Dec. 9, 1924. 1,518,208

W. N. McCLELLAN

COIN MECHANISM

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Fig. 1.

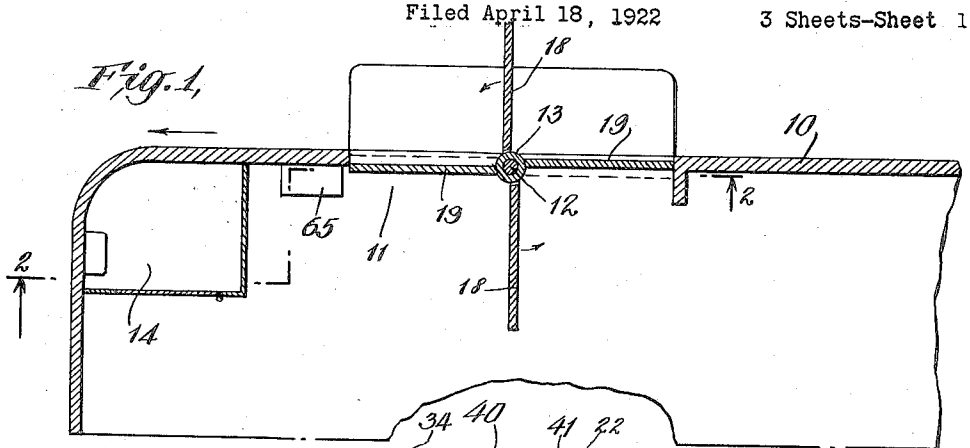
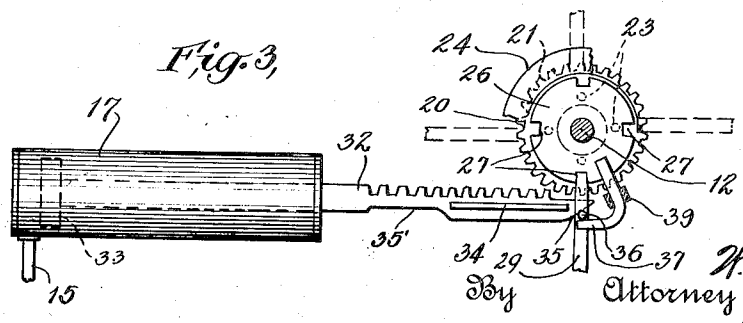


Fig. 2.

Fig. 3.



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Fig. 4.

