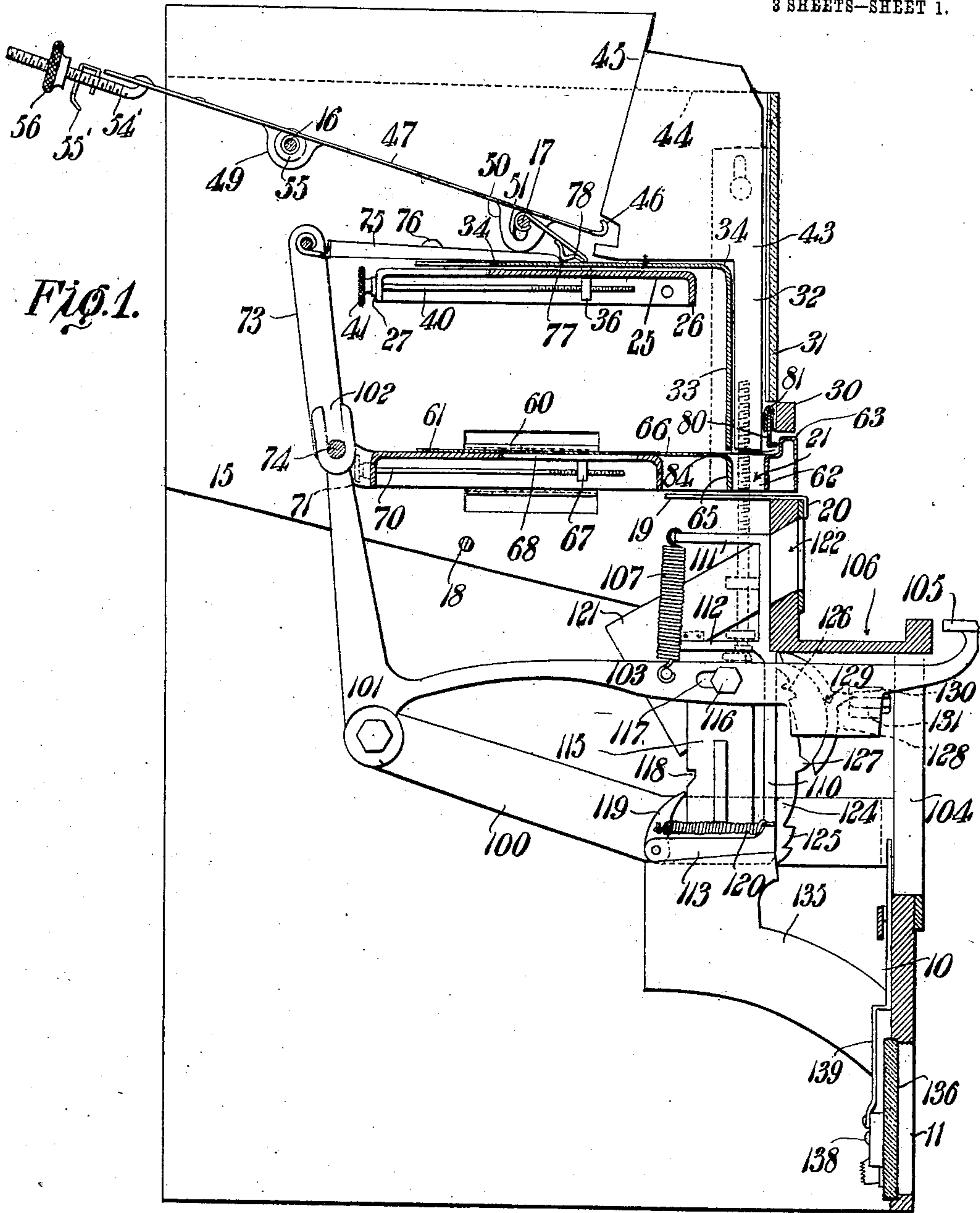


No. 862,929.

PATENTED AUG. 13, 1907.

