

June 18, 1940.

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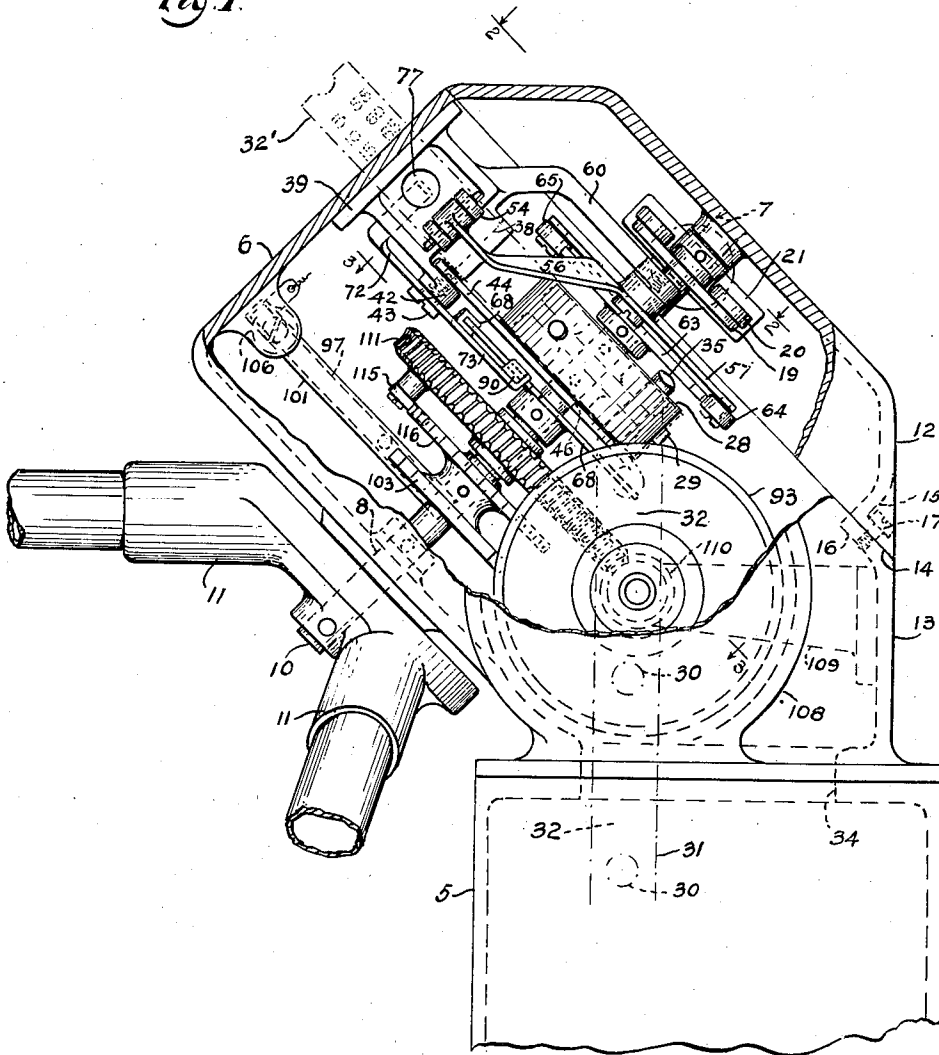
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CHECK CONTROLLED AND DISPENSING TURNSTILE

Filed April 16, 1936

3 Sheets-Sheet 1

Fig. 1.