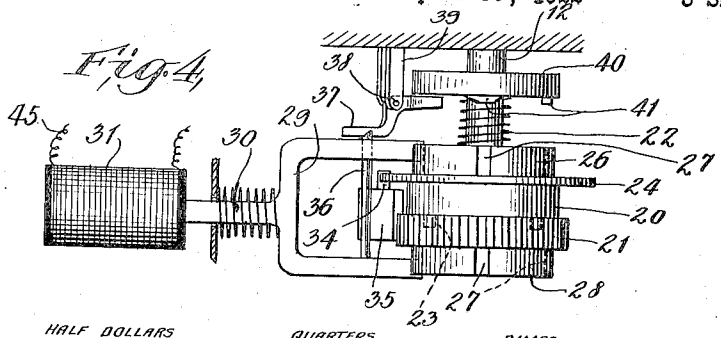
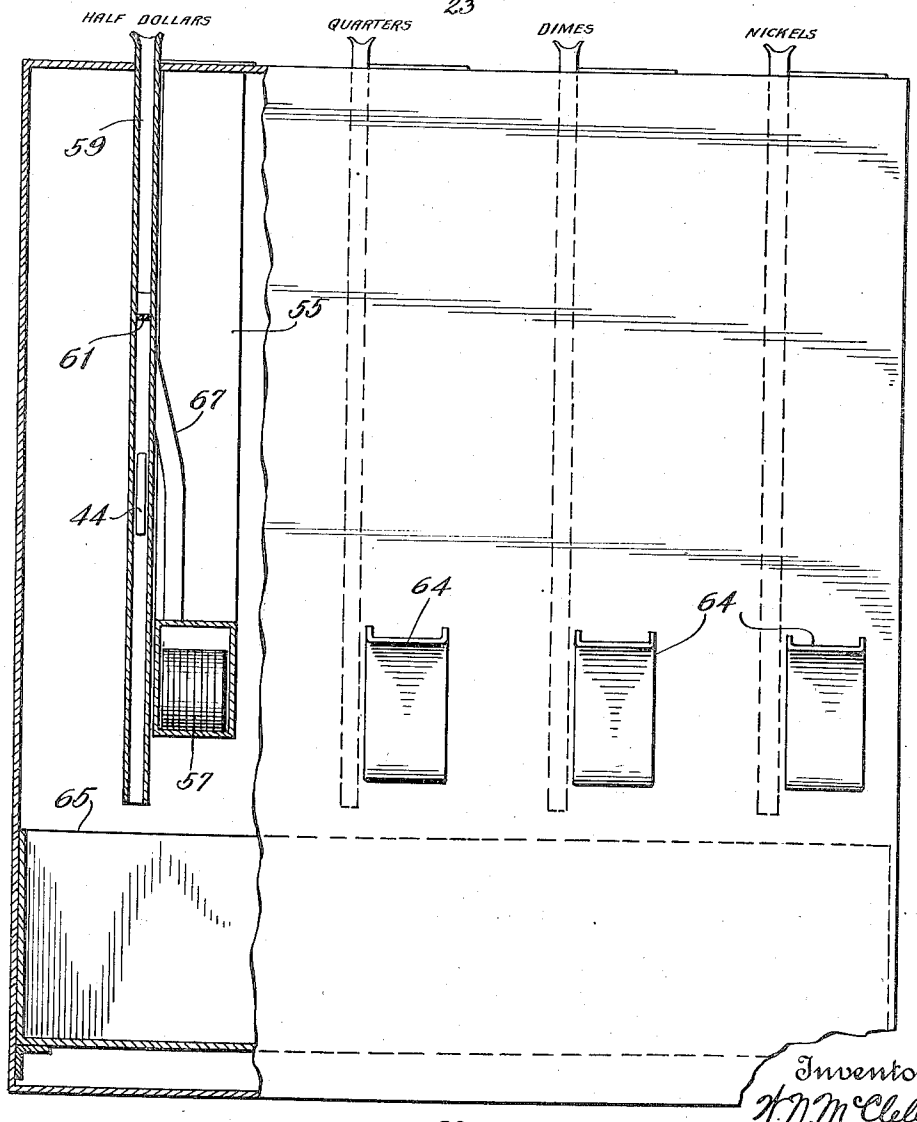


Fig. 6.



