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Aug. 31, 1926.

1,598,148

S. S. MILLER

VENDING MACHINE

Filed Feb. 2, 1926 2 Sheets-Sheet 1

Fig. 1.

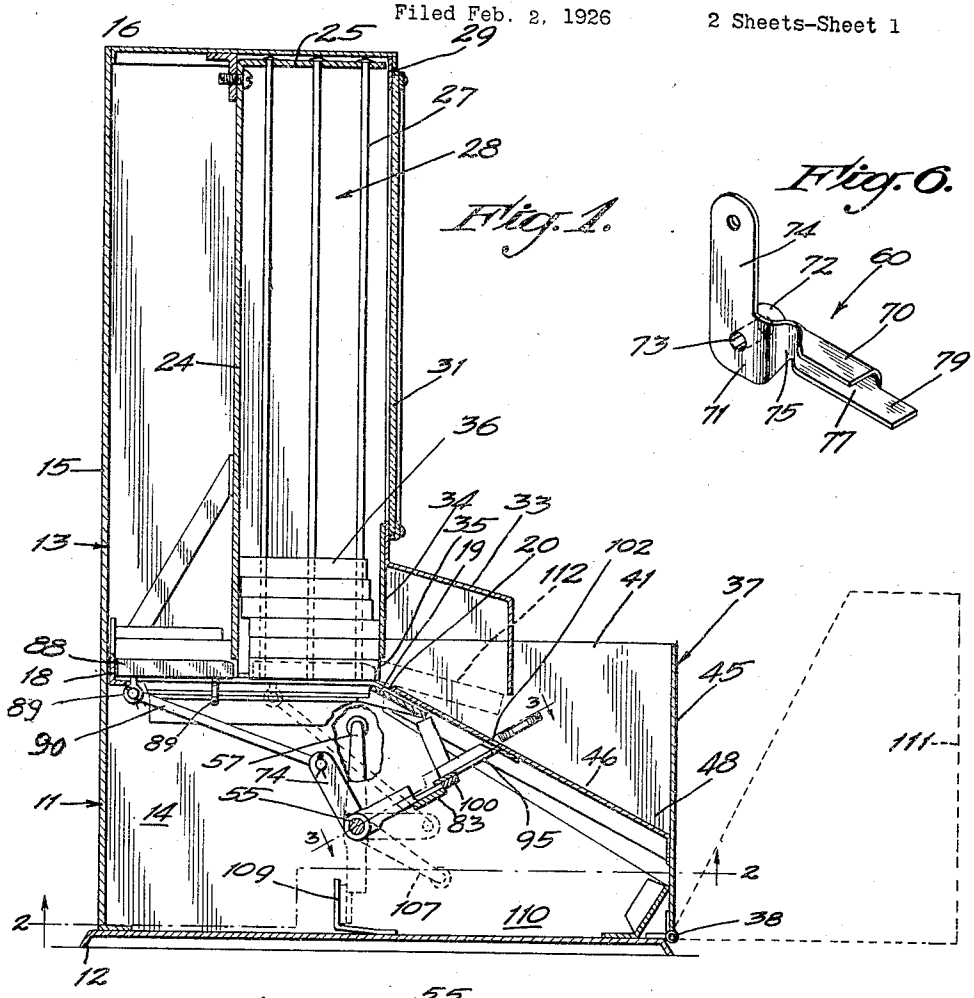


Fig. 6.

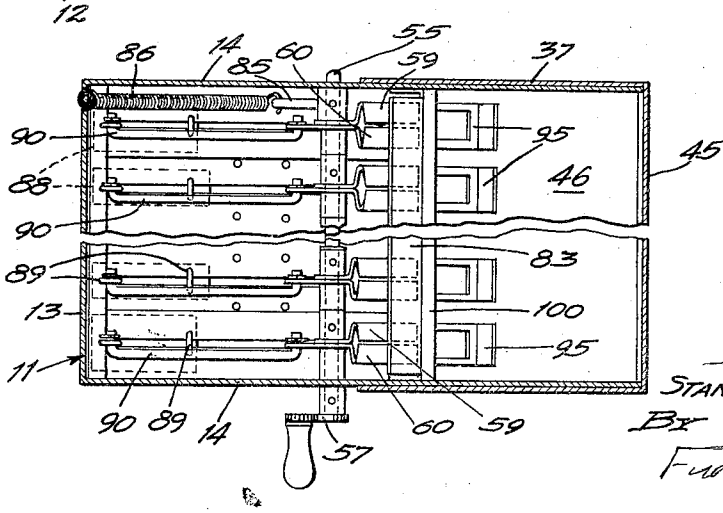


Fig. 2.

