but it will stop the rotation of the turnstile in the opposite direction from which the patron is moving, both when he is going in, and when he is coming out.

#### Operation No. 4.

In this operation the apparatus is set so that the turnstile may be operated clockwise, or anti-clockwise without the patron depositing the fare, and this is accomplished by setting the stop members 203 and 204 in the positions illustrated in Fig. 10. Under these conditions the arm 199 cannot swing in either direction when it is engaged by one of the cam plates 202, therefore the operation of the different mechanisms will be as hereinbefore described in relation to the replacement slide. The arm 199 will be obliged to move upwardly, together with the slide

193 which operates the replacement slide, thus taking the place of a coin deposited in the coin slot. On the other hand, the arm 224 will be free to swing on its pivot in either direction, entering the slots 227 and 228 of the stop members 223 and 224, and, therefore, when this arm is engaged by one of the cam plates 229, the counter mechanism will not be operated, as the patron has deposited no fare when passing in either direction.

#### Operation No. 5.

*Coin ejecting mechanism.*—In this case the patron inserts a coin in the coin slot which is not of predetermined diameter and thickness, namely in this particular embodiment of my invention, a coin other than a ten cent piece, a twenty-five cent piece, or a fifty cent piece, or the patron inserts in the coin slot a spurious coin, or what is known as a slug, which is not of the same diameter and thickness as a ten cent piece, a twenty-five cent piece or a fifty cent piece, in either of which instances the apparatus operates to eject the coin or slug, and also operates to prevent the patron from rotating the turnstile so as to enter, or so as to pass out of the car, station or in any other place in which the apparatus may be installed.

The mechanism whereby this result is attained will now be described. If the coin deposited in the slot is different in its thickness from that of a ten cent piece, twenty-five cent piece or fifty cent piece, or if the coin is thinner than any one of these pieces, the detector fingers 73, 74 and 75, or one of them, will move inwardly at their inner ends, somewhat in the manner illustrated in Fig. 15, and the lower ends of said ejector fingers will then engage the plate 92, and upon further movement downwardly of the primary slide, the auxiliary slide will be carried with it and an arm 230, which is rigidly fastened thereto, and at the outer end of which is provided a cam slot 231 into which a pin 232 projects, see Figs. 17, 18 and 23. The pin 232 is fastened to a crank 233 which, in turn, is fastened to a rock shaft 234 mounted in the frame of the machine. To the opposite end of the rock shaft 234 a gate 235 is fastened, and this gate projects into the auxiliary coin slot 72, therefore when the auxiliary slide moves downwardly, it will tip the gate 235 from the position illustrated in full lines in Fig. 17 to the position illustrated in dotted lines therein, and this will prevent the slug, or coin other than a ten cent piece, a twenty-five cent piece, or a fifty cent piece from passing further downward in the slot 72 and it will be diverted onto the chute 236 and out of the machine.

When the auxiliary slide is thus moved downwardly by the ejector fingers and the

primary slide, the stop slide 64 will be operated as hereinbefore described to stop the rotation of the turnstile. The auxiliary slide after it has been moved downwardly as hereinbefore described is returned to its initial position by the crank 67 against the outer edge of which the lower end of the auxiliary slide bears as illustrated in Figs. 6 and 23.

If the slug, spurious coin, or coin other than a coin of predetermined dimensions, is of the same thickness as a coin of predetermined diameter and thickness, such for example, as the ten cent piece, 25 cent piece, or 50 cent piece, but of a different diameter than any one of those coins, then when the forward end of the detector slide 97 contacts with the edge of said coin in the coin slot, the V-shaped projection 111 on the back of the detector slide will not align with any of the V-shaped recesses in the detector slide stop 113. Therefore, when the detector slide is moved downwardly by the downward movement of the primary slide the V-shaped projection will abut against the top of the detector slide stop 113 and this will move the auxiliary slide 93 downwardly, which will cause the locking stop slide 64 to be lowered into the path of the stops 62 on the rotary member 45 and prevent said rotary member from being rotated by the arms of the turnstile beyond a predetermined angle. At the same time the slug or spurious coin will be returned by reason of the primary slide delivering the coin from the coin slot 63 to the auxiliary coin slot 72 which, it is understood, forms a continuation of the coin slot 63, and the gate 235 will be operated as hereinbefore described to guide the coin out of the machine. The counter mechanism will not be operated for the reason that the rotary member has not been rotated to a sufficient extent to cause it to be operated.

#### *Operation No. 6.*

In this operation a five cent fare is supposed to be deposited in the machine, in which case the detector slide 97 will position the slide 115 in alignment with a vertical plate 237, which, when the fare is five cents, can be removed from the machine or lowered down sufficiently to be out of engagement with the slide 115 when said slide is positioned by the detector slide abutting against the periphery of a five cent piece located in the coin slot. At this time the V-shaped projection 111 will be in alignment with a V-shaped recess 238 in the plate 113 and the different parts of the mechanism will operate to deposit the five cent coin in the receptacle 77 as hereinbefore described in relation to the ten cent coin. The change-operating mechanism will not be operated and the counter mechanism will be operated.

If, on the contrary, the vertical plate 237 is positioned in the machine, as illustrated in Figs. 20 and 23, then when a five cent piece is deposited in the coin slot, the operation is just the same as hereinbefore described, except that when the slide 115 is carried downwardly by the primary slide, it will engage the upper end of the vertical plate 237 which is fastened to the arm 186 on the auxiliary slide 93 so that upon further downward movement of the primary and auxiliary slides, the stop slide 64 will be dropped to engage one of the stops 62 as hereinbefore described, and the gate 235 will be rocked to the position illustrated in dotted lines, Fig. 17, and the five cent piece will be ejected from the machine. The coin change mechanism will not be operated because the slide 115 will not be in alignment with any of the lateral projections 123', 124' and 125' on the slides 123, 124 and 125 which operate the change mechanisms. The counter mechanism will not be operated because the turnstile is stopped from rotating to a sufficient extent to bring one of the cam plates 229 in engagement with the arm 224.

