Feb. 19, 1929. 1,702,714

G. WEISS

VENDING MACHINE

Original Filed May 26, 1923 3 Sheets-Sheet 1

Fig. 1

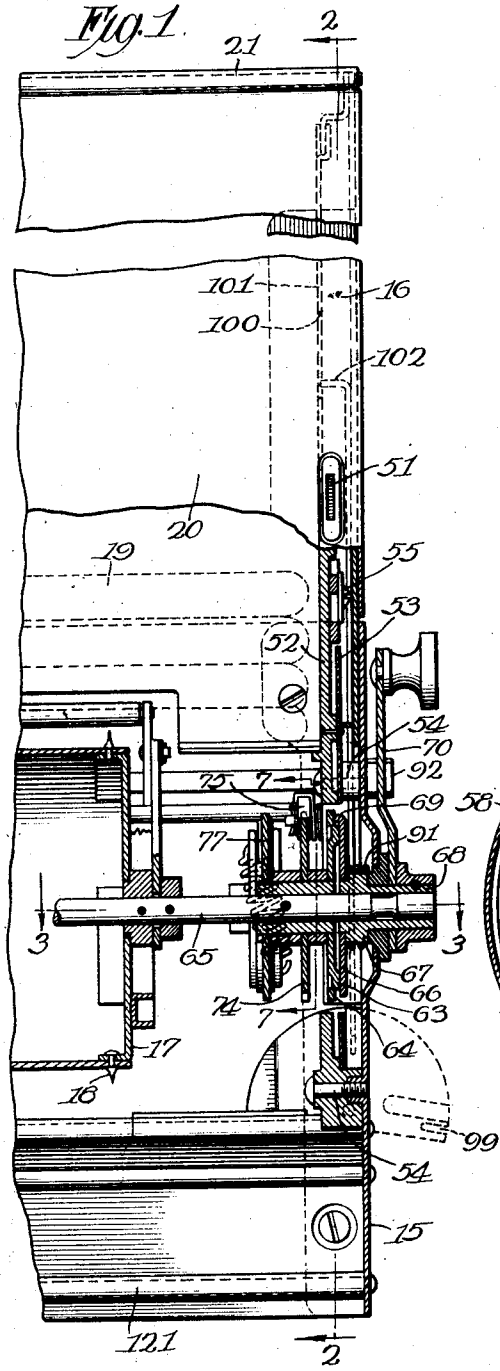
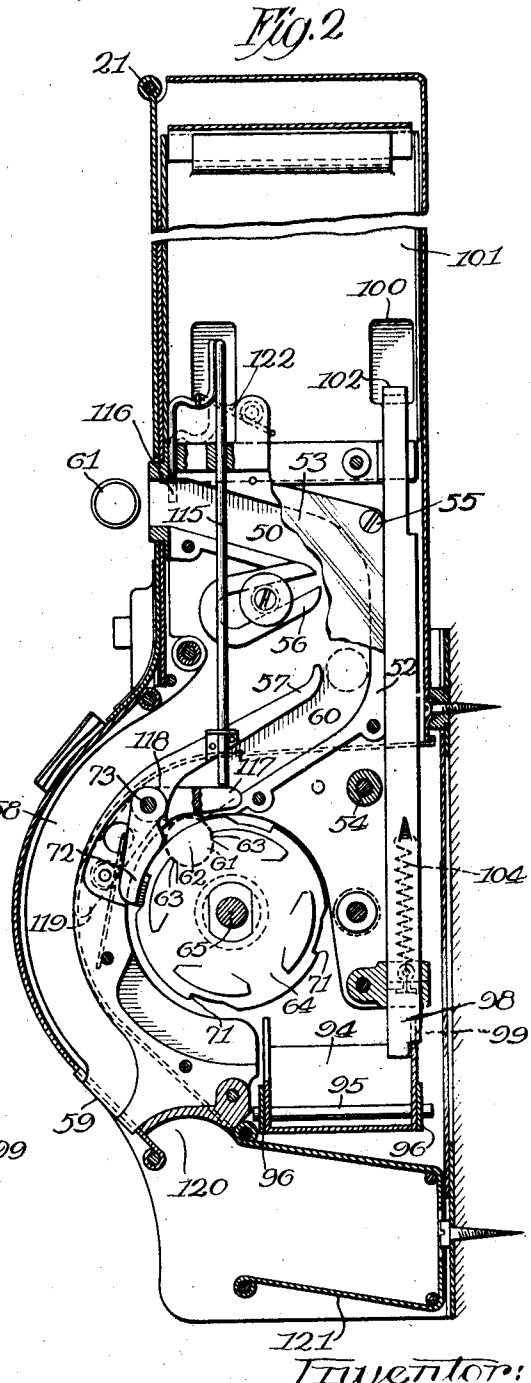