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2 Sheets-Sheet 2

Fig. 4.

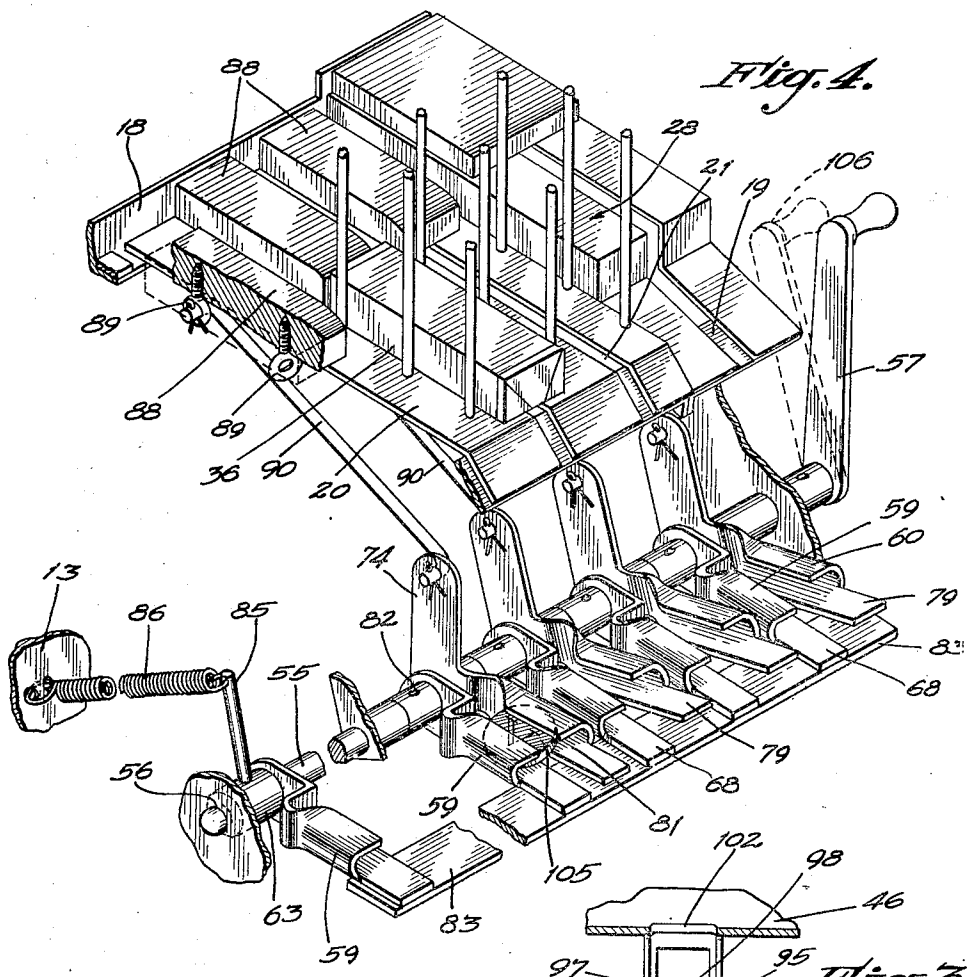


Fig. 3.

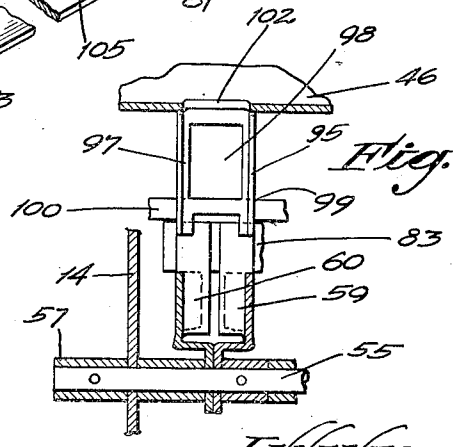
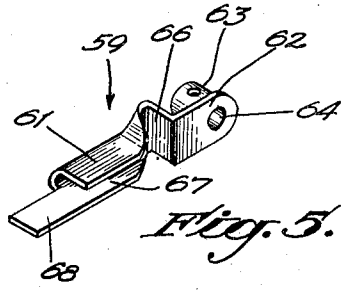


Fig. 5.