The machine of this invention has a lock adapted to be set manually to lock the turnstile when the patron has turned it a little over 45° so that the turnstile can be moved neither backwardly nor forwardly, and the patron will be trapped in between two of the arms of the turnstile and the side rail 31. This device is used to trap persons who through ignorance or otherwise try to pass through the turnstile without paying a fare, or by depositing a spurious coin, or slug, in the coin slot.

This locking mechanism consists of a bolt 239 which is slidably mounted in a bracket 240 and actuated by a spring 241. The inner end of the bolt 239 is bevelled at 242, and the outer end is provided with a cross pin 243 adapted to enter notches 244 in the bracket 240 when the device is in operation, and to enter notches 245 in the bracket 240 when the device is out of operation and the bolt drawn back.

The operation of this device is as follows: As hereinbefore described, a spurious coin, or a slug, is deposited in the coin slot. It is ejected from the machine and the stop slide 64 is dropped to engage one of the stops 62. At this time the bolt 239 will be forced forwardly by the spring 241 to enter the groove 47 in the collar 46, that is, assuming that the turnstile is being turned in a clockwise direction, thus the turnstile will be locked against rotation by the stop slide 64 in one direction, and by the bolt 239 in the opposite direction. The groove 47 is operative for this purpose when the turnstile is being rotated for a patron in a clockwise direction. When it is being rotated by a patron in an anti-clockwise direction, the bolt 239 is manually

drawn back and rotated 180° and then released to allow it to enter the notches 244, whereupon the same operation for locking the patron between the arms of the turnstile and the side rail 31 will be effective when the turnstile is rotating in an anti-clockwise direction and the patron has dropped a spurious coin or slug in the coin slot. In either instance, if the patron deposits a coin of the right denomination, as for example, a ten cent piece, a twenty-five cent piece, or a fifty cent piece, or any coin which will not cause the stop slide 64 to be allowed to drop, the turnstile will operate to allow the patron to enter, or pass out, as the case may be, because the bevelled end of the bolt 239 will allow the same to be forced back by the rear edge of the notch 47, or of the notch 47', as the case may be.

It will be understood that the patron is trapped, as hereinbefore set forth, by the stop slide 64 preventing the turnstile from rotating in one direction, and the bolt 239 simultaneously preventing it from being rotated in the opposite direction.

In order that the turnstile shall be capable of being operated while the coin tubes are being removed therefrom and replaced by others filled with coins, the coin tube 141, which is a duplicate as to this feature of construction of the other coin tubes, is provided with a pair of spring actuated pawls 246, see Fig. 28, pivoted at 247 to the tube 141. The lower ends of the pawls project into slots 248 provided in the lower end of the tube 141, and thus prevent the coins when they are placed in the tube 141 from falling out of the lower end thereof. The plate 136 is provided with a base 249 for the coin tube. This base has a short tube 250 positioned therein which is of the same diameter as the coin tube 141. The upper end of the base 249 is bevelled at 251. It will thus be seen that when the coin tube 141 is lowered down upon the base 249, the tube 141 will enter the base 249 and its lower edge will abut against the upper end of the tube 250, thus making a continuous tube for the feeding of the coin downwardly to the coin slide 135. When the coin tube is attached to the base 249 in this manner, the pawls 246 engage the bevelled upper edge of the base 249 and are forced outwardly, thus disengaging the coins in the tube 141 and allowing them to drop down to the bottom of the tube 250. This construction enables the turnstile to continue in operation while the coin tubes are being removed therefrom when empty, and attached thereto when refilled.

It will be understood that in the apparatus of this invention the stop slide 64, which stops the rotation of the rotary member 45, is normally held out of the path of the stops 62 on said rotary member by the auxiliary

slide 93, and the latch 189 pivoted thereto, and when it is desired to lock the rotary member against rotation, it is accomplished by bodily lowering the auxiliary slide and its latch, or by tipping the latch by means of the primary slide, and thus allowing the stop slide 64 to be lowered into the path of the stops 62.

In my other application, Serial No. 685,581, the stop slide was normally positioned in the path of the stops on the rotary member, and when it was desired that the rotary member should not be stopped, this stop slide was moved upwardly out of the path of the stops.

In the claims the slide 115 is termed a change mechanism actuating slide.

The general operation of the mechanism hereinbefore described is as follows:

#### *Operation No. 1.*

If the fare is ten cents, the stop members 203 and 204 are set as illustrated in Fig. 8, and the coin is deposited when the patron enters the car, station or other place. The turnstile is rotated in the direction of the arrow *a*, Figures 1 and 8, that is, in a clockwise direction.

If the ten cent fare is deposited, the turnstile can be rotated in the clockwise direction, and when rotated about 45° will be locked against return movement and no change will be delivered to the patron, and the counter mechanism is operated to indicate a fare, all in a manner hereinbefore described.

If a twenty-five cent piece or a fifty cent piece is deposited, the same operation and result is obtained, except that fifteen cents is returned to the patron in the case of the twenty-five cent piece, and forty cents is returned in the case of the fifty cent piece.

In the case of a split fare, so called, as for example, seven cents, when the ten cent piece is deposited, or the twenty-five cent piece, or the fifty cent piece, the difference is returned to the patron, between such coin as he deposits and seven cents, as hereinbefore described.

In this operation the primary slide moves but the auxiliary slide does not move, and if any coin, slug, or spurious coin, other than a ten cent piece, a twenty-five cent piece, or a fifty cent piece is deposited, it will be ejected from the machine, and the patron cannot pass through, this result being attained by the movement of the auxiliary slide through the detector fingers, or the detector slide and the stop slide will be operated to prevent the patron from passing through.

