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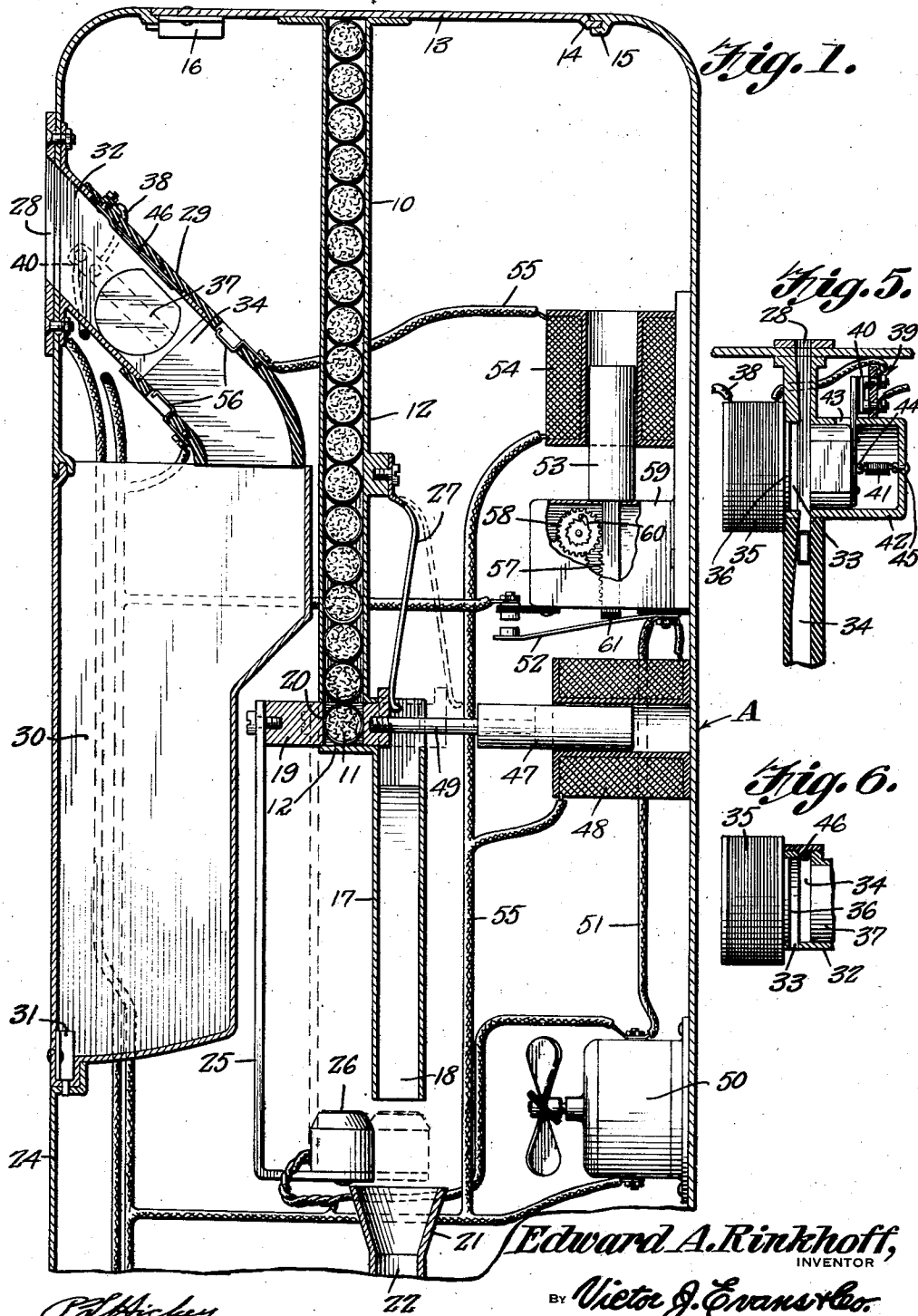
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2,221,723