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Patented Aug. 31, 1926.

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1,598,148

UNITED STATES PATENT OFFICE.

STANHOPE S. MILLER, OF LOS ANGELES, CALIFORNIA.

VENDING MACHINE.

Application filed February 2, 1926. Serial No. 85,480.

My invention relates to a vending machine and particularly to a vending machine adapted for vending small packages such as gum and candy bars.

It is an object of this invention to provide a vending machine which is of marked simplicity in its entire structure, yet dependable in operation.

It is another object of this invention to provide a vending machine having a plurality of ejecting mechanisms which are all operated by the same crank and which may be operated either singly or together.

It is a still further object of this invention to provide a vending machine having a rigid coin receiving member and a loose coin receiving member which are adjacently positioned on a shaft and which are adapted to be locked together by a coin.

It is also an object of this invention to provide a vending machine of the character mentioned in which all of the rigid coin receiving members are tied together.

It is another object of this invention to provide a vending machine in which the loose coin receiving members are returned to normal position by a member which ties the rigid coin receiving members together.

It is another object of this invention to provide a vending machine in which the normal positions of the rigid and loose coin receiving members are determined by engagement thereof with coin chutes.

Other objects and advantages of this invention will be made evident hereinafter.

Referring to the drawings in which I illustrate my invention:

Fig. 1 is a vertical section through a vending machine embodying the features of this invention.

Fig. 2 is a section taken on the line 2—2 of Fig. 1 looking in the direction indicated by the arrows thereof.

Fig. 3 is a fragmentary section taken on the line 3—3 of Fig. 1.

Fig. 4 is a fragmentary perspective view showing the operating mechanism of my invention.

Fig. 5 is a perspective view of a rigid coin receiving member of my invention.

Fig. 6 is a perspective view of a loose coin receiving member of my invention.

The form of the invention shown in the drawings consists of a housing 11. The housing 11 consists of a base plate 12 to which a vertically extending shell 13 is secured, this shell 13 consisting of side walls 14 and a back wall 15. A top 16 is secured to the upper end of the shell 13. Extending between the side walls 14 is a rear supporting member 18 and a forward supporting member 19. The supporting members 18 and 19, as shown best in Figs. 2 and 4, support a series of bottom plates 20 which have channels 21 therebetween. It should be noted that the forward supporting bar 19 is disposed in an inclined position and that the forward ends of the bottom plates 20 are bent to conform with the inclination of the bar 19. Extending upwardly from the bottom plates 20 between the front and the back of the side walls 14 is a wall 24, the upper end 25 of which extends forwardly to the front of the side walls 14. Extending between the upper portion 25 and the plates 20 is a series of bars 27 which divides the space between the side walls 14 and in front of the wall 24 into a series of retaining chambers designated at 28. The fronts of the retaining chambers 28 are closed by a front cover 29 having a glass 31 giving a view to the chambers 28. The lower part of the front cover 29 is provided in the form of a forwardly extending hood 33. Extending downwardly from a point from which the hood 33 extends forwardly from the lower part of the cover 29 is a wall 34 which terminates just above the bottom plates 20, thus providing a space 35 through which articles, as indicated at 36, may be ejected from the retaining chambers 28.

A receptacle 37 consists of vertical side walls 41 and a vertical front wall 45 to which is secured an inclined bottom 46, the upper end of which rests above the forwardly inclined portions of the bottom plates 20, and above the inclined forward cross bar 19. The receptacle 37 provides a pocket 48.

Extending across the housing 11 between the side walls 14 and below the retaining chambers 28 is an operating shaft 55, the ends of which extend through openings 56 formed in the side walls 14 by means of which the operating shaft 55 is rotatably supported. One end of the operating shaft 55 has a crank 57 secured thereto on the exterior of the housing 11 and by means of which the shaft may be rotated. Carried by the operating shaft 55 inside the housing 11 is a plurality of rigid coin re-

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ceiving members 59 and a plurality of loose coin receiving members 60. Referring to Fig. 5, each of the rigid coin receiving members 59 consists of a stamped member 61 which is provided with a flat vertical web 62 to which a hub 63 is secured. The vertical web 62 is provided with an opening 64 which aligns with an opening in the hub 63 and through which the operating shaft 55 extends. Each member 61 is provided with an offset portion 66 from which there extend walls forming a coin channel 67. The lower of the walls forming this coin channel 67 projects beyond the other of the walls forming this coin channel so as to provide an extending tongue 68.