If the fare is five cents, the vertical plate 237 is removed or lowered from the position shown in the drawings, and the apparatus can then be operated by any one depositing a five cent piece, a ten cent piece, a twenty-



five cent piece, and a fifty cent piece, and the difference between the coin deposited and the fare will be returned to the patron.

In this operation, under all the conditions hereinbefore set forth, the patron can return, rotating the turnstile in an anti-clockwise direction, without payment of a fare.

#### *Operation No. 2.*

In this instance the patron can pass outwardly through the passageway upon depositing a coin in the coin slot of a predetermined thickness and diameter and can pass inwardly without depositing a coin. To enable this to be done the stop members are set as in Fig. 9, and the apparatus will then be capable of being operated to produce the same results as hereinbefore set forth in relation to operation No. 1, except that the proper coin must be deposited in order to turn the turnstile in an anti-clockwise direction, and it is not necessary to deposit any coin to rotate the turnstile in a clockwise direction.

#### *Operation No. 3.*

In this operation the stop members are set as illustrated in Fig. 11, in which case the patron pays to enter and also pays on exit, so that the patron must pay in order to be able to rotate the turnstile in a clockwise direction and also pay to be able to rotate the turnstile in an anti-clockwise direction.

#### *Operation No. 4.*

In this operation the stop members are set as illustrated in Fig. 10 and the patron is then free to pass in either direction and to rotate the turnstile in a clockwise or in an anti-clockwise direction without payment.

In each of the different operations 1, 2 and 3, if the patron inserts a spurious coin, or a slug, or such article, the turnstile will be locked against rotation, and the patron cannot pass through. In such instance also, the patron may be locked between two arms of the turnstile and the side rail of the passageway by the locking mechanism hereinbefore described.

It will be understood that the downward movement of the auxiliary slide will perform the following functions:—

1. Rock the gate 235 to cause a slug, spurious coin, or coin other than a coin of predetermined dimensions to be ejected from the machine.

2. Lower the locking slide into the path of the rotary member to prevent rotation of the same beyond a predetermined angle.

3. Operate mechanism to cause the change making actuating slide to retreat out of alignment with the change making mechanism.

The auxiliary slide may be moved down by—

1st. The primary slide and the detector fingers thereon.

2d. By the primary slide and detector slide thereon.

3d. By the primary slide and detector slide thereon, and by the change making actuating slide when the plate 237 is positioned to be engaged by said change making auxiliary slide as in the case of a five cent fare being deposited when the fare is ten cents.

I claim:

1. A coin controlled turnstile apparatus provided with a coin slot and having, in combination, a rotary member, locking means normally positioned out of the path of rotation of said rotary member, and mechanism rendered operable by the rotation of said rotary member through a predetermined angle to position said locking means in the path of rotation of the rotary member and prevent said rotary member from being rotated beyond said predetermined angle.

2. A coin controlled turnstile apparatus provided with a coin slot and having, in combination, a rotary member, locking means, and mechanism rendered operable by the insertion of a coin of predetermined thickness and diameter in said coin slot and by the rotation of said rotary member through a predetermined angle in one direction to actuate said locking means to prevent said rotary member from being rotated in the opposite direction.

3. A coin controlled turnstile apparatus provided with a coin slot and having, in combination, a rotary member, locking means, and mechanism rendered operable by the insertion of an article other than a coin of predetermined thickness and diameter in said coin slot and by the rotation of said rotary member through a predetermined angle to actuate said locking means to prevent said rotary member from being rotated beyond said predetermined angle.

4. A coin controlled turnstile apparatus provided with a coin slot and having, in combination, a rotary member, locking means, mechanism rendered operable by the rotation of said rotary member through a predetermined angle to actuate said locking means to prevent said rotary member from being rotated beyond said predetermined angle, and a coin replacement mechanism operable by the rotation of said rotary member to prevent said locking means from being actuated as aforesaid whereby said rotary member may be rotated beyond said predetermined angle.

5. A coin controlled turnstile apparatus provided with a coin slot and having, in combination, a rotary member, locking means,

and mechanism rendered operable by the rotation of said rotary member through a predetermined angle to actuate said locking means to prevent said rotary member from being rotated in one direction beyond said predetermined angle, and a coin replacement mechanism operable by the rotation of said rotary member in one direction to prevent said locking means from being actuated as aforesaid, whereby said rotary member may be rotated beyond said predetermined angle, said mechanism being operable to then actuate said locking means to prevent the rotary member from being rotated in the reverse direction beyond said predetermined angle.

6. A coin controlled turnstile apparatus provided with a coin slot, and having, in combination, a rotary member, locking means normally positioned out of the path of rotation of said rotary member, and mechanism rendered operable by the rotation of said rotary member through a predetermined angle to position said locking means in the path of rotation of the rotary member and prevent said rotary member from being rotated beyond said predetermined angle, the mechanism for positioning said locking means being rendered inoperable for the purpose aforesaid by the insertion of a coin of predetermined thickness and diameter in said coin slot.

7. A coin controlled turnstile apparatus provided with a coin slot and having, in combination, a rotary member, locking means normally positioned out of the path of rotation of said rotary member, mechanism rendered operable by the rotation of said rotary member through a predetermined angle to position said locking means in the path of rotation of the rotary member and prevent said rotary member from being rotated beyond said predetermined angle, and a lock operable to lock said rotary member against return movement at the termination of its rotation through said predetermined angle.

8. A coin controlled turnstile apparatus provided with a coin slot and having, in combination, a rotary member, locking means, mechanism rendered operable by the insertion of an article other than a coin of predetermined thickness and diameter in said coin slot and by the rotation of said rotary member through a predetermined angle to actuate said locking means to prevent said rotary member from being rotated beyond said predetermined angle, and a lock operable to lock said rotary member against return movement at the termination of its rotation through said predetermined angle.