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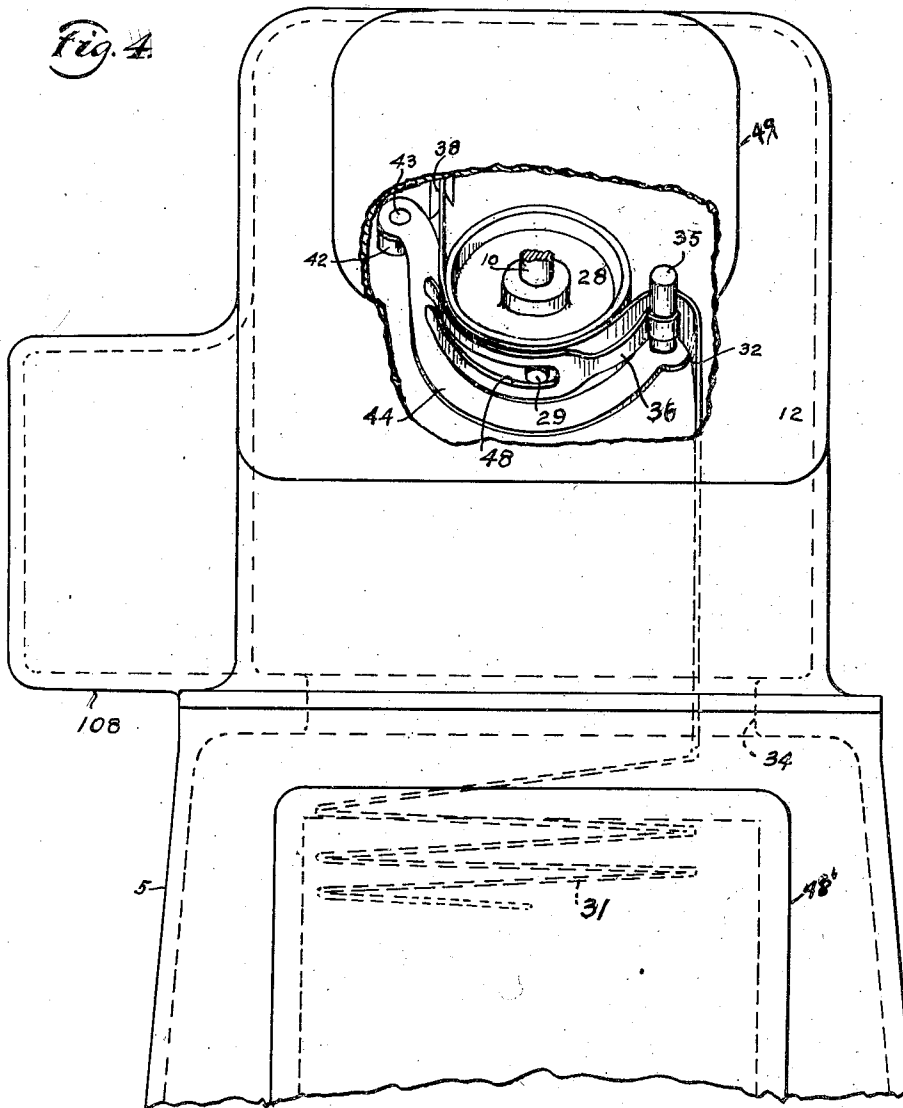
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UNITED STATES PATENT OFFICE

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CHECK CONTROLLED AND DISPENSING
TURNSTILE

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17 Claims. (Cl. 39—3)

This invention relates to dispensing machines and devices, and relates more particularly to machines for dispensing cardboard checks and similar articles.

In many restaurants where customers wait upon themselves, there is presented to each customer on entering, a check which is subsequently to indicate the total amount of his purchase. Many restaurants are provided with dispensing machines from which the customer takes a check and thereby automatically sets in operation mechanism which presents a check for the next customer and rings a bell. These machines are supposed to dispense with the services of an attendant to deliver the check to the customers; but in practice during the busy hours, an attendant is usually stationed at the machine to hand the checks to the customers and prevent any customer from entering without receiving a check. An object of the present invention is to eliminate the need of this attendant. Other objects will also appear.

To this end I have provided a machine which projects each check to a position where it may be taken away by the customer, the machine being provided with a turnstile, revolving door or other barrier which prevents the customer from entering until he has taken the check. As the customer passes through the turnstile, the machine presents another check and positions the turnstile for the next customer, holding the turnstile locked until said next customer takes away the newly presented check.

While the description herein relates to checks and turnstiles, it is understood that the invention, as claimed in the broader claims is not limited to them, and that the device may be greatly varied in many respects without departing from the scope of the invention as defined in the broader claims.

In the accompanying drawings,

Fig. 1 is a fragmental front elevation, partly in vertical section;

Fig. 2 is a fragmental sectional view partly taken on the lines 2—2 of Fig. 1;

Fig. 3 is a fragmental view showing motor drive and control therefor; and

Fig. 4 is a side elevation, parts being broken away.

The mechanism support

The machine is shown carried on a pedestal 5 having a base (not shown) adapted to be secured to the floor or other support. At the upper end of the pedestal is mounted a housing 6 hav-

ing, in its top and bottom, openings 7 and 8 rotatably receiving a shaft 10 on which are mounted the turnstile 11 and various operating wheels and cams of the device.

While herein the turnstile is of the inclined axis type and mounted on the bottom of the shaft, rather than the usual axially vertical type mounted on the upper end of the shaft, the invention as claimed is not thus limited. In either case the principle of operation is practically the same and will here be described in connection with the inclined axis mechanism.