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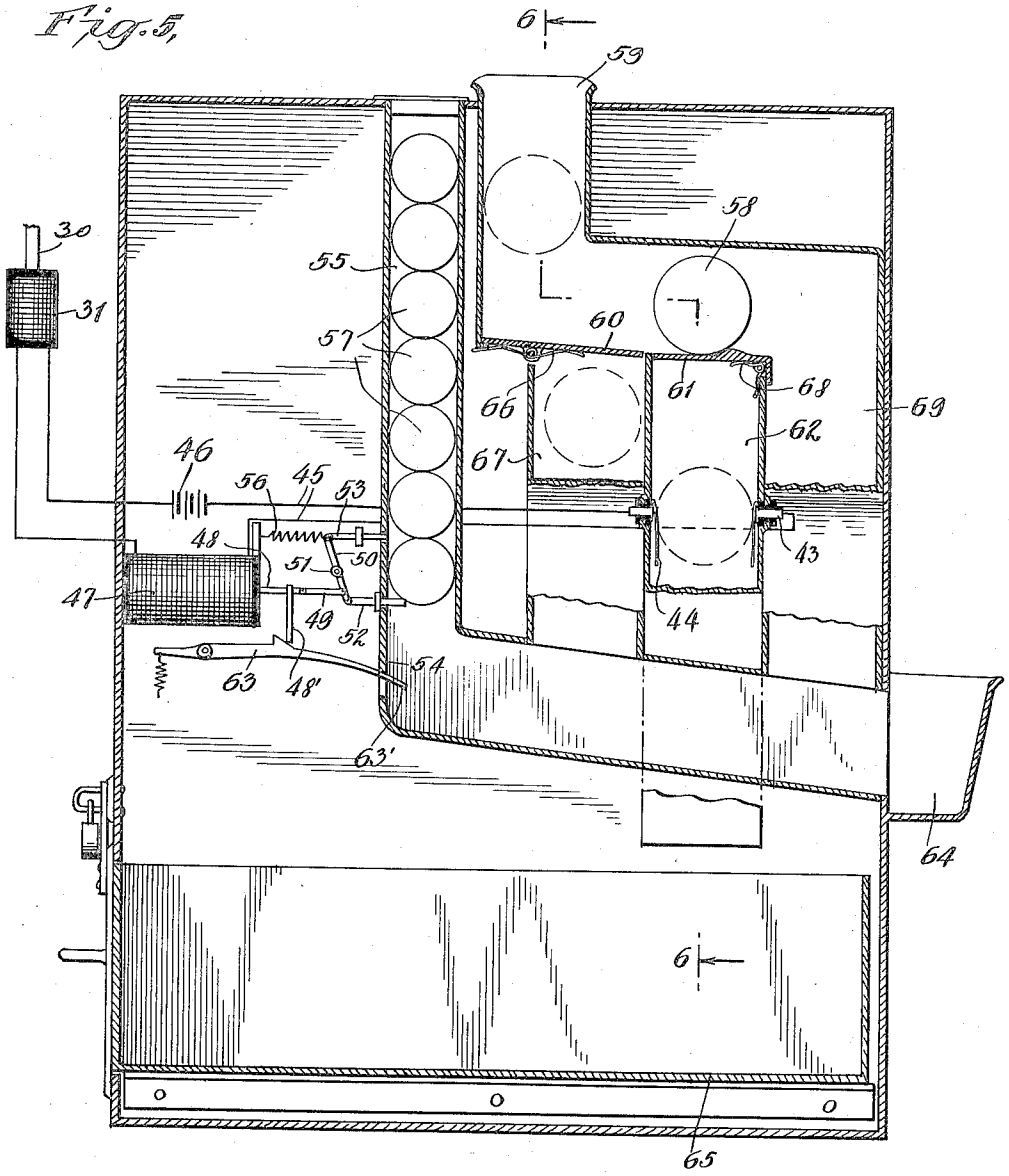
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Fig. 5.



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UNITED STATES PATENT OFFICE.

WALTER N. McCLELLAN, OF BROOKLYN, NEW YORK, ASSIGNOR OF ONE-HALF TO BERTRAM F. BAKER, OF TANNERSVILLE, NEW YORK.

COIN MECHANISM.

Application filed April 18, 1922. Serial No. 554,626.

To all whom it may concern:

Be it known that I, WALTER N. McCLELLAN, a citizen of the United States, residing at the city of New York, borough of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Coin Mechanisms, of which the following is a specification.

This invention relates to turn stiles or gates such as are commonly used in connection with railway cars, platforms, theatres, or other amusement resort passage ways, or the like, and has particular reference to a novel form of turn stile so constructed as to have the usual facilities for guarding or obstructing the passage way except with the rotation of the turn stile as intended, when in operative condition, and also having the adaptability of lying flat or collapsed in an inoperative position so that it will occupy the least possible amount of room.

Among the objects of the invention therefore is to provide a turn stile for use particularly in connection with a railway car, the construction being such as to neither extend laterally beyond the side of the car nor inward within the car for the obstruction of useful space when the car is running or ready to run, but being so constructed that when the turn stile is arranged or set for rotation it will include a multiplicity of substantially radially disposed wings equally spaced from one another around the axis of rotation.

Another object of the invention is to provide improved coin controlled mechanism in connection with the turn stile for unlocking it so that any passenger or person desiring to enter or leave the car according to the specific arrangement may do so upon the deposit of a coin of a denomination at least as great as demanded for securing such passage. The term "passage" as used in this connection will be understood hereinafter as being applicable to either an entrance or an exit, for obviously the coin mechanism may be so installed and the turn stile device so constructed as to be operative either way.