P. S. McKENZIE.
VENDING MACHINE.
APPLICATION FILED APR. 18, 1907.

3 SHEETS—SHEET 1.



WITNESSES:

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John E. Carter

Peter S. McKenzie,

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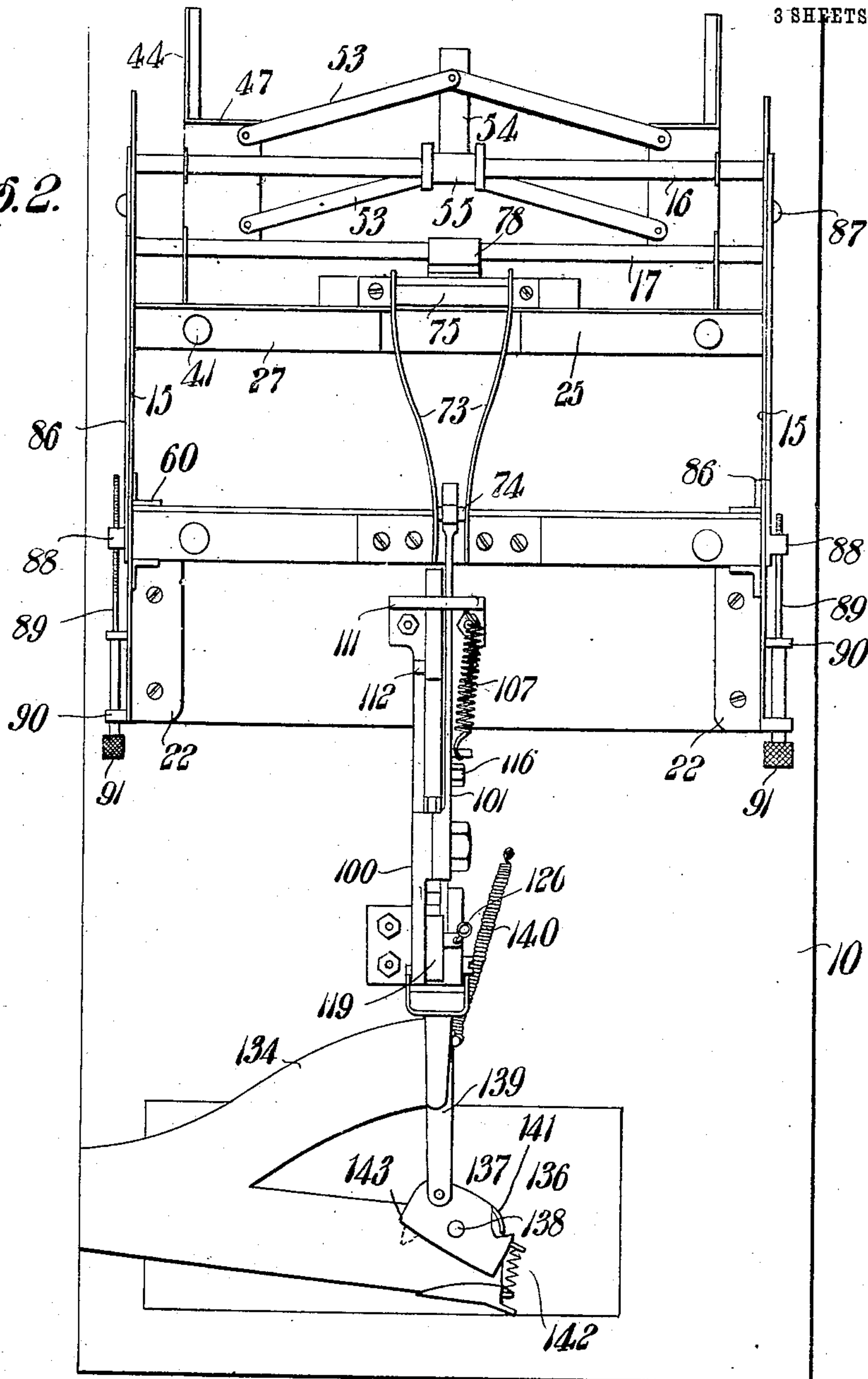
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3 SHEETS—SHEET 2.

Fig. 2.