The housing

The housing may be made in any suitable manner, and is here shown as comprising upper and lower castings 12, 13 having a plane of parting 14 adapted to be secured together by screws 17.

Turnstile positioning means

Keyed or otherwise fast upon said shaft at the upper part thereof is a spider 19 carrying three rollers 20, adapted, one or two at a time, yieldably to receive a pressure bar 21 fixed across a plunger rod 22 (Fig. 2) slidably carried in a bore 23 in a boss on the housing wall. Said bar is yieldably pressed against the rollers by a spring 24 compressed between shoulders 25 and 26 formed in the bore and on the rod respectively. Said bar presses against two rollers at the normal position of rest of the turnstile and yieldably holds the turnstile in said position and carries the turnstile to the next position of rest after one of the rollers has passed the middle of the bar.

The positioning spider has three rollers, because the associated turnstile has three arms. When the turnstile is provided with a different number of arms, said rollers equal such number.

Check feed means

Intermediately of said shaft fast thereon is carried a feed wheel 28 having peripherally thereon equally spaced radial pins or projections 29, one for each stile arm, adapted respectively to engage in perforations 30 (Fig. 1) spaced along the paper strip 31 of checks 32 adapted to be presented by the machine, one at a time, to the customers. The pedestal 5 is hollow and forms a magazine for the strip, which is drawn upwardly through an opening 34 in the bottom of the housing, and thence around an angularly disposed fixed pin 35 (Fig. 4) later to be described, thence under a flat guide spring 36 carried on the pin, and around the feed wheel 28 for the distance between adjacent pins 29, thence through

a guide slot 38 (Fig. 2) in a bracket 39, to a discharge slit 40 at the side of the housing, through which the end check 32' is partly projected when the stile is in normal position.

- 5 The bracket 39 (Fig. 1) is secured fast to the housing wall and is provided with a lower flat lug 42 to which is secured fast, by a shouldered screw 43, a supporting plate 44 disposed just under the feed wheel and carrying the cylindrical guide pin 35, the plate being provided with an opening 46 loosely receiving the shaft 10.

10 The outer end of the spring 36 is provided with a longitudinal slot 48 (Fig. 4) through which said pins 29 pass as they feed said strips. When the stile is turned from one normal position to the next, the strip is fed the distance of one check.

- 15 For threading the check strip, access may be had to the check strip, pin 35 and slot 38 through doors 48' and 49 (Fig. 4).

20 Check cut-off means

- After the check 32' is fed to the projected position, it is severed from the strip at a perforation 30 (Fig. 1) in order that the customer may withdraw it from the machine. This severing is accomplished by means of a pair of blades 50, 51 (Fig. 2), one blade 50 being secured fast to the wall 52 of the bracket 39, the other blade 51 being slidable in a guide slot 53 in the bracket and provided at the outer end with a pivot block 54 to which is pivoted the free end of the active arm 56 of a three arm cutter lever 55, 57, 58 fulcrumed at 59 on a fixed arm 60 of the bracket 39.

- 25 The cutter lever is actuated to cutting position by one of three bumps 62, 62' disposed equal angles apart on the periphery of a cutter cam 63 secured fast on said shaft 10. As the stile moves to normal position, one of said bumps 62 engages a roller 64 on the end of the active arm 57 of the cutter lever, and moves the movable blade 51 to closed position, thus severing the check.

- As soon as the stile is moved forwardly from said normal position, the next forward bump 62' of the cutter cam moves opposite to a roller 65 on the end of a return arm 58 of the cutter lever and positively forces the cutter lever to retract the blade 51.

- During cutting, the passage of the strip through the shears is stopped while the feed wheel moves slightly, and the part of the strip between the blades and feed wheel pin will bend slightly, but will tend to straighten as soon as the blade 51 is retracted.

The stile control mechanism

- 55 Means are provided to prevent forward movement of the stile and entrance of the customer until the customer has taken the severed ticket from the discharge slit 40. This means includes a control wheel 68 fast on said shaft 10 and provided with peripheral stop lugs 69, 69' one for each stile arm, equally spaced around the control wheel, one of which lugs is adapted (if the severed check is not withdrawn) to be engaged and stopped by the hooked free end 70 of the active arm 71 of a three-arm control lever 71, 72, 73 intermediately fulcrumed on the shouldered screw 43 on the lug 42.