Another object of the invention is to provide an improved change making device for use in connection with the coin controlled turn stile or for action with the dispensing of any commodities of a fixed or definite valuation, the change making device being so designed as to receive a coin of any standard denomination into a specific slot, and if such coin be of a higher denomination than required for the passage or commodity the machine will retain the prescribed fee and deliver the desired passage or commodity, and also deliver to the customer the right amount of change, the whole transaction being effected automatically and without requiring any preliminary steps or acts to be performed on the part of the customer, such as procuring change elsewhere before approaching the machine.

With the foregoing and other objects in view the invention consists in the arrangement and combination of parts hereinafter described and claimed, and while the invention is not restricted to the exact details of construction disclosed or suggested herein, still for the purpose of illustrating a practical embodiment thereof reference is had to the accompanying drawings, in which like reference characters designate the same parts in the several views, and in which—

Figure 1 is a fragmentary section of a railway car or its equivalent in which is arranged my improved turn stile in open or operative position ready for a passenger or customer to pass therethrough upon the deposit of a coin.

Fig. 2 is a vertical sectional view of the same on the line 2—2.

Fig. 3 is a horizontal section on the line 3—3 of Fig. 2 showing manual and power mechanism for controlling the locking or unlocking of the turn stile.

Fig. 4 is a side elevation of the locking mechanism of Figs. 2 and 3 on a scale somewhat larger than Fig. 2.

Fig. 5 is a vertical sectional detail of one of the automatic coin controlling and change making units.

Fig. 6 is an elevation, partly in section on the line 6—6 of Fig. 5, of the coin mechanism, indicating especially a plurality of units according to standard coins.

The collapsible door mechanism shown herein is made the subject of my co-pending application, Serial No. 685,123, filed on the 9th of January, 1924.

Referring now more specifically to the drawings 10 indicates the side wall of a car having a passage way 11 formed therein, and located in the plane of the wall 10 is

a vertical shaft 12 having a tubular shaft 13 surrounding it. 14 indicates a booth for the motorman or other operator. Located in convenient reach of such operator is a compressed air controlling mechanism including a pipe 15 and a three-way cock 16 through which the passage of compressed air is controlled to a pneumatic motor or cylinder 17 located preferably in or adjacent to the top of the car. The shaft 12 is journaled in the top and the bottom of the car in any suitable fixed bearings. The sleeve or hollow shaft 13 is journaled in the bottom of the car and around the other shaft 12 but has its upper end spaced from the uppermost bearing at the top of the car.

Secured to the shaft 12 are two oppositely arranged wings 18. While these wings are approximately diametrically opposite each other one is offset from the plane of the other to an amount equal to its thickness. It will be understood that these two wings 18 are both rigidly connected to the shaft 12 and so move therewith as a unit. Secured similarly to the hollow shaft 13 are wings 19 which are adapted to either lie flat against the respective wings 18 or stand outright therefrom at 90°. When the device is open or set for rotation as in full lines in Fig. 1 it will operate as any other turn stile or rotating door, and when collapsed or folded as in dotted lines it will constitute a complete closure for the passage way and occupy no more room than any other part of the wall. It will be observed also that if the device be turned at 90° from the dotted line position, the full passage way will be practically unobstructed and from which fact it will be appreciated that the device as a revolving door is well adapted for general use as such and for easy collapse in open position so as to leave the passage way unobstructed on such days or at such seasons as demand an open passage way without removing the door from its position.

As a suitable means for controlling the relative position or action between the two sets of wings 18 and 19 I indicate head members such as a pair of gears 20 and 21 secured to the upper ends of the shafts 12 and 13 respectively, the gear 20 lying normally against the upper surface of the gear 21 but movable therefrom against the force of a coil spring 22 surrounding the shaft 12. One or more lugs 23 projecting from one gear into corresponding holes in the other serve to normally lock these two gears together for simultaneous rotation. The gear 20 is provided with a flange 24 for lifting such gear. The means for connecting the gear 21 to the shaft 12 includes a spline 25 to permit the aforesaid sliding of the gear.