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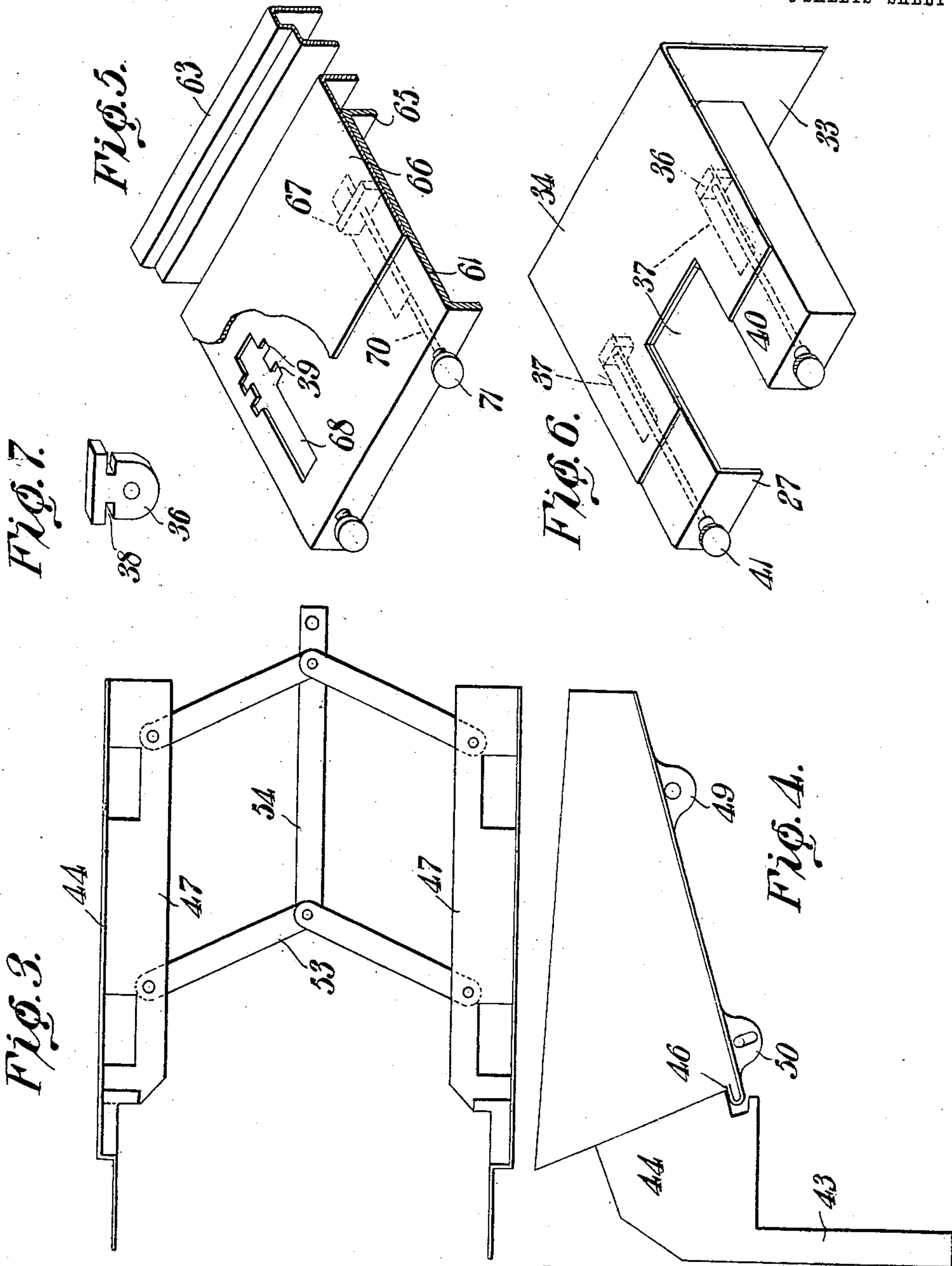
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

PETER S. McKENZIE, OF COMANCHE, INDIAN TERRITORY.

VENDING-MACHINE.

No. 862,929.

Specification of Letters Patent.

Patented Aug. 13, 1907.

Application filed April 18, 1907. Serial No. 368,935.

To all whom it may concern:

Be it known that I, PETER S. McKENZIE, a citizen of the United States, residing at Comanche, District 20, Indian Territory, have invented a new and useful Vending-Machine, of which the following is a specification.

This invention relates to vending machines.