- 70 If the severed check be not removed by the customer the feeler end 75 of the arm 72 of said control lever is engaged by the unremoved severed check, and the control lever is held, with the hooked end 70 in the path of the stop lug 69, feeler end passing through an opening 76 in the wall of the guide slot 38 and pressing against

the unremoved check. As soon, however, as the check is removed by the customer, the feeler end 75 passes through an opening 77 on the opposite wall of the guide slot, under the action of a spring 78 tensioned between the arm 71 and the side of the casing. This removes the hooked end 70 from the path of the stop lug and allows the stile to turn and the customer to enter.

In order to remove the feeler end 75 from the path of the check before the next check is fed thereto, a restoring cam 90 provided on the arm 73 of the control lever is adapted to be engaged and pushed back by the next stop lug 69' as soon as the stop lug 69 moves from the path of the hooked end 70.

Manual operation

The mechanisms just described are sufficient for the manual operation of the machine. The parts are normally in the position shown in Fig. 2, with the severed check 32' projecting and the hooked end 70 engaged with the stop lug 69. Should a customer attempt to pass through the stile and enter without taking the severed check 32', he could not do so, because the stop lug 69 and stile would be held against forward movement by the hooked end 70 held against the stop lug by the action of the unremoved severed check 32' against the feeler end 75. However, as soon as the customer takes the severed check, the feeler end 75 and the hooked end 70 move to releasing position under the action of spring 78, and allow the customer to turn the stile past the dead center (the point where the roller 20 passes the middle of the bar 21) and then pass through the stile and enter the restaurant. The locked turnstile gives a reminder, to the person attempting to pass, that a check has not been taken and that he should take a check. The manual operation by the customer and the action of the spring 24 cause the stile to move from one normal position to the next; and while this is taking place the feeler end 75 is removed from the path of the strip as soon as the stop lug 69 clears the hooked end 70. Also the blade 51 is immediately retracted because of the action of the bump 62' on the roller 65. The blade 51 is not again closed, on the blade 50, until the next bump 62 reaches the roller 64 as the stile reaches the next normal position of rest.

Retrograde movement of the stile and exit through the stile are prevented by the pawl and ratchet later to be described.

Motor operation

If desired, motor operation may be provided and is shown herein. The motor 93 (Figs. 1 and 3) is driven by current received from a suitable source through conductors 94, 95, 96 (Fig. 3) when the switch 97, 98 is closed.

The motor switch

This switch comprises normally separate spring conducting members 97, 98 connected to the conductors 94, 95.

The switch is normally open when the cam end 100 of the spring 101 engages in one of the deep notches 102 in the switch cam 103 fast on the main shaft 10. When the customer commences to turn the stile on his entrance therethrough, the incline 104 of the switch cam engages the cam end 100 and pushes the insulating block 105 against the member 97, thus closing the switch and applying current to the motor 93 which drives the stile (as will be explained), the land portion 105' of the switch cam holding the switch

closed until just before the next normal position of the stile is reached whereupon the cam end 100 snaps into the next deep notch 102' and abruptly opens the switch and cuts off the current at a time to allow the stile to stop in normal position. The members 97, 98, 101 are separated by insulating blocks 106 mounted on a lug 107 on the housing wall.

The motor drive

The motor is mounted in an extension 108 at the bottom of the housing 6 and has its shaft mounted in bearing brackets 109, between which its shaft carries a worm 110 meshing with a worm wheel 111 carried loose on the main shaft 10. Said worm wheel carries a pawl 115 spring pressed against a ratchet wheel 116 fast on the main shaft, whereby the main shaft and stile are driven forwardly by the motor when the switch is closed as explained.

The pawl and ratchet allow the customer to turn the stile faster than the motor drives it; but in any case, the switch will open as the stile reaches the next normal position, and the stile cannot pass the next normal position until the next check has been removed, and the hooked end 70 retracted. This motor drive could be used without the dispensing means.

The worm wheel cannot rotate the worm. Therefore, the pawl 115 will always serve to prevent retrograde movement and prevent exit through the stile. But the pawl allows forward movement whether power be supplied to the motor or not. If preferred, the motor and switch may be omitted entirely; but the ratchet and the pawl suitably pivoted should be retained to hold the stile against retrograde movement.

The dispensing device and turnstile are carried on the same pedestal, rather than on separate pedestals on opposite sides of the entrance, to save the expense of two pedestals and interconnection under the floor between them.

The check is projected at the side where it will be easily seen. It is not thought that a customer, after having passed through the turnstile will try to reach back and take another check. However, to discourage this, it would be obvious to position the housing so the slit 40 would be at the entrance side of the stile, so that the newly projected check would project forwardly of the picture plane of Fig. 1, where it would be out of easy reach of the customer after he had passed through the stile. As an additional precaution, the projecting check could be surrounded by a guard open only at the front. Should a four-arm turnstile with vertical axis be used, the stile would have to be above the housing, as is usual; and the arms could be in the form of vertical panels to keep the customer from reaching back to take an extra check.