Each of the loose coin receiving members 60 consists of a member 70 having a vertical web 71 to which a hub 72 is secured, this vertical web 71 having an opening 73 formed therein which aligns with an opening in the hub 72 and through which the operating shaft 55 extends. An arm 74 extends upwardly from the vertical web 71. An offset portion 75 connects to the vertical web 71 at the forward edge thereof, and extending from the offset portion 75 are walls forming a coin channel 77. The lower of the walls forming the coin channel 77 extends forwardly beyond the other walls in a manner to provide a tongue 79 which extends outwardly from the coin channel 77. The rigid and loose coin receiving members 59 and 60 are arranged in pairs on the operating shaft 55, as shown best in Fig. 4. The members 59 and 60 are so paired that the coin channels 67 and 77 are arranged adjacent to each other so as to form a coin cavity 81. The tongues extend outwardly from the coin channels in adjacent positions.

The rigid coin receiving members 59 may all be rigidly secured to the operating shaft 55 by pins 82 or only certain of these rigid coin receiving members may be rigidly secured to the shaft. The rigid coin receiving members 59 are all secured together by a tying member 83. As shown very clearly in Fig. 4, the tying member 83 extends under the tongues 68 and 79 and is rigidly secured to the tongues 68 of the rigid coin receiving members 59, this being easily done by spot-welding, as shown. Therefore, it will be seen that even though certain of the rigid coin receiving members 59 are not pinned to the shaft 55 they are rigidly associated with the shaft 55 by means of a tie member 83. The loose coin receiving members 60 are in no way connected to the shaft 55 and therefore the shaft 55 and the rigid coin receiving members 59 may move relatively thereto. There is a pair of rigid and loose coin receiving members 59 and 60 for each retaining chamber 28.

Extending from the hub of one of the rigid coin receiving members 59 is a rod 85 to which a spring 86 is attached for resiliently holding the shaft 55 in what is termed a normal position, which position is shown by full lines in Fig. 1. The spring 86 is connected to the rear wall 15 of the housing 11.

Each retaining chamber 28 is provided with an ejector 88. The ejector 88 is of the shape shown best in Fig. 4, and is adapted to rest on upper faces of bottom plates 20. Guide pins 89 extend downwardly from each of the ejectors 88, these pins 89 extending through a slot 21, thus guiding and retaining each ejector in proper position in the retaining chambers 28. The wall 24 terminates a short distance above the bottom plates 20 and provides a space through which the ejectors 88 may pass in moving from retracted position, as shown in full lines in Fig. 1, behind the wall 25 into extended or ejected position, as indicated by dotted lines in Fig. 1. Extending from one of the pins 89 of each ejector 88 is a connector rod 90, the forward end of which is connected to an extending end of an arm 74 of one of the loose coin receiving members 60.

Rigidly secured to the lower face of the inclined bottom 46 of the receptacle 37 is a plurality of coin chutes 95, these coin chutes being conveniently secured in place by spot-welding. Each coin chute 95 is in direct alignment with one of the coin cavities 81 of one of the pairs of rigid and loose coin receiving members 59 and 60. Each coin chute consists of a bottom wall 97 having an opening 98 formed therein and side walls 99. The rear ends of each of the chutes 95 are connected together by a bar 100 which is for the purpose of reinforcing the chutes. The inclined bottom 46 of the receptacle 37 is provided with a plurality of coin slots 102, each of which align with one of the chutes 95. As shown best in Fig. 3, the rear ends of the coin chutes 95 extend over the tongues 68 and 79 of the rigid and loose coin receiving members 59 and 60 and therefore prevent them from moving upwardly beyond a certain point; therefore, it may be said that the coin chutes 95 determine the upper, or what we call the normal position, of the rigid and loose coin receiving members 59 and 60. By this arrangement it is not necessary to provide any additional means for determining this normal position of these members.