One object of the invention is to provide an improved delivery mechanism which may be accurately adjusted for the delivery of cigars or other articles of any size, so that when used for the vending of articles which are readily broken, the movable parts may be so adjusted as to correspond exactly to the size of the article, and thus prevent damage to any second or third article which may tend to move toward the discharge point.

A further object of the invention is to provide a mechanism of simple construction for agitating the reservoir or magazine each time the device is operated, with a view of allowing the articles to freely move toward the point of discharge.

A still further object of the invention is to provide an improved form of adjustable clamp or holder arranged for the reception of cigar boxes or other goods containing packages of different size.

With these and other objects in view, as will more fully hereinafter appear, the invention consists in certain novel features of construction and arrangement of parts, hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings:—Figure 1 is a vertical section of a vending machine constructed in accordance with the invention. Fig. 2 is a rear elevation of the same. Fig. 3 is a plan view of the magazine support. Fig. 4 is a side elevation of one of the magazine supporting plates. Fig. 5 is a detail perspective view, partly in section, of the delivery slide. Fig. 6 is a detail perspective view of a portion of the delivery channel wall and its adjusting devices. Fig. 7 is a detail of one of the lugs employed in adjusting the width of the delivery slot from the guiding channel.

Similar numerals of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

The working parts of the machine are arranged within a suitable casing, a portion of which is indicated at 10, and said casing may be of any shape and size, and formed of any suitable material.

The principal working parts of the discharging mechanism

are carried by a pair of side plates 15, which are secured together by a number of cross bars 16, 17 and 18, and by a horizontally disposed plate 19, the ends of which are flanged and riveted to the side plates 15. The horizontally disposed plate 19 has a downwardly turned flange 20 which fits over the front of the casing, the plate passing through a discharge opening 21 that is formed in the casing, and the plate constituting the lower wall of said opening and forming a support for the article discharging member.

The forward edges of the side plates 15 are provided with inturned flanges 22 which are secured to the rear wall of the front of the casing by screws, bolts or other securing devices. The side plates 15 are further connected to each other by a horizontally disposed plate 25 having end flanges that are riveted to the side plates and front and rear flanges 26 and 27 and serve to strengthen the structure.

The front of the casing includes a cross bar 30, above which is a transparent panel 31 that forms the front wall of a vertical channel 32, through which the articles descend toward the discharge slide. The rear wall of this channel is formed by a plate 33, the upper portion of said plate being bent at a right angle as indicated at 34, and resting on the plate 25. This plate 34 is provided with a pair of depending lugs 36 which extend through slots 37 in the plate 25, (Fig. 6), the side walls of the lugs having notches 38 (Fig. 7) to receive the edge walls of the slot. The lugs 36 are provided with threaded openings for the reception of threaded rods 40. The rear ends of the rods are unthreaded and extend through openings formed in the flange 27, and to the rods are secured milled knobs 41 which may be turned for the purpose of moving the plate 33 toward and from the panel 31, and thus adjusting the width of the channel 32 in accordance with the size of the articles being vended.

The end walls of the channel 32 are formed of a pair of depending tongues 43 that are formed integral with a pair of parallel plates 44 arranged within the plates 15, and these plates 44 are adjusted toward and from each other in order to accommodate cigar boxes or other goods containing packages of different width. The plates 44 are bent outward to form shoulders 45, against which the end of the cigar box may abut, while the forward edge of the bottom of the box is received within a flange 46 formed in webs 47 that project inward from the lower edges of the plates 44.

The two plates 44 are provided with depending lugs 49 which are pivoted on the cross rod 16, and said plates are further provided with lugs 50 having arcuate slots 51 through which the rod 17 passes, this being for the purpose of permitting swinging move-

ment of the side plates on the cross rod 16 in order to agitate the cigar box carrier and permit free discharge of the contents of the box in the direction of the vertical channel 32.