VENDING MACHINE

Filed Jan. 30, 1939

2 Sheets-Sheet 1



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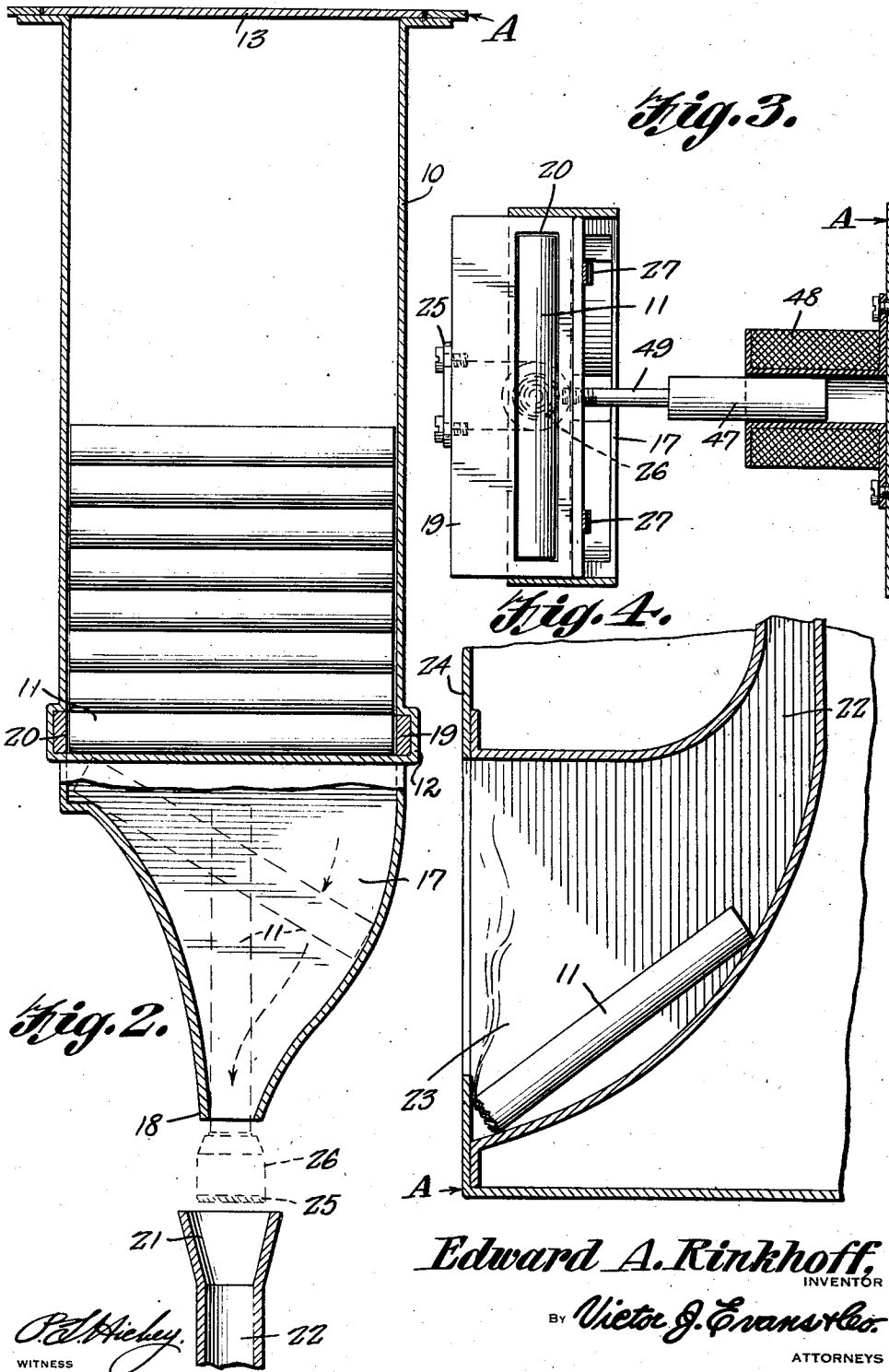
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UNITED STATES PATENT OFFICE

2,221,723

VENDING MACHINE

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5 Claims. (Cl. 312—86)

The invention relates to vending machine and more especially to a cigarette lighting and dispensing apparatus.

The primary object of the invention is the provision of a machine or apparatus of this character, wherein from a group of unpacked, loosely contained cigarettes therein a single one is selected and lighted and this lighted cigarette will be brought to a position for delivery to a person, the operation of the machine or apparatus being had by the deposit of a coin, token or the like therein.

Another object of the invention is the provision of a machine or apparatus of this character, wherein spurious coins, tokens or the like deposited within the machine or apparatus will be ineffective for the operation thereof so a lighted cigarette will become dispensed therefrom, the spurious coin, token or the like, when deposited, being diverted from a course for the operation of the machine or apparatus, with the result that the machine or apparatus remains passive and in this way fraudulent procuring of cigarettes from the said machine or apparatus can not be had.