9. A coin controlled turnstile apparatus provided with a coin slot and having, in combination, a rotary member, a plurality of stops thereon, a locking slide normally positioned out of the path of rotation of said rotary member, and mechanism rendered op-

erable by the rotation of said rotary member through a predetermined angle to cause said locking slide to be moved into the path of said stops and prevent said rotary member from being rotated beyond said predetermined angle.

10. A coin controlled turnstile apparatus provided with a coin slot and having, in combination, a rotary member, a plurality of stops thereon, a locking slide, and mechanism rendered operable by the insertion of a coin of predetermined thickness and diameter in said coin slot and by the rotation of said rotary member through a predetermined angle in one direction to cause said locking slide to be moved into the path of said stops and prevent said rotary member from being rotated in the opposite direction beyond said predetermined angle.

11. A coin controlled turnstile apparatus provided with a coin slot and having, in combination, a rotary member, a plurality of stops thereon, a locking slide, and mechanism rendered operable by the insertion of an article other than a coin of predetermined thickness and diameter in said coin slot and by the rotation of said rotary member through a predetermined angle to cause said locking slide to be moved into the path of said stops and prevent said rotary member from being rotated beyond said predetermined angle.

12. A coin controlled turnstile apparatus provided with a coin slot and having, in combination, a rotary member, a plurality of stops thereon, a locking slide, and mechanism rendered operable by the rotation of said rotary member through a predetermined angle to cause said locking slide to be moved into the path of said stops to prevent said rotary member from being rotated beyond said predetermined angle, and a coin replacement mechanism operable by the rotation of said rotary member to prevent said locking means from being actuated as aforesaid, whereby said rotary member may be rotated beyond said predetermined angle.

13. A coin controlled turnstile apparatus provided with a coin slot and having, in combination, a rotary member, a plurality of stops thereon, a locking slide, and mechanism rendered operable by the rotation of said rotary member through a predetermined angle to cause said locking slide to be moved into the path of said stops to prevent said rotary member from being rotated beyond said predetermined angle, and a coin replacement mechanism operable by the rotation of said rotary member to prevent said locking means from being actuated as aforesaid, whereby said rotary member may be rotated beyond said predetermined angle in one direction, said mechanism being then operable to move said slide into the path of said stops to prevent the rotary member



from being rotated in the reverse direction beyond said predetermined angle.

14. A coin controlled turnstile apparatus provided with a coin slot and having, in combination, a rotary member, a plurality of stops thereon, a locking slide normally positioned out of the path of rotation of said rotary member, and mechanism rendered operable by the rotation of said rotary member through a predetermined angle to cause said locking slide to be moved into the path of said stops and prevent the rotation of said rotary member beyond said predetermined angle, the mechanism for causing said locking slide to be moved into the path of said stops being rendered inoperable for the purpose aforesaid by the insertion of a coin of predetermined thickness and diameter in said coin slot.

15. A coin controlled turnstile apparatus provided with a coin slot and having, in combination, a rotary member, a plurality of stops thereon, a locking slide, a primary slide, a detector finger pivoted on said primary slide, an auxiliary slide normally holding said locking slide out of the path of said stops and mechanism operable by the rotation of said rotary member through a predetermined angle to move said primary slide downwardly and allow said detector finger to move into said coin slot and also to engage said auxiliary slide and move it downwardly, whereby said locking slide will be moved into the path of said stops and said rotary member prevented from being rotated beyond said predetermined angle.

16. A coin controlled turnstile apparatus provided with a coin slot and having, in combination, a rotary member, a plurality of stops thereon, a locking slide, a primary slide, a detector finger pivoted thereon, an auxiliary slide, a latch pivoted thereto and normally holding said locking slide out of the path of said stops, and mechanism operated by the rotation of said rotary member through a predetermined angle in one direction to move said primary slide downwardly and allow said detector finger to move into said coin slot and into engagement with a coin of predetermined thickness and diameter positioned therein, the downward movement of said primary slide causing the same to engage said latch and move it, whereby said locking slide will be moved into the path of said stops and prevent said rotary member from being rotated in the reverse direction beyond said predetermined angle.

17. A coin controlled turnstile apparatus provided with a coin slot and having, in combination a rotary member, a plurality of stops thereon, a locking slide, a primary slide, a detector finger pivoted on said primary slide, an auxiliary slide normally holding said locking slide out of the path of said stops, mechanism operable by the rotation of

said rotary member through a predetermined angle to move said primary slide downwardly and allow said detector finger to move into said coin slot and also to engage said auxiliary slide to move it downwardly, whereby said locking slide will be moved into the path of said stops and said rotary member prevented from being rotated beyond said predetermined angle, and a coin replacement mechanism operable by the rotation of said rotary member to prevent said locking slide from being actuated as aforesaid, whereby said rotary member may be rotated beyond said predetermined angle.

18. A coin controlled turnstile apparatus provided with a coin slot and having, in combination, a rotary member, a plurality of stops thereon, a locking slide, a primary slide, a detector finger pivoted on said primary slide, an auxiliary slide normally holding said locking slide out of the path of said stops, and mechanism operable by the rotation of said rotary member through a predetermined angle to move said primary slide downwardly and allow said detector finger to move into said coin slot and also to engage said auxiliary slide and move it downwardly, whereby said locking slide will be moved into the path of said stops and said rotary member prevented from being rotated beyond said predetermined angle, and a coin replacement mechanism operable by the rotation of said rotary member in one direction to prevent said locking means from being actuated as aforesaid, whereby said rotary member may be rotated beyond said predetermined angle, said first named mechanism being operable to then actuate said locking means to prevent the rotary member from being rotated in the reverse direction beyond said predetermined angle and prevented from being rotated in the reverse direction.