5 The two webs 47 are connected by a plurality of pairs of links 53 to a bar 54 that is supported in a small grooved collar 55 carried by the rod 16, and the rear end of this bar is connected to an adjusting screw 54' carrying a flange 55' which may engage with a stationary part of the casing, and on the threaded portion of the bolt is a nut 56, by turning which the webs may be adjusted, and the distance between the side plates 10 44 altered in accordance with the width of the cigar box. The side plates 15 are provided with struck up flanges 60 arranged in parallel relation, the lowermost flange being in alinement with the plate 19, and these flanges serve as guides for a plate 61, the four sides of which are flanged in order to provide a rigid structure. To the side flanges of this plate are secured a pair of 20 arms 62, which at their forward ends are connected by an inverted approximately U-shaped bar 63, the rear wall of which forms the forward face of the delivery slot, this bar moving to and fro with the plate 61. The rear wall of the delivery slot is formed by the downwardly turned flange 65 of a plate 66 that is 25 mounted on top of the plate 61, and is provided with a pair of depending lugs 67 which pass through slots 68 in said plate 61, and the lugs and the walls of the slot being detachably connected in the same manner as the lugs 36 and plate 25 previously described. The lugs 67 are tapped for the reception of 30 threaded rods 70 that pass through openings in the rear flange of the plate 61 and have adjusting knobs 71, by turning which the flange 65 may be adjusted for the purpose of altering the width of the delivery slot to correspond to the width of the delivery channel 32, and the diameter of the articles being vended. 35 To the rear flange of the delivery slot 61 is secured a pair of arms 73 which carry a pin 74, said pin receiving motion from the coin controlled mechanism hereinafter described, in order to effect reciprocatory movement of the delivery slide. To the upper ends of the arms 73 is pivoted a slightly tapered plate 75 which is arranged to move on the plate 34, and to travel beyond 45 the forward edge of the cigar box and the flange 36 for the purpose of assisting the movement of the cigars or other articles in the direction of the delivery channel. On the top of the plate 75 is a lug 76 that is arranged to engage with a cam 77 carried by an arm 78 that is pivoted on the cross rod 17. This plate 78 is arranged to 50 engage against the bottom of the cigar box, and as the lug 76 engages the cam 77, the arm will transmit upward movement to the cigar box, and then as the plate 75 retreats, the cigar box will be allowed to drop, so that its contents will be agitated in order to insure free 55 discharge. The plates 44 move up and down with the cigar box, the slots 51 permitting this movement of the plates with relation to the cross rod 17, and the depending tongues of the plates 44 which form the end of the delivery channel will, also, be moved up and down, so 60 that in case of jamming in the channel, the articles will be loosened and allowed to move to proper position.

In order to adjust the height of the goods receiving

slot of the discharge slide, a vertically adjustable angle bar 80 is employed. This angle bar is guided 65 within a small channel bar 81 that is secured to the inner face of the casing bar 30, and the channel bar will move up and down within a slight recess 84 that is formed in the approximately U-shaped bar 63, so that the horizontal web of the angle bar will be exactly in 70 alinement with the top of the article which has entered the delivery slot, and will not be in a position to injure the next lowermost article when the delivery slide starts on its forward movement. This cross bar 30 is carried by a pair of vertically disposed plates 86, 75 the upper portions of which are provided with slots that pass over pins 87 projecting from the side plates 15. The lower ends of the plates 86 are provided with lugs 88 that are tapped for the reception of the threaded ends of screw 89, said screws having unthreaded portions which pass through openings in lugs 90 projecting 80 from the side plates 15. These lugs 90 are spaced from each other, and the diameter of the rod is somewhat increased between the lugs in order to prevent longitudinal movement of said rod. The lower end of each 85 rod has a milled or knurled operating rod 91 in order to permit the necessary adjustment of the plates 86, and the bar 30.