It is understood that the word "check" as used in the claims herein is not limited to restaurant checks, but covers tickets and other articles which may be presented by presenting or dispensing means.

I claim as my invention:

1. In combination an article presenting means adapted to hold an article in position to be removed; a barrier to prevent the passage of a person past said article when in said position; and means set in operation by the removal of the article from said position for causing said barrier to allow the person to pass the barrier.

2. In combination an article holding means adapted to hold an article in position to be re-

ceived; and means set in operation by the attempted passage of a person by said holding means without the removal of the article, to give a reminder that the article has not been removed, and to withhold said remainder if the article has been removed.

3. A check dispenser comprising a turnstile; and a check presenting means operated by the turnstile, when revolved for forcing the person passing the turnstile to present a check into a position to be removed by the next person passing.

4. A dispenser as in claim 3 comprising means caused by said check when in said position to hold said turnstile against turning, and adapted when the check is removed to allow the turnstile to be turned.

5. In combination a check presenting means adapted to hold a check in position to be removed; a barrier to prevent the passage of a person past said check when in said position; and means set in operation by the removal of a check from said position for causing said presenting means to present another check and for causing said barrier to allow the person to pass the barrier.

6. A check dispenser comprising a turnstile; a check feeding and severing means adjacent to and operated by the turnstile for severing and presenting the end check of a strip into a position to be removed.

7. A dispenser as in claim 6 comprising means caused by said end check when in said position to hold said turnstile against turning, and adapted when the end check is removed to allow the turnstile to be turned, to sever and present another check.

8. In combination, a turnstile having a part adapted to be pushed upon; a check presenting means operated by the turnstile for presenting a check into a position to be removed; and means caused by said check when in said position to hold said turnstile against turning, and adapted when the check is removed to allow the turnstile to be turned, and power means automatically set in operation when said part is pushed upon to cause said turnstile to revolve.

9. In combination, a turnstile having a part adapted to be pushed; a check strip feeding means operated by the turnstile, when rotated, for projecting and severing the end check of the strip; and means caused by said check when thus projected to hold said turnstile against turning, and adapted when the check is removed from the projected position to allow the turnstile to be turned; and power means set in operation when said part is pushed for turning the turnstile.

10. A check dispenser comprising a turnstile; a check feeding and severing means operated by the turnstile on turning for severing and presenting the end check of a strip into a position to be removed, whereby the person operating the turnstile is forced to furnish the power which presents and severs the check.

11. A dispenser as in claim 10 comprising means caused by said end check when in said position to hold said turnstile against turning, and adapted when the end check is removed to allow the turnstile to be turned, to sever and present another check, whereby a person is prevented from passing the turnstile until he removes the check.

12. A check dispenser comprising a turnstile having a shaft; a check feeding means; a severing means; means operated by the turnstile shaft on turning for operating the feeding and severing

means for severing and presenting the end check of a strip into a position to be removed, whereby the person passing the turnstile is forced to cause the dispenser to present and sever a check for the next succeeding person.

13. A dispenser as in claim 12 comprising a lock for the turnstile and means caused by said end check when in said position to operate said lock to hold said turnstile against turning, and adapted when the end check is removed to operate said lock to allow the turnstile to be turned, to sever and present another check, whereby a person is prevented from passing the turnstile until he removes the check.

14. In combination, a completely revolving barrier adapted to revolve in one direction a distance sufficient to allow passage, and having a part adapted to be pushed against; an electric motor automatically set in operation as soon as said part is pushed against; pawl and ratchet means between said motor and barrier, to cause said motor when operating to revolve the barrier in said direction at a certain speed, and to allow the

barrier when manually pushed to freely revolve in said direction faster than said speed or when the motor means is stationary; and means for cutting off the power of the motor just as said distance is reached.

15. In combination, an article presenting means; means providing a passage place; means set in operation by a person passing said place, to cause the presenting means to present said article; and means to hold the presenting means from presenting the article if the person does not pass the place.

16. In combination, a person passing means; an article dispensing means; and mechanism set in operation by the passage of a person passing the passing means to operate the dispensing means.

17. In combination, a barrier; a check presenting means adapted to hold a check in position to be removed; and means cooperating with said barrier, means and the check when in said position to remind a person moving against the barrier that the check is still in said position.

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