Fig. 2



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Feb. 19, 1929. 1,702,714

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VENDING MACHINE

Original Filed May 26, 1923 3 Sheets-Sheet 2

Fig. 11

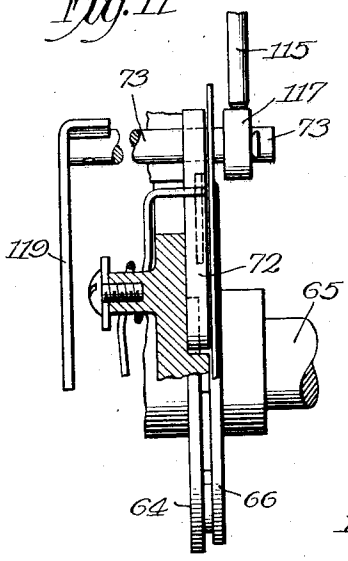


Fig. 3

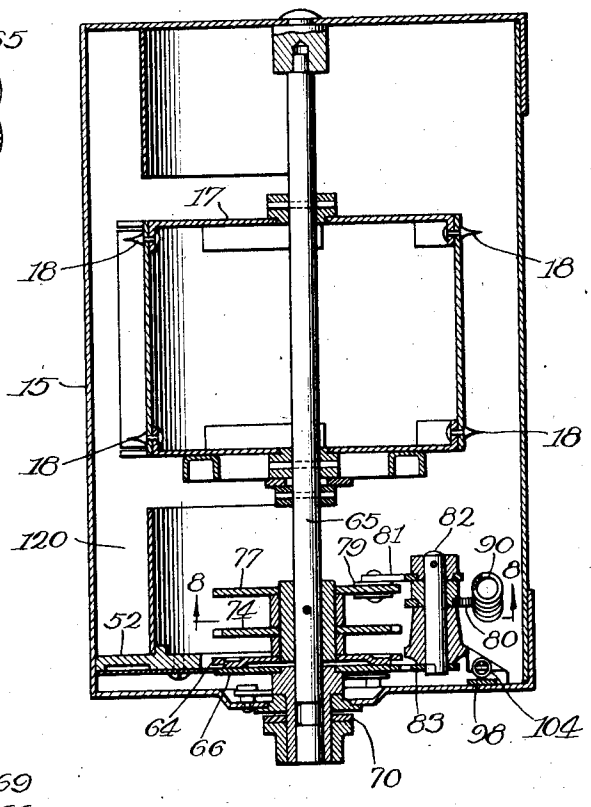
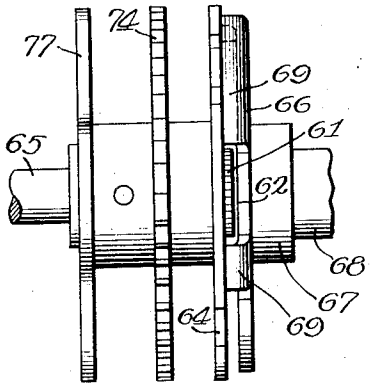