In considering the operation of the invention we will assume that the retaining chambers 28 are filled with packages to be vended such as indicated at 36 in Fig. 1. These packages 36 are shown to be the same size and shape as a package of gum. A coin is inserted through one of the coin slots 102 and passes down one of the chutes 95. If

this coin is of too large a size it cannot be inserted through the coin slot 102 and if it is of too small a size it will drop from the chute 95 through the opening 98 thereof. This compels the use of a coin of proper size. The chute 95 through which the coin passes guides it into one of the coin receiving cavities 81. The coin rests in the cavity 81, as indicated at 105 in Fig. 4. The crank 57 is then moved from full line position, as shown in Fig. 1, or from dotted line position 106 in Fig. 4 through the position indicated by full lines in Fig. 4 into a position indicated by dotted lines 107 of Fig. 1. At this time the rigid coin receiving members 59 are moved into the position shown by dotted lines in Fig. 1 and the tying member 83 is moved into position to engage the stop 109 which determines the actuated position of the device.

The coin resting in the position indicated at 105 in Fig. 4 locks one of the loose coin receiving members 60 to one of the rigid coin receiving members 59 and therefore causes it to move with this rigid coin receiving member 59 into an actuated position. When in actuated position the rigid and loose coin receiving members are disposed so that the coin cavity 81 thereof is in a vertical plane; therefore, the coin may drop into a coin chamber 110 provided in the bottom of the housing 11. Access to the coin chamber 110 may be had by removing the front cover 29 and swinging the receptacle 37 on the hinge 38 into the position indicated by dotted lines 111 of Fig. 1.

The connecting link 90 associated with this actuated loose coin receiving member 60 is moved into dotted line position, as shown in Fig. 1, and the ejector 88 associated therewith is moved into ejecting position, as indicated also by dotted lines in Fig. 1. As the ejector moves forwardly, the front end thereof engages the back end of the package 36 which is resting in lowermost position in one of the retaining chambers 28 and is forced forwardly from this retaining chamber 28 into a position indicated by dotted lines 112 of Fig. 1. At this time the lowermost package 36 has been moved entirely out of the retaining chamber 28 and is free to slide down the inclined bottom 46 of the receptacle 37 into the pocket 48 thereof.

When the crank 57 is released the spring 86 resiliently returns the crank 57, the operating shaft 55, the rigid coin receiving members 59 and the tie member 83 to normal position. The tie member 83, since it extends below the tongues 79 of the loose coin receiving member 60, engages the loose coin receiving member that has been actuated and returns it to normal position with the other parts of the device. It is very evident that the ejectors 88 are never operated unless a coin rests in one of the coin cavities 81 and one of the loose coin receiving members 60 is locked to a rigid coin receiving member 59 by the coin.

Simplicity of construction is one of the important features of the invention. The housing and the parts that form the retaining chamber 28 are of the simplest form and the ejector mechanism is also of extremely simple form. The loose and rigid coin receiving member 60 and 59 may be very readily stamped from sheet metal. Of course, the hubs thereof are provided separately, but may be very cheaply spot-welded to the stamped portions of these parts.

Stops for determining the normal position of the parts are all eliminated by the construction of the chutes 95 which extend so as to engage the tongues 68 and 79. Separate means for returning any of the actuated loose coin receiving members 60 and the associated mechanism to normal position are all done away with by providing the tying member 83. The other function of the tying member 83 is for reinforcing the structure and also for eliminating the necessity for separately pinning each of the rigid coin receiving members 59 to the operating shaft 55. This reduces the amount of work necessary in assembling the machine.

I claim as my invention:

1. In a vending machine, the combination of: an operating shaft; means for rotating said shaft; a plurality of rigid coin receiving members, certain of which are rigidly secured to said operating shaft, each of said rigid coin receiving members having a coin channel and a tongue extending outwardly from said coin channel; tying means for tying said rigid coin receiving members together; a plurality of loose coin receiving members pivotally carried by said operating shaft, each of said loose coin receiving members being positioned adjacent to one of said rigid coin receiving members and having a coin channel cooperating with the coin channel of the adjacent rigid coin receiving member to form a coin cavity, and having a tongue extending outwardly from said coin channel of each loose coin receiving member; a plurality of coin chutes, each of said coin chutes being positioned for guiding a coin into one of said coin slots thus locking one of said loose coin receiving members to one of said rigid coin receiving members and locking same to said operating shaft so that it will be operated therewith; walls forming a plurality of retaining chambers in which articles to be vended may be placed; a plurality of ejectors, there being one ejector for each of said retaining chambers; and means connecting each of said ejectors with one of said loose coin receiving members so as to move each ejector in a manner to eject an article from one of

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said retaining chambers when one of said loose coin retaining members is locked to said shaft.