19. A coin controlled turnstile apparatus provided with a coin slot and having, in combination, a rotary member, a plurality of stops thereon, a locking slide, a primary slide, a detector finger pivoted on said primary slide, an auxiliary slide normally holding said locking slide out of the path of said stops, and mechanism operable by the rotation of said rotary member through a predetermined angle to move said primary slide downwardly and allow said detector finger to move into said coin slot and also to engage said auxiliary slide and move it downwardly, whereby said locking slide will be moved into the path of said stops and said rotary member prevented from being rotated beyond said predetermined angle, the mechanism for causing said locking slide to move into the path of said stops being rendered inoperable for the purpose specified by the insertion of a coin of predetermined thickness and diameter in said coin slot.

20. A coin controlled turnstile apparatus provided with a coin slot and having, in combination, a rotary member, a coin receptacle, a primary slide forming a support for a coin of predetermined thickness inserted in said coin slot, a detector finger pivoted on said primary slide, and a spring operating to hold said finger in engagement with one face of said coin, and mechanism operable by the rotation of said rotary member to move said primary slide downwardly and lower said coin into alignment with a continuation of said coin slot, into which said coin may be ejected by said detector finger and whereby it may be delivered into said receptacle.

21. A coin controlled turnstile apparatus provided with a coin slot and having, in combination, a rotary member, a coin receptacle, a primary slide forming a support for a coin other than a coin of predetermined thickness inserted in said coin slot, a detector finger pivoted on said primary slide, and a spring operating to hold said finger in engagement with one face of said coin, mechanism operable by the rotation of said rotary member to move said primary slide downwardly and lower said coin into alignment with a continuation of said coin slot, into which said coin may be ejected by said ejector finger and whereby said ejector finger may engage said auxiliary slide and move it downwardly with said primary slide, and a gate movable into said continuation of the coin slot by the downward movement of the auxiliary slide, whereby said coin may be ejected from the coin slot and prevented from entering the coin receptacle.

22. A coin controlled turnstile apparatus provided with a coin slot and having, in combination, a rotary member, a coin receptacle, a primary slide forming a support for a coin other than a coin of predetermined diameter inserted in said coin slot, a detector slide mounted on said primary slide and adapted to engage the periphery of said coin, mechanism operable by the rotation of said rotary member to move said primary slide downwardly, whereby said detector slide will be brought into engagement with said auxiliary slide and move it downwardly, and a gate movable into a continuation of the coin slot by the downward movement of said auxiliary slide, whereby said coin when ejected from said primary slide may be diverted out of said coin slot continuation.

23. A coin controlled turnstile provided with a coin slot and having, in combination, a rotary member, locking means normally positioned to allow said rotary member to be rotated beyond a predetermined angle in one direction, and mechanism rendered operable by the depositing of a coin of predetermined dimensions in said coin slot, and by the rotation of said rotary member to operate said

locking means to prevent said rotary member, after being rotated through said predetermined angle, from being rotated in the opposite direction.

24. A coin controlled turnstile apparatus provided with a coin slot and having, in combination, a rotary member, locking means to prevent said rotary member from being rotated beyond a predetermined angle, said locking means being normally positioned out of the path of rotation of said rotary member to allow said rotary member to be rotated beyond said predetermined angle, and mechanism rendered operable by the deposit of a coin of predetermined dimensions in said coin slot and by the rotation of said rotary member through an angle greater than said predetermined angle to feed said coin from said coin slot to a coin receptacle in said apparatus.

25. A coin controlled turnstile apparatus provided with a coin slot and having, in combination, a rotary member, locking means to prevent said rotary member from being rotated beyond a predetermined angle, said locking means being normally positioned out of the path of rotation of said rotary member to allow said rotary member to be rotated beyond said predetermined angle, mechanism rendered operable by the deposit of a coin of predetermined dimensions in said coin slot and by the rotation of said rotary member through an angle greater than said predetermined angle to feed said coin from said coin slot to a coin receptacle in said apparatus, a counter, and mechanism operated by the rotation of said rotary member through said greater angle to operate said counter to register the deposit and retention in said machine of a coin.

26. A coin controlled turnstile apparatus provided with a coin slot and having, in combination, a rotary member, locking means to prevent said rotary member from being rotated beyond a predetermined angle, said locking means being normally positioned out of the path of rotation of said rotary member to allow said rotary member to be rotated beyond said predetermined angle, and mechanism operable by the rotation of said rotary member to operate said locking means to prevent the rotation of said rotary member beyond a predetermined angle.

27. A coin controlled turnstile apparatus provided with a coin slot and having, in combination, a rotary member, locking means to prevent said rotary member from being rotated beyond a predetermined angle, said locking means being normally positioned to allow said rotary member to be rotated beyond said predetermined angle, and mechanism rendered operable by the deposit of a coin of predetermined dimensions in said coin slot and by the rotation of said rotary

member through an angle greater than said predetermined angle to feed said coin from said coin slot to a coin receptacle in said apparatus, said mechanism also operating  
 5 said locking means to prevent said rotary member being rotated in a reverse direction beyond said predetermined angle after it has been rotated through an angle slightly greater than said predetermined angle.

10 28. A coin controlled turnstile apparatus provided with a coin slot and having, in combination, a rotary member and radially extending arms thereon constituting a turn-  
 15 stile, locking means to prevent said turnstile from being rotated beyond a predetermined angle, said locking means being normally positioned out of the path of rotation of said rotary member to allow said rotary  
 20 member to be rotated beyond said predetermined angle, and mechanism rendered operable by the deposit of a coin of predetermined dimensions in said coin slot and  
 25 by the rotation of said rotary member through an angle greater than said predetermined angle to feed said coin from said coin slot to a coin receptacle in said ap-  
 30 paratus, and means spaced apart from said apparatus to form a passageway across which one of said arms projects when said turn-  
 stile is in its normal position.