Another object of the invention is the provision of a machine or apparatus of this character, wherein a selected cigarette will be fed automatically to a position for the lighting of the same and subsequently disposed for the delivery of the lighted cigarette to a person, the mechanism being novel and automatic in the operation of the same.

A still further object of the invention is the provision of a machine or apparatus of this character, wherein a determined quantity of loose cigarettes can be placed therein and these dispensed in single order lighted, the dispensing and lighting mechanism being electrically controlled and such machine or apparatus becoming active when an authorized coin, token or the like of a determined denomination has been deposited therein.

A still further object of the invention is the provision of a machine or apparatus of this character, which is simple in its construction, thoroughly reliable and efficient in operation, being possessed of few parts with resultant assurance of not becoming out of order and having maximum life for the use thereof, and inexpensive to manufacture.

With these and other objects in view, the invention consists in the features of construction, combination and arrangement of parts as will be hereinafter more fully described, illustrated

in the accompanying drawings, which disclose the preferred embodiment of the invention and pointed out in the claims hereunto appended.

In the accompanying drawings:

Figure 1 is a fragmentary vertical longitudinal sectional view through a machine or apparatus constructed in accordance with the invention.

Figure 2 is an enlarged fragmentary vertical sectional view, partly in elevation, and taken transversely of the machine or apparatus.

Figure 3 is a fragmentary horizontal sectional view showing in detail elevation or plan the slide gate for the dispensing of a single cigarette in the operation of the machine or apparatus.

Figure 4 is a fragmentary vertical sectional view showing in detail the single lighted cigarette in delivering position within the machine or apparatus.

Figure 5 is a fragmentary sectional view showing in detail a coin deflector and ejector employed in the machine or apparatus.

Figure 6 is a fragmentary transverse sectional view thereof.

Similar reference characters indicate corresponding parts throughout the several views in the drawings.

Referring to the drawings in detail, the machine or apparatus comprises a vertical column-like casing or housing, a portion of the same being generally indicated at A, having therein depending from its upper portion a columnar magazine 10 for receiving a quantity of loose or unpacked cigarettes 11, which in the group or quantity are disposed horizontally and gravitate in this position in single file within a way 12. The top of the case or housing A has fitted therewith a releasable door or cover 13 for the magazine 10 so that access can be had to the latter for the placing of the cigarettes 11 therein. This door or cover 13 at one end is formed with a tongue 14 for a groove 15 built in the casing or housing A while the other end of the door or cover 13 is fitted with a lock 16 for the fastening of said door or cover in place, the lock 16 being concealed so that it can not be fraudulently tampered with without the casing or housing.

This way 12 laterally offsets a throat from the magazine. This throat 17 has an internal formation for the automatic turning of a single cigarette 11 when entering the said throat for the delivery of said cigarette in a vertical or upright position through its discharge end 18. The throat 17 tapers curvilinearly in a downward direction toward the discharge end 18. Within the way 12 is a slide gate 19, being horizontally

arranged and is provided with a slot 20 for alternately registering with the said magazine and throat, respectively. This slot 20 accommodates a single cigarette 11 when registering with the way 12 and delivers the said single cigarette into the throat 17 when registering therewith.

Below and spaced from the discharge end 18 of the throat 17 for alignment with the said end is the upper flared mouth 21 of a delivery trough 22, being accessible through an opening 23 of the proper extent or size and formed in the lower portion of the front wall 24 of the casing or housing A so that a cigarette discharged from the throat 17 into the trough 22 can be had from without the casing or housing.

Fixed to and depending from the gate 19 is a substantially L-shaped bracket 25 supporting an electric lighting unit 26 which is movable in the space between the end 18 and the mouth 21 of the throat and chute, respectively, at the proper interval of time for intersecting the passing of a single cigarette from the throat 17 into the chute 22 so that this cigarette in advance of such passage will make contact at the lowermost end thereof with the lighting unit 26 for the lighting of this end of the cigarette. The lighting unit 26 moves concurrently with the gate 19 and is out of the path of discharge from the throat 17 when the gate 19 is in a position to have the slot 20 therein registering with the way 12. This position of the gate 19 having the slot 20 registering with the way 12 enables the said slot to receive a single cigarette 11 from the said way so that when the gate 19 is shifted for bringing the slot 20 in register with the throat 17 the cigarettes within this slot will drop within the throat 17 as before described.