Fig. 10



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Feb. 19, 1929. 1,702,714

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VENDING MACHINE

Original Filed May 26, 1923 3 Sheets-Sheet 3

Fig. 9

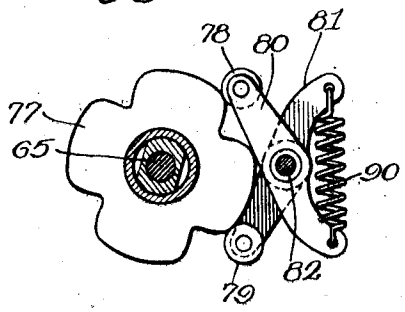


Fig. 8

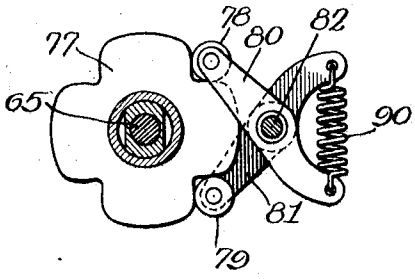


Fig. 6

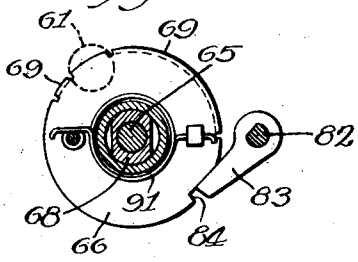


Fig. 7

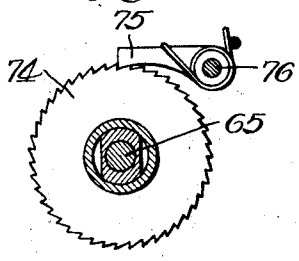


Fig. 4

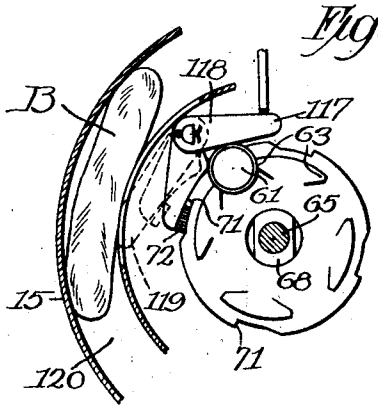
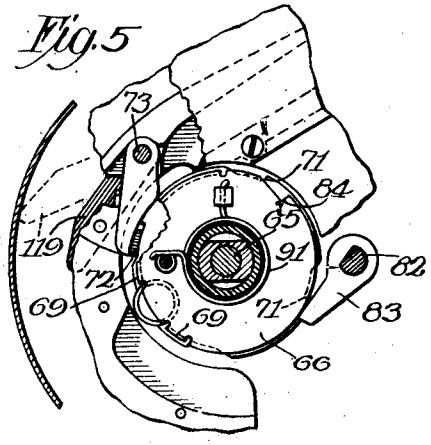


Fig. 5



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Patented Feb. 19, 1929. 1,702,714

UNITED STATES PATENT OFFICE.

GEORGE WEISS, OF CHICAGO, ILLINOIS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO INTERNATIONAL CELLUCOTTON PRODUCTS CO., OF CHICAGO, ILLINOIS, A CORPORATION OF DELAWARE.

VENDING MACHINE.

Original application filed May 26, 1923, Serial No. 641,584. Divided and this application filed November 19, 1926. Serial No. 149,486.

This invention relates to coin controlling mechanism for vending machines and the like, and this application is a division of my co-pending application, Serial No. 641,584, filed May 26, 1923, for vending machines.

The objects of the invention are to provide a simple and durable coin controlled mechanism which cannot be rendered operable by slugs or by coins of a denomination other than that which is intended to operate the machine; to provide such mechanism which cannot readily be manipulated by means of wires or other devices so as to render the machine operable without insertion of a proper coin; to provide such mechanism which will consist mainly of stamped metal parts, such as can be economically manufactured, and in general, to provide an improved structure of the class described.

Other objects and advantages of my invention will become apparent by reference to the following specification when considered in connection with the accompanying drawings illustrating a selected embodiment thereof, and in which:

Fig. 1 is a front elevation, partly in section and showing my coin controlled mechanism applied to a vending machine such as described in my above mentioned co-pending application.

Figs. 2 and 3 are sections on the lines 2—2 and 3—3 respectively, of Fig. 1.

Figs. 4, 5 and 6 are detail views of a portion of the mechanism shown in Fig. 2, showing the mechanism in different positions.

Fig. 7 is a section on the line 7—7 of Fig. 1.

Fig. 8 is a section on the line 8—8 of Fig. 3.

Fig. 9 is a detail view similar to Fig. 8, but showing the parts in a changed position.

Fig. 10 is a detail plan view of part of the coin controlled mechanism, and

Fig. 11 is a detail front elevation of a part of said mechanism.