29. A coin controlled turnstile apparatus provided with a coin slot and having, in combination, a rotary member and radially  
 35 extending arms thereon constituting a turnstile, locking means to prevent said turnstile from being rotated beyond a predetermined angle, said locking means being normally  
 40 positioned out of the path of rotation of said rotary member to allow said rotary member to be rotated beyond said predetermined angle, mechanism rendered oper-  
 45 able by the deposit of a coin of predetermined dimensions in said coin slot and by the rotation of said rotary member through  
 50 an angle greater than said predetermined angle to feed said coin from said coin slot to a coin receptacle in said apparatus, means spaced apart from said apparatus to form  
 a passageway across which one of said arms projects when said turnstile is in its normal position, and means to automatically  
 55 position said turnstile with one of said arms projecting across said passageway.

30. A coin controlled turnstile apparatus  
 60 provided with a coin slot and having, in combination, a rotary member, locking means to prevent said rotary member from being rotated beyond a predetermined angle, said  
 locking means being normally positioned out of the path of rotation of said rotary member to allow said rotary member to be rotated beyond said predetermined angle,  
 65 mechanism rendered operable by the deposit of a coin of predetermined dimensions in

said coin slot and by the rotation of said  
 65 rotary member through an angle greater than said predetermined angle to feed said coin from said coin slot to a coin receptacle in said apparatus, and mechanism operated  
 70 by the rotation of said rotary member through said greater angle to eject from the apparatus change equal to the difference between the coin deposited in the coin slot and a fare of predetermined denomination.

31. A coin controlled turnstile apparatus  
 75 provided with a coin slot and having, in combination, a rotary member, locking means to prevent said rotary member from being rotated beyond a predetermined  
 80 angle, said locking means being normally positioned to allow said rotary member to be rotated beyond said predetermined angle, mechanism operated by the partial rotation  
 85 of said rotary member to eject from said coin slot and from a continuation thereof an article which has been deposited therein of dimensions other than those of a coin of  
 90 predetermined dimensions, and mechanism operable by the rotation of said rotary member to operate said locking means to prevent the rotation of said rotary member  
 beyond a predetermined angle.

32. A coin controlled turnstile apparatus provided with a coin slot and having, in combination, a rotary member, locking  
 95 means to prevent said rotary member from being rotated beyond a predetermined angle, said locking means being normally positioned to allow said rotary member to be rotated beyond said predetermined angle,  
 100 mechanism operated by the partial rotation of said rotary member to eject from said coin slot and from a continuation thereof an article which has been deposited therein of dimensions other than those of a coin of  
 105 predetermined dimensions, mechanism operable by the rotation of said rotary member to operate said locking means to prevent the rotation of said rotary member beyond  
 110 a predetermined angle, and means to automatically move said rotary member to its normal position after the partial manual rotation of the same has been discontinued.

33. A coin controlled turnstile apparatus provided with a coin slot and having, in  
 115 combination, a rotary member, locking means to prevent said rotary member from being rotated beyond a predetermined angle, said locking means being normally positioned to allow said rotary member to  
 120 be rotated beyond said predetermined angle, mechanism operated by the partial rotation of said rotary member to eject from said coin slot and from a continuation thereof a  
 125 disc-shaped article which has been deposited therein, with a diameter other than that of a coin of predetermined diameter, and mechanism operable by the rotation of said

rotary member to operate said locking means to prevent the rotation of said rotary member beyond a predetermined angle.

34. A coin controlled turnstile apparatus provided with a coin slot and having, in combination, a rotary member, locking means to prevent said rotary member from being rotated beyond a predetermined angle, said locking means being normally positioned to allow said rotary member to be rotated beyond said predetermined angle, mechanism operated by the partial rotation of said rotary member to eject from said coin slot and from a continuation thereof a disc-shaped article which has been deposited therein, of a thickness other than that of a coin of predetermined thickness, and mechanism operable by the rotation of said rotary member to operate said locking means to prevent the rotation of said rotary member beyond a predetermined angle.

35. A coin controlled turnstile apparatus provided with a coin slot and having, in combination, a rotary member, locking means to prevent said rotary member from being rotated beyond a predetermined angle, said locking means being normally positioned to allow said rotary member to be rotated beyond said predetermined angle, mechanism operated by the partial rotation of said rotary member to eject from said coin slot and the continuation thereof a disc-shaped article which has been deposited therein of a diameter and thickness other than those of a coin of predetermined diameter and thickness, and mechanism operable by the rotation of said rotary member to operate said locking means to prevent the rotation of said rotary member beyond a predetermined angle.

36. A coin controlled turnstile apparatus provided with a coin slot and having, in combination, a rotary member, locking means to prevent said rotary member from being rotated beyond a predetermined angle, said locking means being normally positioned to allow said rotary member to be rotated beyond said predetermined angle, and mechanism rendered operable by the deposit of any one of a plurality of coins of different predetermined dimensions in said coin slot and by the rotation of said rotary member through an angle greater than said predetermined angle to feed the coin so deposited from said coin slot to a receptacle in said apparatus.

37. A coin controlled turnstile apparatus provided with a coin slot and having, in combination, a rotary member, locking means to prevent said rotary member from being rotated beyond a predetermined angle, said locking means being normally positioned to allow said rotary member to be rotated beyond said predetermined angle, mechanism rendered operable by the deposit

of any one of a plurality of coins of different predetermined dimensions in said coin slot and by the rotation of said rotary member through an angle greater than said predetermined angle to feed the coin so deposited from said coin slot to a receptacle in said apparatus, and mechanism operated by the rotation of said rotary member through said greater angle to eject from the apparatus change equal to the difference between the coin deposited in the coin slot and the coin of predetermined denomination.

38. A coin controlled turnstile apparatus provided with a coin slot and having, in combination, a rotary member, locking means to prevent said rotary member from being rotated beyond a predetermined angle, said locking means being normally positioned to allow said rotary member to be rotated beyond said predetermined angle, and mechanism rendered operable by the deposit of a coin of predetermined dimensions in said coin slot and by the rotation of said rotary member through an angle greater than said predetermined angle to feed said coin from said coin slot to a coin receptacle in said apparatus, said rotary member being rotatable in the opposite direction through an angle greater than said predetermined angle.