The gate 19 has engaged therewith a leaf spring 27 fixedly held on the way 12 and the inherent tension of this spring urges the gate 19 to a position for the registering of the slot 20 therein with the way 12, being the normal position.

Leading from an entrance slot 28 for a coin, token or the like provided in the front wall 24 of the casing or housing A is a coin chute 29 for delivering a coin, token or the like therein into a box or the like 30 removably fitted to the front wall 24, being removable through a suitable opening, and when fitted to the front wall is secured by a lock 31, the latter being concealed to avoid tampering with within the housing or casing A.

The chute 29, excepting the section 32, is made from insulating material. This section 32 which communicates with the remainder of said chute 29 is formed with a laterally offset ejector opening 33 with respect to the passage 34 for an authorized coin, token or the like inserted in the slot 28 for delivery into the box or the like 30. Carried by the section 32 next to the ejector opening 33 is a stationary iron core electric magnet 35 having the flat face 36 exposed to a movable armature 37 spaced from the said face 36 at the opposite side of the ejector opening 33 and this armature 37 is adapted to move through the section 32 toward and away from the magnet 35 for service as a spurious coin, token or the like ejector, the latter being ejected through the opening 33 so as to be ineffective for the operation of the machine.

The magnet 35 and its armature 37 are arranged in an electric circuit 38 which is insulated from the circuit 55 and includes an opening and closing switch 39, the movable switch blade 40 thereof being carried by the armature 37 and normally the said switch 39 is closed, being ef-

fectured by a coiled tensioning spring 41 active upon the armature 37 which holds the latter spaced from the face 36 of the magnet 35 to avoid a barrier to the travel of an authorized coin, token or the like inserted in the slot 28 through the chute 29 for the purposes hereinafter set forth.

In the working of the coin, token or the like bearing iron is inserted through the slot 28 into the section 32 of the chute 29 on its passage to between the face 36 of the magnet 35 and armature 37, the magnetic force of the said magnet is augmented by the presence of said coin, token or the like and thus the armature 37 will be drawn to the magnet 35 displacing the said coin, token or the like from the passage 34 and bringing it to the opening 33. When the armature 37 is attracted by the magnet 35, the circuit 38 to said magnet is broken or open by the switch 39 and thus the spurious coin, token or the like will be freed from the core and armature so that it will drop through the opening 33 and ineffective for the successful operation of the machine. Thus the machine in its construction is rendered slug-proof in that a spurious coin, token or the like will be ineffective for the operation of said machine.

The armature 37 is slidably fitted within a housing 42 built with the section 32 and this housing has a clearance 43 for the switch arm or blade 40, which extends without said housing.

The spring 41 is fixed at 44 to the armature 37 and at 45 to the housing 42. Arranged in the section 32 of the chute 29 in the path of travel of the spurious coin, token or the like through the passage 34 is a delicate spring contact 46 which closes the circuit 38 of the detector, the switch 39 being under normal conditions closed.

Connected with the gate 19 is the movable core or armature 47 of a solenoid 48, this connection being had by a stem 49 while arranged within the housing or casing A adjacent to the lighting element 26 is an electric fan 50 so that when the said unit 26 is lighted and the fan active the lighting of the end of the cigarette 11 by the said lighting unit 26 will be assured as a proper draft is set up by the activity of the fan in the direction of the said unit. The unit 26 with the solenoid 48 and fan 50 is included in a normally open electric circuit, denoted generally at 51, and closed by a switch having the spring arm 52 arranged in the path of a delayed acting movable core or armature 53 of a solenoid 54 within a normally open electric circuit 55 adapted to be closed by the engagement of an authorized coin, token or the like within the passage 33 engaging spring terminal contacts 56 mounted on the chute 29 and insulated therefrom to be projected into the passage 33, these terminal contacts being spaced apart so that the circuit 55 remains open when a genuine coin, token or the like is not bridging the space between said contacts and engaged with the latter, the solenoid 54 at this time being deenergized. The armature or core 53 of the solenoid 54 has formed therewith a toothed rack 57 meshing with a train of clock gearing 58 housed at 59 and including an escapement 60, the purpose of the gearing being to delay the gravitation of the core or armature 53 downwardly when the solenoid 54 is deenergized yet not interfering with quick action of the upward movement of the core or armature when the said solenoid 54 is energized. The delayed gravity descent of the armature or core 53 stays for a determined period