Referring now to the drawings, I have shown my improved coin controlled mechanism applied to a machine particularly adapted to vending comparatively bulky articles such as sanitary napkins, and which machine comprises the main housing 15 and a receptacle 16 which is mounted thereover. The housing 15 contains the article discharging devices which in the present instance comprise a drum 17 which is secured to a shaft 65 and which is adapted to be rotated therewith. The drum 17 is provided with pins 18 which are for the purpose of entering the bottom side of the lowermost article in the receptacle 16 so as to force the said lowermost article from the receptacle as the drum is rotated. In Fig. 1, articles to be vended are indicated in dotted lines at 19, and the receptacle 16 is provided with suitable means for guiding the articles downwardly as the lowermost article is removed therefrom and also with a suitable cover indicated at 20 which may be hingedly connected to the body of the receptacle at its upper edge as indicated at 21, for permitting access to the interior thereof.

The above described apparatus forms no part of the present invention except as claimed in combination with other parts hereinafter described, for which reason a more detailed description will not be given here. Such a detailed description may be had by reference to my said co-pending application.

The coin controlled mechanism is adapted to prevent rotation of the article discharging drum 17 except when a proper coin is deposited in the coin slot which conveys the coin to the controlling mechanism where it is effective to render the discharge drum operable by means which I will now describe.

The coin-controlled apparatus is provided with a coin chute 50 leading from a coin slot 51 in the front wall of the container. This chute is formed between vertical plates 52 and 53, the former being channeled. The plate 52 is secured to the side wall of the casing, as at 54, and the plate 53 is attached to the plate 52, as at 55. A magnet 56 is secured to the plate 52 with its operating ends forming a portion of the inner edge of the chute at the point where the chute turns abruptly downward so that each coin passing through the chute rolls or slides over these ends. The main chute is divided into two branches by the rib or partition 57 on the plate 52, the branch chute 58 leading to a coin ejection opening 59 in the casing and the branch 60 conducting the coin to the operating mechanism. If an iron slug is inserted in the coin chute, it will be sufficiently attracted by the magnet 56 to cause it to drop into the branch chute 58 and be ejected from the casing without rendering the discharge mechanism oper-

ative. On the other hand, when a silver coin is placed in the coin slot it will not be attracted by the magnet and will drop vertically into the branch chute 60 leading to the operating mechanism. A proper coin, as 61, upon passing through the chute 60 is deposited in one of the pockets 62 formed between lugs 63 on the disk 64 fixed upon the propeller shaft 65. The coin is held in one of these pockets by a disk 66 parallel to the disk 64 and substantially contacting with the outer faces of the lugs 63. The disk 66 is secured to a collar 67 upon a sleeve 68 free upon the shaft 65 and is provided with peripheral flanges or lugs 69 bent toward the disk 64. An operating handle or lever 70 is secured upon the sleeve 68. When a coin enters one of the pockets 62, rotation of the lever 70 produces a corresponding rotation of the disk 66. This rotation of the lever 70 brings one of the lugs 69 into engagement with the coin and causes the disk 66 to operate the propeller shaft 65 through the medium of the coin and the disk 64. The periphery of the disk 64 is provided with equally spaced notches forming teeth 71, one of these notches normally containing the operative end of a spring-pressed detent 72 free upon the short shaft 73 supported in a bearing in the plate 52. The initial advance of the coin by the rotation of the lever 70 in counter-clockwise direction (Fig. 3) brings the coin into engagement with this detent and causes the same to be raised before the detent comes into engagement with the tooth 71 at the end of the notch.

A ratchet wheel 74 is fixed upon the revoluble propeller shaft 65 and engaged by a spring pressed pawl 75 which prevents rotation of the shaft in reverse or clockwise direction. The pawl 75 is mounted on the pivot pin 76 in the plate 52. A lobed cam 77 is likewise secured upon the shaft at an interval from the ratchet wheel 74. This cam operates rollers 78 and 79 respectively, carried by levers 80 and 81 mounted intermediate their ends on the short shaft 82 supported in a bearing in the plate 52. The lever 80 is loose upon the shaft 82 while the lever 81 is fixed thereon. At the outer end of the shaft 82 is fastened a detent 83 which is normally in position to engage a tooth 84 on the periphery of the disk 66 to normally prevent full forward rotation of this disk. The detent 83 and cooperative portion of the tooth 84 are, however, spaced apart a distance sufficient to permit limited forward movement of the lever 70 and disk 66 for a purpose which will presently appear.