39. A coin controlled turnstile apparatus provided with a coin slot and having, in combination, a rotary member, locking means to prevent said rotary member from being rotated beyond a predetermined angle, said locking means being normally positioned to allow said rotary member to be rotated beyond a predetermined angle in a clockwise or in an anti-clockwise direction, and mechanism rendered operable by the depositing of a coin of predetermined dimensions in said coin slot and by the rotation of said rotary member in a clockwise direction to feed said coin from said coin slot to a receptacle in said apparatus, said mechanism being rendered operable by the depositing of another coin of predetermined dimensions in said coin slot and by the rotation of said rotary member in an anti-clockwise direction to feed said last-named coin from said coin slot to a receptacle in said apparatus.

40. A coin controlled turnstile apparatus provided with a coin slot and having, in combination, a rotary member, locking means to prevent said rotary member from being rotated beyond a predetermined angle, said locking means being normally positioned to allow said rotary member to be rotated beyond a predetermined angle in a clockwise or in an anticlockwise direction, mechanism rendered operable by the depositing of a coin of predetermined dimensions in said coin slot, and by the rotation of said rotary member in a clockwise direc-

tion to feed said coin from said coin slot to a receptacle in said apparatus, said mechanism being rendered operable by the depositing of another coin of predetermined dimensions in said coin slot and by the rotation of said rotary member in an anti-clockwise direction to feed said last-named coin from said coin slot to a receptacle in said apparatus, a counter, and mechanism operated by the rotation of said rotary member in a clockwise direction through said greater angle to operate said counter to register the deposit and retention in said machine of a coin, said mechanism being also operated by the rotation of said rotary member in an anti-clockwise direction through said greater angle to operate said counter to register the deposit and retention in said machine of a coin.

41. A coin controlled turnstile apparatus provided with a coin slot and having, in combination, a rotary member, a locking means to prevent said rotary member from being rotated beyond a predetermined angle, said locking means being normally positioned to allow said rotary member to be rotated beyond a predetermined angle in a clockwise or in anti-clockwise direction, and mechanism rendered operable by the depositing of a coin of predetermined dimensions in said coin slot and by the rotation of said rotary member in a clockwise direction to feed said coin from said coin slot to a receptacle in said apparatus, said mechanism being rendered operable by the depositing of another coin of predetermined dimensions in said coin slot and by the rotation of said rotary member in an anti-clockwise direction to feed said last-named coin from said coin slot to a receptacle in said apparatus, and mechanism operated by the rotation of said rotary member in a clockwise direction through a greater angle than said predetermined angle to eject from the apparatus change equal to the difference between the coin deposited in the coin slot and a fare of predetermined amount, said last-named mechanism being also operable by the rotation of said rotary member in an anti-clockwise direction through said greater angle to eject from the apparatus change equal to the difference between the second coin deposited in the coin slot and a fare of predetermined amount.

42. A coin controlled turnstile apparatus provided with a coin slot and having, in combination, a rotary member, locking means to prevent said rotary member from being rotated beyond a predetermined angle, said locking means being normally positioned to allow said rotary member to be rotated beyond said predetermined angle, and a reciprocatory member adapted to be actuated by the partial rotation of said rotary member to operate said locking means to

prevent said rotary member from being rotated through a predetermined angle.

43. A coin controlled turnstile apparatus provided with a coin slot and having, in combination, a primary slide forming the bottom of said coin slot, a detector slide mounted upon said primary slide and adapted to be projected into said coin slot, mechanism to impart a vertical movement to said primary and detector slides, and means to move said detector slide transversely of said primary slide and into contact with the edge of a coin in said coin slot, said mechanism being adapted to move said primary slide downwardly and allow said coin to pass from said coin slot into a receptacle provided in said apparatus.

44. A coin controlled turnstile apparatus provided with a coin slot having, in combination, a rotary member, locking means to prevent said rotary member from being rotated beyond a predetermined angle, said locking means being normally positioned to allow said rotary member to be rotated beyond said predetermined angle, a primary slide forming the bottom of said coin slot, a detector slide mounted upon said primary slide and adapted to project into said coin slot, mechanism actuated by said rotary member to impart a vertical movement to said primary slide, means to move said detector slide transversely of said primary slide and into contact with the edge of a coin in said coin slot, said mechanism being adapted to move said primary slide downwardly and allow said coin to pass out of said coin slot and allow said rotary member to be rotated through an angle greater than said predetermined angle.

45. A coin controlled turnstile apparatus provided with a coin slot having, in combination, a rotary member, locking means to prevent said rotary member from being rotated beyond a predetermined angle, said locking means being normally positioned to allow said rotary member to be rotated beyond said predetermined angle, a primary slide forming the bottom of said coin slot, a detector slide mounted upon said primary slide and adapted to project into said coin slot, mechanism actuated by said rotary member to impart a vertical movement to said primary slide, means to move said detector slide transversely of said primary slide and into contact with the edge of a coin of predetermined diameter positioned in said coin slot, an auxiliary slide, a detector slide stop on said auxiliary slide, said mechanism being adapted to move said primary slide downwardly while said detector slide is held out of engagement with said detector slide stop by said coin and allow said coin to pass out of said coin slot and into a receptacle provided in said apparatus and allow said rotary member to be rotated through an

angle greater than said predetermined angle.

46. A coin controlled turnstile apparatus provided with a coin slot having, in combination, a rotary member, locking means to prevent said rotary member from being rotated beyond a predetermined angle, said locking means being normally positioned to allow said rotary member to be rotated beyond said predetermined angle, a primary slide forming the bottom of said coin slot, a detector slide mounted upon said primary slide and adapted to project into said coin slot, mechanism actuated by said rotary member to impart a vertical movement to said primary slide, means to move said detector slide transversely of said primary slide, and into contact with the edge of a coin of a diameter differing from a coin of predetermined diameter positioned therein, an auxiliary slide upon which said locking means is supported, a detector slide stop on said auxiliary slide adapted to be engaged by said detector slide during the downward movement of said primary slide when said detector slide is in engagement with the edge of said coin, whereby said auxiliary slide will be moved downwardly and will allow said locking means to move downwardly to lock said rotary member against rotation beyond said predetermined angle.