Next above the gear 20 is a hub member 26 having peripheral notches 27 spaced at 90° apart, and a similar hub 28 having similarly arranged notches is connected to or formed as a part of the gear 21. The gears 20 and 21 are mutilated, that is to say, each has its teeth extending only about half way around, and these two gears are so connected to their respective shafts that when the door or turn stile is open as in Fig. 1 the teeth of one gear are so arranged as to constitute a substantial continuation of the teeth of the other, in plan, as in Fig. 3, and the hubs 26 and 28 are so arranged with respect to the notches 27 that one notch of each hub will lie in the same vertical plane as a notch of the other hub.

29 indicates a forked locking bolt the stem 30 of which constitutes the armature of an electromagnet 31. The points of the bolt 29 span both of the gears 20 and 21 and are normally seated in a pair of notches 27 above described, thereby locking the turn stile or door from rotation. A plunger in the form of a rack 32 extends from one end of the cylinder 17, said plunger having a piston 33 secured to the inner end thereof and actuated toward the axis of the door as a result of the admission of compressed air through the pipe 15. The teeth of the rack 32 are normally spaced from the teeth of the gears 20 and 21, but when the rack is actuated by the compressed air, as toward the right in Fig. 3, the rack teeth will engage the teeth of whichever gear 20 or 21 is proximate thereto at such time, it being remembered that the turn stile being adapted for rotation previously to an indefinite extent it will never be known just which gear will be proximate to said rack at any time. The effect however of the rack moving toward the right as stated will be to cause a counter clockwise movement of whichever pair of wings 18 or 19 that will be pertinent at such time to the engaged gear, but preliminary to such independent rotation of the two sets of wings a cam 34 on the upper face of the rack will have lifted upward on the flange 24, causing the lifting of the gear 20 out of locking engagement through the lugs 23 with the gear 21. It will be understood that the bolt 29 will have been withdrawn from the locking hubs 26 and 28 prior to this partial rotation of either two of the wings.

The nose or point of the rack is beveled at 35 which will wipe against a pin 36 extending between the two parts of the bolt 29 and thereby the bolt will be withdrawn from the locking hubs just before the rack teeth engage the gear teeth. The pin 36 is extended above the upper part and rides beneath the weighted end of a locking lever 37 pivoted at 38 on a bracket 39, the other end of the lever 37 extending beneath a wheel 40 fixed to the shaft 12 and having a

series of four cams 41 projecting downward therefrom and 90° apart. Every time the shaft 12 is given a quarter turn therefore one of the cams 41 will act downward on the adjacent end of the lever 37 and lift its longer or weighted end out of contact with the projecting end of the pin 36 and permit the bolt to snap back into the next registering pair of notches 27, thus locking the turn stile from a second rotational movement after it has been once rotated through 90°. That portion of the rack which acts upon the pin 36 is reduced at 35′ so that when the rack is forced to the right as in Fig. 3 the pin will drop into the depression 35′ and permit the bolt to come into locking position in the pair of notches 27 then registering. When the rack is thus operated to the right for collapsing the door for running position it will be held in such position by the charge of compressed air in the cylinder 17 until the pressure is relieved subsequently by the operator by the opening of a port in the three-way valve, and then a spring 42 in the cylinder 17 will restore the rack to the normal position shown in Fig. 3 and likewise will restore the turn stile to its normal rotative position shown in Figs. 1 and 3 and with the two gears locked together by virtue of the spring 22. Any suitable means may be provided to energize the magnet 31 to release the bolt 29 from the hubs 26 and 28 whenever desired.