2. A combination as specified in claim 1 in which said loose coin receiving members are returned to normal position by said tying means.

3. In a vending machine, the combination of: an operating shaft; means for rotating said shaft; a plurality of rigid coin receiving members, certain of which are rigidly secured to said operating shaft, each of said rigid coin receiving members having a coin channel and a tongue extending outwardly from said coin channel; tying means for tying said rigid coin receiving members together; a plurality of loose coin receiving members pivotally carried by said operating shaft, each of said loose coin receiving members being positioned adjacent to one of said rigid coin receiving members and having a coin channel cooperating with the coin channel of the adjacent rigid coin receiving member to form a coin cavity, and having a tongue extending outwardly from said coin channel of each loose coin receiving member; a plurality of coin chutes, each of said coin chutes being positioned for guiding a coin into one of said coin slots thus locking one of said loose coin receiving members to one of said rigid coin receiving members and locking same to said operating shaft so that it will be operated therewith; walls forming a plurality of retaining chambers in which articles to be vended may be placed; a plurality of ejectors, there being one ejector for each of said retaining chambers; means connecting each of said ejectors with one of said loose coin receiving members so as to move each ejector in a manner to eject an article from one of said retaining chambers when one of said loose coin retaining members is locked to said shaft; and returning means for returning said rigid coin receiving members to normal position, said loose coin receiving members being engaged and returned to normal position by said tying means.

4. In a vending machine, the combination of: an operating shaft; means for rotating said shaft; a plurality of rigid coin receiving members, certain of which are rigidly secured to said operating shaft, each of said rigid coin receiving members, having a coin channel and a tongue extending outwardly from said coin channel; tying means for tying said rigid coin receiving members together; a plurality of loose coin receiving members pivotally carried by said operating shaft, each of said loose coin receiving members being positioned adjacent to one of said rigid coin receiving members and having a coin channel cooperating with the coin channel of the adjacent rigid coin receiving member to form a coin cavity, and having a tongue extending outwardly from said coin channel of each loose coin receiving member; a plurality of coin chutes, each of said coin chutes being positioned for guiding a coin into one of said coin slots thus locking one of said loose coin receiving members to one of said rigid coin receiving members and locking same to said operating shaft so that it will be operated therewith, each of said coin chutes being adapted to engage said extending tongues of said rigid and loose coin receiving members for determining the normal positions of said rigid and loose coin receiving members; walls forming a plurality of retaining chambers in which articles to be vended may be placed; a plurality of ejectors, there being one ejector for each of said retaining chambers; and means connecting each of said ejectors with one of said loose coin receiving members so as to move each ejector in a manner to eject an article from one of said retaining chambers when one of said loose coin retaining members is locked to said shaft.

5. In a vending machine, the combination of: an operating shaft; means for rotating said shaft; a plurality of rigid coin receiving members, certain of which are rigidly secured to said operating shaft, each of said rigid coin receiving members having a coin channel and a tongue extending outwardly from said coin channel; tying means for tying said rigid coin receiving members together; a plurality of loose coin receiving members pivotally carried by said operating shaft, each of said loose coin receiving members being positioned adjacent to one of said rigid coin receiving members and having a coin channel cooperating with the coin channel of the adjacent rigid coin receiving member to form a coin cavity, and having a tongue extending outwardly from said coin channel of each loose coin receiving member; a plurality of coin chutes, each of said coin chutes being positioned for guiding a coin into one of said coin slots thus locking one of said loose coin receiving members to one of said rigid coin receiving members and locking same to said operating shaft so that it will be operated therewith, each of said coin chutes being adapted to engage said extending tongues of said rigid and loose coin receiving members for determining the normal positions of said rigid and loose coin receiving members; walls forming a plurality of retaining chambers in which articles to be vended may be placed; a plurality of ejectors, there being one ejector for each of said retaining chambers; means connecting each of said ejectors with one of said loose coin receiving members so as to move each ejector in a manner to eject an article from one of said retaining chambers when one of said

loose coin retaining members is locked to said shaft; and returning means for returning said rigid coin receiving members to normal position, said loose coin receiving members being engaged and returned to normal position by said tying means.