47. A coin controlled turnstile apparatus provided with a coin slot having, in combination, a rotary member, locking means to prevent said rotary member from being rotated beyond a predetermined angle, said locking means being normally positioned to allow said rotary member to be rotated beyond said predetermined angle, a primary slide forming the bottom of said coin slot, a detector slide mounted upon said primary slide and adapted to project into said coin slot, mechanism actuated by said rotary member to impart a vertical movement to said primary slide, means to move said detector slide transversely of said primary slide and into contact with the edge of a coin of a diameter differing from a coin of predetermined diameter positioned therein, an auxiliary slide upon which said locking means is supported, a gate, and means operable by said auxiliary slide to move the same into a continuation of said coin slot, a detector slide stop on said auxiliary slide adapted to be engaged by said detector slide during the downward movement of said primary slide when said detector slide is in engagement with the edge of said coin, whereby said auxiliary slide will be moved downwardly and allow said locking means to move downwardly to lock said rotary member against rotation beyond said predetermined angle and said coin will pass out of said coin slot into a continuation thereof and will be diverted by said gate out of said coin slot continuation.

48. A coin controlled and change-making turnstile apparatus provided with a coin slot and having, in combination, a coin detector slide adapted to engage the edge of a coin located in said coin slot, a change mechanism actuating slide mounted on said detector slide, a change feeding mechanism adapted to be engaged by said change mechanism actuating slide when said detector slide is in engagement with a coin of predetermined diameter in said coin slot, and mechanism to move said detector slide and change-making actuating slide to operate said change-making mechanism.

49. A coin controlled and change-making turnstile apparatus provided with a coin slot and having, in combination, a coin detector slide adapted to engage the edge of a coin located in said coin slot, a change mechanism actuating slide mounted on said detector slide, a change feeding mechanism adapted to be engaged by said change mechanism actuating slide when said detector slide is in engagement with a coin of predetermined diameter in said coin slot, mechanism to move said detector slide and change making actuating slide to operate said change-making mechanism, and mechanism to move said change-making actuating slide out of alignment with said change making mechanism when said detector slide is in engagement with a coin other than a coin of predetermined diameter in said coin slot, whereby said change-making mechanism will fail to be operated.

50. A coin controlled and change-making turnstile apparatus provided with a coin slot and having, in combination, a primary slide forming the bottom of said coin slot, a coin detector slide mounted on said primary slide, mechanism adapted to move said coin detector slide into engagement with the edge of a coin positioned in said coin slot, a change-making actuating slide mounted on said coin detector slide, a change feeding mechanism adapted to be engaged by said change-making actuating slide when said detector slide is in engagement with a coin of predetermined diameter positioned in said coin slot, and mechanism to move said primary slide downwardly whereby said coin may be fed out of said coin slot to a receptacle in said machine and said coin change making mechanism operated by the downward movement of said change making actuating slide to eject from the apparatus change equal to the difference between said coin deposited in the coin slot and a coin of predetermined amount.

51. A coin controlled and change making turnstile apparatus provided with a coin slot and having, in combination, a primary slide forming the bottom of said coin slot, a coin detector slide mounted on said primary slide, mechanism adapted to move said coin de-



tector slide into engagement with the edge  
 of a coin positioned in said coin slot, a  
 change making actuating slide mounted on  
 said coin detector slide, a change feeding  
 5 mechanism adapted to be engaged by said  
 change making actuating slide when said  
 detector slide is in engagement with a coin  
 of predetermined diameter positioned in the  
 coin slot, mechanism to move said primary  
 10 slide downwardly whereby said coin may be  
 fed out of said coin slot to a receptacle in  
 said machine and said coin change making  
 mechanism operated by the downward move-  
 ment of said change making actuating slide  
 15 to eject from the apparatus change equal to  
 the difference between said coin deposited  
 in the coin slot and a coin of predetermined  
 amount, and mechanism to move said change  
 making actuating slide out of alignment  
 20 with said change making mechanism when  
 said detector slide is in engagement with  
 a coin other than a coin of predetermined  
 diameter in said coin slot, whereby said  
 change making mechanism will fail to be  
 25 operated.

52. A coin controlled and change-making  
 turnstile apparatus provided with a coin  
 slot and having, in combination, a primary  
 slide, a rotary member adapted to impart a  
 30 reciprocatory motion to said primary slide,  
 a detector finger pivoted on said primary

slide, an auxiliary slide, a locking member  
 to prevent the rotation of said rotary mem-  
 ber beyond a predetermined angle, said lock-  
 ing member normally being held out of en- 35  
 gagement with said rotary member by said  
 auxiliary slide, mechanism operable by the  
 rotation of said rotary member through a  
 predetermined angle to move said primary  
 slide downwardly and allow said detector 40  
 finger to move into said coin slot and also  
 to engage said auxiliary slide and move it  
 downwardly, whereby said locking slide will  
 be moved into the path of said rotary mem-  
 ber and prevent the rotary member from 45  
 being rotated beyond said predetermined  
 angle, a detector slide mounted on said pri-  
 mary slide, mechanism to move said detector  
 slide into engagement with a coin in said  
 coin slot, a change-making mechanism and 50  
 a change-making actuating slide on said de-  
 tector slide adapted to be moved down-  
 wardly by said primary and detector slides  
 to engage said change-making slide and eject  
 change equal to the difference between a 55  
 coin of predetermined dimensions deposited  
 in said coin slot and a fare of predetermined  
 amount.

In testimony whereof I have hereunto set  
 my hand.

DANIEL L. CHANDLER.