When a proper coin is within one of the pockets 62, is serves, as previously explained, to connect the disks 64 and 66 by engaging the adjacent edges of the lugs 69 on the disk 66. Initial forward rotation of the lever 70 immediately causes the detent 72 to be disengaged from the tooth 71 and the shaft 65, and lobed cam 77 may be accordingly rotated. Rotation of the cam 77 is effective to lift the detent 83 before the disk 66 has rotated sufficiently to bring the tooth 84 into engagement with this detent and therefore the rotation of the disk 66 may continue. This lifting of the detent is accomplished by the abrupt lobe of the cam quickly forcing the roller 79 away from the axis of the shaft 65. In Fig. 8 is illustrated the normal or initial positions of the cam, roller and lever. Fig. 9 illustrates the relative position of these parts after the rotation of the shaft 65 has commenced. The roller 79 is riding out upon the lobe of the cam and the lever 81 has previously rotated the shaft 82 sufficiently to move the detent 83 out of position to engage the tooth 84. The initial positions of the disk 66 and detent 83 are illustrated in Fig. 6. The corresponding ends of the levers 80 and 81 are connected by a spring 90. The roller 78 leads the roller 79 by one lobe distance and aids in retaining it firmly against the periphery of the cam. As soon as the propelling handle or lever 70 has advanced its full distance and is released by the operator, a spring 91 causes this lever, the sleeve 68 and disk 66 to be returned to their initial position. The travel of the lever 70 is determined by suitable stop lugs on the side wall of the casing, one of which is shown at 92. This lever 70 is shown in its initial position in Fig. 1 of the drawings and when operated is adapted to be moved towards the front of the machine.

As soon as the lever 70 is released at the termination of its advance, the coin drops from the pocket in the disk 64 into a coin box 94. This coin box is pivotally mounted on the rod 95 supported by inwardly projecting lugs 96 on the side wall of the casing and the outer wall of the box forms in closed position a portion of this wall of the housing or casing. The coin box is normally held in closed position by a spring actuated latch 98 which enters a slit 99 in the side wall of the box. When the casing is opened the collector may open the coin box by inserting his finger through the opening 100 in an inner wall 101 of the casing and pressing upwardly on the inwardly bent upper end 102 of the latch. The coin box is shown in open position in dotted lines in Fig. 1. As soon as the box is moved to closed position, the latch is forced into the slit 99 by the spring 104. The coin box cannot be opened from the outside of the casing.

I find it desirable to provide means for preventing insertion of a coin in the machine when the supply of articles therein is exhausted. For this purpose, I provide a wire 115 which is slidably mounted in suitable bearings, as clearly shown in Fig. 2, and which is provided with a portion adapted to

enter the slot as indicated at 116 in Fig. 2 to partially close the coin chute 50 so that a coin cannot be inserted therein. The wire 115 rests at its lower end on one arm 117 of a detector member 118 which comprises the said arm 117 and a finger 119. The member 118 is pivotally mounted on the said shaft 73 and the finger 119 is adapted to enter a passageway 120 (Fig. 4) through which the articles are propelled as they are discharged from the machine. The passageway 120 is disposed across the front of the drum 17 and is adapted to convey the articles from the receptacle 16 to a delivery shelf 121 at the lower end of the machine.

In the present embodiment of the vending machine, I discharge one article for each quarter revolution of the drum 17. It will be seen by inspection of Figs. 1 and 2 that a quarter of a revolution of the drum 17 will be sufficient only to propel one of the articles from the receptacle 16 to a position immediately in front of the drum as indicated at B in Fig. 4. In order to discharge the article from the position indicated in Fig. 4, it is necessary to turn a drum through substantially another quarter revolution so as to propel the article downwardly in the passageway 120 to a point where it will enter the delivery shelf 121 from which the purchaser may withdraw it.