of time the opening of the switch in the circuit 51, the rack 57 being insulated at 61 from the arm 52 of the switch in the circuit 51 and said rack in the movement of the core or armature 53 in the solenoid 54 functions for the opening and closing of the switch arm 52 of the switch in the said circuit 51 and in this manner the lighting unit 26, solenoid 48 and fan 50 in the said circuit 51 are regulated and controlled for the operation of the machine or apparatus. The delayed action of the rack 57 on the core or armature 53 of the solenoid 54 for the opening of the arm 52 of the switch in the circuit 51 times the action of the gate 19, the lighting unit 26 and the fan 50. The delayed action with respect to the gate 19 takes place when the core or armature 47 of the solenoid 48 is under the influence of the said solenoid when energized in that the spring 27 becomes active upon the gate 19 the instant that the switch arm 52 is moved to open position and the solenoid 48 becomes deenergized through the opening of the circuit 51.

The delayed action before referred to assures the proper period of activity of the lighting unit 26 and the directional movement of the gate 19, respectively, against the resistance of the spring 27 playing upon said gate to assure a positive lighting of a cigarette by the lighting unit 26 when the said cigarette has been transferred from the spout 12 into the throat 17 of the machine.

To operate the machine or apparatus, a genuine coin, token or the like of a determined denomination is inserted in the slot 28 for delivery into the chute 29 and this coin, token or the like is deposited within the box 30. When the genuine coin, token or the like passes into the passage 33, the circuit 55 becomes closed, energizing the solenoid 54, the circuit 51 having the lighting unit 26, solenoid 48 and fan 50 therein being at this time open and when the solenoid 54 becomes energized the switch arm 52 of the switch in the circuit 51 closes the latter thus rendering active the solenoid 48, lighting unit 26 and fan 50, respectively, for the purposes hereinbefore stated. This sequence of operation effects the lighting of a single cigarette and its positioning within the trough 22 so that the lighted cigarette can be had by reason of access thereto through the opening 23 in the front wall 24 of the casing or housing A.

The deposit of an authorized coin, token or the like of the proper denomination in the machine or apparatus assures the dispensing of a single lighted cigarette thereby.

The solenoids 48 and 54 are within the circuits 51 and 55, respectively.

What is claimed is:

1. A machine of the kind described comprising a vertical magazine adapted to support articles in horizontal position and vertical stacked relation, means offset from said magazine for bringing articles to an upright position in single order, means for transferring articles from the magazine to the said first-named means, a lighter movable with the transfer means for the lighting

of each article when in an upright position in the offset means, a draft element operating when the lighter is in lighting position, and means for operating the transfer means.

2. A machine of the kind described comprising a vertical magazine adapted to support articles in horizontal position and vertical stacked relation, means offset from said magazine for bringing articles to an upright position in single order, means for transferring articles from the magazine to the said first-named means, a lighter movable with the transfer means for the lighting of each article when in an upright position in the offset means, a draft element operating when the lighter is in lighting position, means for operating the transfer means, and an electric control for the lighter and included with the said last-named means.

3. A machine of the character described comprising a vertical magazine adapted to support articles in a horizontal position and vertical stacked relation, discharge means for the articles within the magazine and of internal construction for effecting the turning of the articles from a horizontal to an upright position in single order, means for transferring a single article from the magazine to the first-named means, a lighter co-acting with the last-named means and movable to a position for lighting the upright article within the first-named means, and means for creating a draft with respect to the article during the lighting period.

4. A machine of the character described comprising a vertical magazine adapted to support articles in a horizontal position and vertical stacked relation, discharge means for the articles within the magazine and of internal construction for effecting the turning of the articles from a horizontal to an upright position in single order, means for transferring a single article from the magazine to the first-named means, a lighter co-acting with the last-named means and movable to a position for lighting the upright article within the first-named means, means for creating a draft with respect to the article during the lighting period, and a connection between the transfer means and said lighting means.

5. A machine of the character described comprising a vertical magazine adapted to support articles in a horizontal position and vertical stacked relation, discharge means for the articles within the magazine and of internal construction for effecting the turning of the articles from a horizontal to an upright position in single order, means for transferring a single article from the magazine to the first-named means, a lighter co-acting with the last-named means and movable to a position for lighting the upright article within the first-named means, means for creating a draft with respect to the article during the lighting period, a connection between the transfer means and said lighting means, means for operating the transfer means, and a control operative for rendering the lighting means active and inactive.

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