6. In a vending machine, the combination of: an operating shaft; means for rotating said shaft; a plurality of rigid coin receiving members, certain of which are rigidly secured to said operating shaft, each of said rigid coin receiving members having a coin channel and a tongue extending outwardly from said coin channel; tying means secured to said tongues of each of said rigid coin receiving members for tying said rigid coin receiving members together; a plurality of loose coin receiving members pivotally carried by said operating shaft, each of said loose coin receiving members being positioned adjacent to one of said rigid coin receivng members and having a coin channel cooperating with the coin channel of the adjacent rigid coin receiving member to form a coin cavity, and having a tongue extending outwardly from said coin channel of each loose coin receiving member; a plurality of coin chutes, each of said coin chutes being positioned for guiding a coin into one of said coin slots thus locking one of said loose coin receiving members to one of said rigid coin receiving members and locking same to said operating shaft so that it will be operated therewith; walls forming a plurality of retaining chambers in which articles to be vended may be placed; a plurality of ejectors, there being one ejector for each of said retaining chambers; means connecting each of said ejectors with one of said loose coin receiving members so as to move each ejector in a manner to eject an article from one of said retaining chambers when one of said loose coin retaining members is locked to said shaft; and returning means for returning said rigid coin receiving members to normal position, said loose coin receiving members being engaged and returned to normal position by said tying means.

7. In a vending machine, the combination of: an operating shaft; means for rotating said shaft; a plurality of rigid coin receiving members, certain of which are rigidly secured to said operating shaft, each of said rigid coin receiving members having a coin channel and a tongue extending outwardly from said coin channel; tying means secured to said tongues of each of said rigid coin receiving members for tying said rigid coin receiving members together; a plurality of loose coin receiving members pivotally carried by said operating shaft, each of said loose coin receiving members being positioned adjacent to one of said rigid coin receiving members and having a coin channel cooperating with the coin channel of the adjacent rigid coin receiving member to form a coin cavity, and having a tongue extending outwardly from said coin channel of each loose coin receiving member; a plurality of coin chutes, each of said coin chutes being positioned for guiding a coin into one of said coin slots thus locking one of said loose coin receiving members to one of said rigid coin receiving members and locking same to said operating shaft so that it will be operated therewith, each of said coin chutes being adapted to engage said extending tongues of said rigid and loose coin receiving members for determining the normal positions of said rigid and loose coin receiving members; walls forming a plurality of retaining chambers in which articles to be vended may be placed; a plurality of ejectors, there being one ejector for each of said retaining chambers; and means connecting each of said ejectors with one of said loose coin receiving members so as to move each ejector in a manner to eject an article from one of said retaining chambers when one of said loose coin retaining members is locked to said shaft.

8. In a vending machine, the combination of: an operating shaft; means for rotating said shaft; a plurality of rigid coin receiving members, certain of which are rigidly secured to said operating shaft, each of said rigid coin receiving members having a coin channel and a tongue extending outwardly from said coin channel; tying means secured to said tongues of each of said rigid coin receiving members for tying said rigid coin receiving members together; a plurality of loose coin receiving members pivotally carried by said operating shaft, each of said loose coin receiving members being positioned adjacent to one of said rigid coin receiving members and having a coin channel cooperating with the coin channel of the adjacent rigid coin receiving member to form a coin cavity, and having a tongue extending outwardly from said coin channel of each loose coin receiving member; a plurality of coin chutes, each of said coin chutes being positioned for guiding a coin into one of said coin slots thus locking one of said loose coin receiving members to one of said rigid coin receiving members and locking same to said operating shaft so that it will be operated therewith, each of said coin chutes being adapted to engage said extending tongues of said rigid and loose coin receiving members for determining the normal positions of said rigid and loose coin receiving members; walls forming a plurality of retaining chambers in which articles to be vended may be placed; a plurality of ejectors, there being one ejector for each of said retaining chambers; means connecting each of said

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ejectors with one of said loose coin receiving members so as to move each ejector in a manner to eject an article from one of said retaining chambers when one of said loose coin retaining members is locked to said shaft; and returning means for returning said rigid coin receiving members to normal position, said loose coin receiving members being engaged and returned to normal position by said tying means.

In testimony whereof, I have hereunto set my hand at Los Angeles, California, this 18th day of January, 1926.

STANHOPE S. MILLER.