It will be apparent that there will at all times be an article in the position indicated at B in Fig. 4, which article will be effective to force the finger 119 inwardly, thereby rocking the member 118 on its pivot, and swinging the arm 117 upwardly whereby the wire 115 is maintained in raised position as shown in Fig. 2. It will further be obvious that when the last article has been discharged from the B position, the finger 119 will enter the passageway 120, permitting the arm 117 to swing downwardly and whereby the wire 115 is lowered to close the coin chute at 116 as above explained. In order to insure downward movement of the wire 115, I provide a suitable spring 122 suitably anchored on a stationary part of the mechanism and having its free end engaging a portion of the wire as clearly shown in Fig. 2.

From the foregoing description, it will be evident that my improved coin-controlling mechanism will prevent the use of slugs instead of proper coins for the operation of the machine. Iron slugs, such as are often used for pilfering machines of this type are side tracked by means of the magnet 56 and are ejected without effecting operation of the machine. A slug of smaller diameter than the coin which it is intended to use in the present embodiment will not be effective to operate the machine since it will pass between the lugs 63 and therefore will not act as a connecting element, which is necessary for operation of the machine. The ratchet construction prevents rotation of the article discharging mechanism in the reverse direction and separate and distinct detents normally prevent rotation of the driving and driven disks in the operative direction. It will further be noted that both of these detents must be disengaged in order to render the machine operable by the handle provided for that purpose, and that the detent 72 prevents independent operation of the discharging drum by means of a wire hook or other similar contrivance which might be inserted through the discharge opening and caused to engage the drum or some part connected thereto. The coin performs the double function of disengaging a detent, and forming the operative connection between the driving and driven disks.

I am aware that many changes in the construction and arrangement of parts may be made without departing from the spirit of my invention as defined by the following claims which I desire to have construed as broadly as possible consistent with the state of the art, and while the term disk has been employed throughout the specification and claims, it is to be understood that this is not to be construed as a term of limitation, but is to be construed broadly to mean either a complete disk, a segment, or any portion of a disk.

I claim as my invention:

1. In a vending machine, the combination of a propeller member for discharging an article, and coin controlled mechanism for controlling said member and comprising a manually operable actuating member normally disconnected from said propeller member but adapted to be operatively connected thereto by a coin, and means normally acting to prevent the operation of either of said members, said means being rendered inoperative by the initial movement of said members when said members are operatively connected.

2. In a vending machine, the combination of a propeller member for discharging an article, means for operating said member and comprising a manually operable actuating member normally disconnected therefrom but adapted to be operatively connected thereto by a coin, and detents normally preventing the operation of either of said members, said detents being moved out of operative position by the initial movement of said members when said members are operatively connected.

3. In a vending machine, the combination of an operating shaft, a disk fixed upon said shaft, a second disk free upon said shaft, a manually operable handle connected to said free disk, said disks being adapted to be operatively connected by a coin, one or more teeth formed on the periphery of each of said disks, a detent normally in position to engage a tooth on one of said disks to limit the

forward rotation thereof, said detent being moved out of said position by said coin during the initial rotation of said handle, and a second detent normally in position to engage a tooth on the other of said disks to limit the forward rotation thereof, and means for moving the second detent out of said position by the initial rotation of said shaft.

4. A vending machine including a shaft, means responsive to the movement of the shaft for delivering the article, coin controlled means for actuating the shaft embodying spaced disks, one of said disks being secured to the shaft for rotation therewith, the other disk rotatable freely with respect to the said shaft, an actuating handle connected with the last said disk, a coin holder carried by one of said disks, means on the other disk with which the coin engages for connecting the disks for simultaneous rotation, a detent for locking the fixed disk and shaft against operation, said detent being rendered inactive by the engagement therewith of the coin when said loose disk is actuated, means for locking the said loose disk against rotation, and means responsive to the initial movement of the said loose disk for unlocking the latter in advance of the actuation of the said detent which locks the first recited disk.

5. A vending machine embodying an operating shaft, a disk fixed to the shaft, a second disk free upon the shaft, said disk being spaced to receive a check therebetween, check holders carried by the said fixed disk, a check chute for delivering the check into said holders, means for rotating said free disk, an element for locking the fixed disk and shaft against operation and adapted to be engaged and shifted by a check in the check holder to unlock the fixed disk, locking means operative to permit limited rotation of said free disk but to prevent sufficient rotation thereof to operatively actuate said operating shaft, and means operative subsequent to the unlocking of said fixed disk for rendering said locking means inactive, said means including cam mechanism to arrest the rotation of the said fixed disk and to align the check holder with the check chute.