Referring now more especially to Fig. 5 I show a pair of spaced contacts 43 and 44 in a circuit 45 having a battery 46 or other source of power and in which circuit the magnet 31 is located as well as another magnet 47 having an armature 48. The armature 48 has a link 49 connected to one arm of a lever 50 pivoted at 51 and having connected to the ends of said lever a pair of fingers 52 and 53 slidable in alternation through the side wall 54 of a coin magazine 55 for holding and delivering change. A spring 56 acts normally to hold the finger 52 projected inward and the other finger withdrawn from the magazine, as in Fig. 5. The magazine is kept supplied by any suitable means with groups 57 of coins, each group representing a definite amount of change to be delivered to the customer when he inserts a major coin 58 of the proper denomination as specified on or at the mouth of the chute or slot 59. This is clearly illustrated in Fig. 6. It will be seen that when, for example, nine coins are to be returned as change when a fifty cent piece is inserted, the coin delivery chute will be sufficiently wide to accommodate nine coins, the coins being located side by side in each group. Hence the escapement mechanism formed by the lever 50 and fingers 52 and 53 will at each operation cause a single or a group of coins to fall in accordance with the particular chute it controls. Assume for example that the illustration is dealing with half dollars and the passage or commodity to be purchased cost one nickel. The customer desosits the half dollar in the slot 59 which rolls over a trap door 60 and comes to rest above a second trap door 61 which opens downward causing the delivery of the coin into an auxiliary chute 62 where it bridges momentarily the contacts 43 and 44, thereby causing a wiping action against the contacts 43 and 44 to momentarily close the circuit through the magnets 31 and 47. The energizing of the magnet 31 in the illustration described above unlocks the turn stile, the locking bolt being held withdrawn by means of the locking lever 37. The energizing of the magnet 47 will draw the armature 48 and an extension 48′ thereof toward the magnet 47, a trigger 63 engaging the end of the extension 48′ to hold the finger 52 retracted and the finger 53 projected into the magazine long enough for the lowermost group of change coins 57 to drop and strike against the end 63′ of the trigger within the magazine. This group of coins will of course roll directly forward and downward and into a cup 64 or other suitable device for delivery to the customer. The coin 58 however will pass from the auxiliary chute 62 into a receptacle 65 where it will be retained for the management or proprietor as will be understood.

The spring 66 supporting the trap door 60 is so designed as to permit the trap door to open under the weight of a lead slug or other bogus coin that is too heavy, the same to drop into a chute 67 whence it will roll to the cup 64 or to any other suitable place. The spring 68 supporting the trap door 61 is so designed that if a coin is spurious or for any other reason underweight the coin will roll over the trap door and be delivered into a chute 69 whence it will return to the customer at the cup 64. It will be understood that the illustration in Fig. 5 and with the example indicated as a transaction in which a fifty cent piece is inserted and forty-five cents change is expected will be typical of all of the units indicated in Fig. 6, and it will also be understood that the change coin groups 57 will in the example given consist of nine nickles, each group to be delivered as a unit. The purpose of the trigger mechanism 48′ and 63 is to insure sufficient time of action so that the lowermost group will be sure to be delivered before the spring 56 will return the finger 52 to its normal position.

The change making and delivering mechanism shown herein can obviously be applied to any coin controlled mechanism now

in use or which may be contemplated hereafter with but slight variation, if any, in the details of construction. For example, for the actuation of a machine now in use in which the deposit of a nickel is intended, the mechanism above described to receive the fifty cent piece would be modified only to the extent that the groups at 57 would consist of ten nickles each instead of nine, and for one of the ten nickels to be shunted away from the other nine so that it will go directly to the mechanism to be operated or released while the remaining nine nickels will go to the customer. The fifty cent piece will go as stated herein into the receptacle.

I claim:

1. In escapement mechanism for a coin change chute, the combination of a plurality of fingers in spaced elevation relatively to each other, means to reciprocate said fingers into engagement with coins so as to regulate the downward movement thereof in said chute, said means including resilient means tending to hold the lower one of said spaced fingers normally in engagement with said coins, means to withdraw said lower finger from coin-holding position, and timing catch means for temporarily locking said lower finger out of engaging position so as to release a coin, said catch means including an extending end portion engageable by the coin so released by said lower finger to thereby throw said catch means out of engagement.

2. In escapement mechanism for a coin change chute, the combination of means comprising a plurality of fingers in spaced elevation relatively to each other, means to reciprocate said fingers into engagement with coins in said chute so as to regulate the downward movement thereof in said chute, means to withdraw said lower finger from coin-holding position, and timing catch means for temporarily locking the lower of said spaced fingers out of engagement with said coins so as to release a coin, said catch means being operative by a coin released by said lower finger to throw said catch means out of engagement with said means comprising said fingers.

In testimony whereof I affix my signature.

WALTER N. McCLELLAN.