6. A vending machine embodying an operating shaft, a disk fixed to the shaft, a second disk free upon the shaft, said disks being spaced to receive a check therebetween, check holders carried by the said fixed disk, a check chute for delivering the check into said holders, means for rotating said free disk, an element for locking the fixed disk and shaft against operation and adapted to be engaged and shifted by a check in the check holder to unlock the fixed disk, means for locking the said free disk for a limited initial free movement, and means operatively connected with the said check holder carrying disk for rendering the last recited means inactive and thereafter operating to effect a proper alignment of the check holders with the said check chute.

7. A vending machine embodying an operating shaft, a primary disk fixed to the shaft, a secondary disk rotatable independently of the primary disk, said disks laterally spaced to receive a check therebetween, a check holder carried by one of the disks, a formation carried by the other disk to engage behind the check to rotate the said primary disk, a pivotally mounted pawl for locking the primary disk against rotation, the check in the check holder contacting with said pawl for shifting the pawl to unlock the said primary disk, a pawl for locking the secondary disk for a limited initial free movement, and means responsive to such limited free movement for rendering the last recited locking pawl inactive.

8. A vending machine embodying an operating shaft, a primary disk fixed to the shaft, a secondary disk rotatable independently of the primary disk, said disks laterally spaced to receive a check therebetween, a check holder carried by one of the disks, a formation carried by the other disk to engage behind the check to rotate the said primary disk, a pivotally mounted pawl for locking the primary disk against rotation, the check in the check holder contacting with said pawl for shifting the pawl to unlock the said primary disk, a check chute for delivering the checks to the check holder, a pawl for locking the said secondary disk for a limited initial free movement, and means responsive to such limited free movement for rendering the last recited locking pawl inactive, the last recited means also operating to effect a proper alignment of the said check holders with the said chute.

9. A vending machine embodying an operating shaft, a primary disk fixed to the shaft, a secondary disk rotatable independently of the primary disk, said disks laterally spaced to receive a check therebetween, a check holder carried by one of the disks, a formation carried by the other disk to engage behind the check to rotate the said primary disk, a pivotally mounted pawl for locking the primary disk against rotation, the check in the check holder contacting with said pawl for shifting the pawl to unlock the said primary disk, a check chute for delivering the checks to the check holder, a pawl for locking the said secondary disk for a limited initial free movement, and means responsive to such limited free movement for rendering the last recited locking pawl inactive, the last recited means also operating to effect a proper alignment of the said check holders with the said chute and embodying a lobed cam and cooperating spring controlled rock levers, one of said levers being operatively connected with the locking pawl for the said secondary disk.

10. In a vending machine, the combination of a propeller member for discharging an article, means for operating said propeller member, coin controlled mechanism for operatively connecting said means and said propeller member, a detent normally acting to prevent operation of said operating means, and means controlled by said coin control mechanism for moving said detent out of operative position.

11. In a vending machine, the combination of a propeller member for discharging an article, means for operating said propeller member, coin controlled mechanism for operatively connecting said means and said propeller member, a detent normally acting to prevent operation of said operating means, and means controlled by said coin controlled mechanism including a lobed cam and a rock lever coacting therewith for moving said detent out of operative position.

12. In a vending machine, the combination of a shaft, delivery mechanism connected with said shaft, means normally disconnected but adapted to be operatively connected by a coin for actuating said shaft, a detent normally permitting limited movement but acting to prevent sufficient movement of said means to operate said delivery mechanism, a cam on said shaft, and a rock lever connected to said detent and coacting with said cam to cause said detent to be moved out of operative position by said cam when said shaft is initially rotated by said means.

13. In a vending machine, the combination of an operating shaft, delivery mechanism actuated by said shaft, means for preventing rearward rotation of said shaft, a member fixed upon said shaft, a second member free upon said shaft, an operating handle connected to said free member, a coin holder formed on one of said members, means on the other of said members for engaging a coin in said holder to cause said shaft to be operatively connected to said handle, a pawl normally permitting limited rotation but operative to prevent sufficient forward rotation of said handle to separate said delivery mechanism, and means actuated by initial rotation of said handle and shaft when operatively connected by a coin, for effecting disengagement of said pawl, thereby to permit said delivery mechanism to be actuated by movement of said handle.

14. In a vending machine, the combination of an operating shaft, delivery mechanism connected to said shaft so as to be operable by rotation of the latter, a disk fixed upon said shaft, a second disk free upon said shaft and spaced from the first disk to receive a coin therebetween, a manually operable handle connected to said free disk, coin holders carried by one of said disks, means on the other of said disks for engaging a coin in one of said holders to cause said shaft and said handle to be operatively connected, locking means normally permitting limited rotation of said handle insufficient to operatively actuate said delivery mechanism, and means actuated by the initial part of the rotation of said shaft for disengaging said locking means.

15. In a vending machine, the combination of an operating shaft, means operable by said shaft for delivering articles from the machine, a disk fixed upon said shaft, a second disk free upon said shaft and spaced from said fixed disk to receive a coin therebetween, an operating handle secured to said free disk, a coin holder formed on said fixed disk, a formation on said free disk projecting toward said fixed disk to engage a coin in said holder to cause said shaft to be operatively connected to said handle through the medium of said free disk, said coin and said fixed disk, when said handle is moved in operating direction, locking means normally permitting limited rotation of said handle insufficient to operatively actuate said delivery means, and means for disabling said locking means as an incident to an initial part of the rotation of said shaft, thereby to permit said handle to be rotated sufficiently to operate said delivery means.

16. In a vending machine, the combination of an article delivery mechanism, an operating shaft for actuating said delivery mechanism, a disk fixed upon said shaft, a second disk free upon said shaft, a manually operable handle connected to said free disk, said disks being adapted to be operatively connected by a coin and said fixed disk being provided with a ratchet tooth, a detent normally in position to engage said tooth to limit the amount of movement of said fixed disk and shaft, said detent being adapted to be moved out of said position by a coin serving to connect said disks during an initial part of the rotation of said handle, locking means for normally permitting limited rotation of said handle and free disk independent of said fixed disk, and means actuated by an initial part of the movement of said shaft for disengaging said locking means so as to permit said handle to be operatively rotated.

17. In a vending machine, the combination of a shaft, means responsive to the movement of said shaft for delivering an article, coin controlled means for actuating the said shaft embodying spaced disks, one of said disks being secured to the shaft for rotation therewith, the other disk being rotatable freely with respect to said shaft, an actuating handle connected with said freely rotatable disk, a coin holder carried by one of said disks, means on the other disk with which the coin engages for connecting the disks for simultaneous rotation, detents for respectively locking the fixed disk and shaft and free disk

against operative rotation but permitting limited inoperative movement thereof, one of said detents being adapted to be rendered inactive by the engagement therewith of a coin deposited in said holder when the disk carrying said holder is actuated, and means whereby the other of said detents is rendered inactive as an incident to an initial part of the rotation of said shaft after the first detent is rendered inactive.

18. A vending machine embodying an operating shaft, a primary disk fixed to said shaft, a secondary disk rotatable independently of said primary disk, said disks being laterally spaced to receive a check therebetween, a check holder carried by one of the disks, a formation carried by the other disk to engage behind the check to rotate said primary disk, a pivotally mounted pawl for locking the primary disk against rotation, a check deposited in said check holder being adapted to engage said pawl for shifting the same to unlock said primary disk, locking means normally operative to allow only limited rotation of said secondary disk independently of said primary disk, and means for rendering said locking means inoperative after said primary disk is unlocked.

19. In a vending machine, the combination of a rotatable operating shaft, check controlled mechanism for operatively rotating said shaft and comprising a member fixed on said shaft, another member mounted so as to be normally disconnected from said fixed member and movable relative thereto, means carried by said members for receiving a check to operatively connect said members, a chute for delivering a check to said check receiving means, a tooth on said normally disconnected member, a pawl adapted to engage said tooth so as to allow only limited rotation of said disconnected member relative to said fixed member, and means operative as an incident to an initial portion of the rotation of said shaft for shifting said pawl so as to permit operative rotation of said disconnected member, said means being also operative subsequent to operative movement of said shaft to align said check controlled mechanism with said chute for receiving another check.

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