In the lower portion of the casing is a frame including a rigid rearwardly extending arm 100, and to this 90 arm is pivoted a bell crank lever 101, the approximately vertical arm of which is provided with a slot 102 for the reception of the pin 74, while the approximately horizontal arm 103 of the lever extends through a slot 104 in the front of the casing, and is provided 95 with a finger piece 105, which may be depressed for the purpose of actuating the delivery slide and other parts of the mechanism. The plates 44 are first adjusted to accommodate a cigar box or other article which is placed in position on the webs 47, and the 100 members 33, 65 and 80 are then adjusted in the manner previously described in accordance with the size of the cigars or other articles. When the finger piece 105 is depressed, movement is transmitted through the arm of the bell crank lever to the pin 75 and 76 to the 105 delivery slide, so that the lowermost article contained within the slot 62 will be moved out to a position over a delivery trough 106, which is arranged at a point outside of the casing, and will fall into said trough in convenient position to be removed by the purchaser. 110 During this forward movement, the plate 75 will pass under the forward edge of the cigar box, and will serve to straighten out any cigars which may have fallen on the horizontal portion 34 of the plate 33, and will, also, tend to feed the cigars forward in the direction of the 115 channel 32, so that the column of cigars or other articles may be maintained in said channel. During this forward movement, the lug 76 will engage against the cam 77 of the arm 78, and the cigar box will be slightly elevated. On reverse movement, which, in the present 120 instance is accomplished by the retraction of the tension spring 107, the lug will pass from under the arm, and the cigar box will fall while the delivery slide will return to its initial position and will receive within its slot the next lowermost article from the channel 32. 125

The stationary frame in the lower portion of the cas-

ing includes a vertical bar 110 having three rearwardly extending arms 111, 112 and 113, the arm 111 forming a support for the upper end of a tension spring 107, previously referred to.

5 Guided between the arm 100 and arm 113, is a vertically movable coin receiving slide 115, that is open at its rear edge throughout the entire length. This slide carries a headed pin 116 that extends through a slot 117 projecting from the arm 103 of the operating lever, and
10 when the latter is depressed, the coin slide moves down with it. The rear edge of the slide is provided with a locking notch 118 arranged to receive a locking pawl 119 that is pivoted to the arm 113 and is held in locking position by a small tension spring 120. This prevents
15 downward movement of the operating lever until a coin has been inserted, and the inserted coin engages the operating face of the pawl and moves the latter outward beyond the notch 118, so that the coin slide is free to descend. The width of the slide is made in accordance with the diameter of the coin or check which
20 is to operate the device, and any smaller coin, check or slug will simply fall down through the slot, without moving the pawl to release position. The coin is guided into the slide by a reversely bent chute 121, the
25 mouth of which is provided with a suitable escutcheon 122, at the front of the casing.

In order to prevent more than a single operation of the lever on the insertion of one coin, an automatic locking device is employed. This comprises a rack
30 bar 124, having two sets of teeth 125 and 126, and a central cam 127. These teeth are arranged to be successively engaged by the opposite ends of a pawl 128 that is pivoted on a stud 129 carried by the operating lever. Projecting forward from the center of the pawl
35 is a cam 130 which is carried by a spring actuated pin 131, that is carried by the operating lever and said pin serves by engagement with the cam to hold either end of the pawl in operative position.

When the parts are in the position shown in Fig. 1,
40 and the lever is depressed, the upper end of the pawl will successively engage with the ratchet teeth 126, and if the lever is released before being fully depressed, it cannot return to initial position, owing to the interlocking of the pawl with the ratchet teeth. When
45 fully depressed, the upper end of the pawl will engage the cam 127 and thereupon the position of the pawl will be shifted, so that the cam 130 may be moved to the opposite side of the spring pressed pin 131, and the lower end of the pawl will then move into operative
50 relation with the ratchet teeth 125, so that if the operator attempts to depress the lever a second time before fully elevating the same, the lower end of the pawl will lock against the teeth 125 and prevent such movement. When the operating lever reaches the full elevated position, the lower end of the pawl engages the
55 cam 127, and the operative position of the pawl is again shifted.

The coins which fall from the bottom of the slide enter a chute 135, by which they are delivered to a position in front of a display opening 136, the latter being
60 covered by a glass panel, so that counterfeits or slugs may be detected. At the end of this chute is an escapement 137 to permit the successive release of the

endmost coin. The escapement mechanism is in the form of a small anchor pivoted on a stud 138 and connected to a vertically guided rod 139 that is elevated by a tension spring 140. The upper end of the rod is disposed in the path of movement of the operating lever, so that when the latter is depressed, the escapement anchor will be turned to engage the second coin
65 and release the endmost, the latter falling from the end of the chute into the casing. The anchor is held in normal position by means of a suitable spring 142.

I claim:—

1. In a vending machine, a delivery slide having an article receiving slot, means for adjusting one wall of the slot with relation to the other, a guiding channel through which the articles pass to the slot, and a vertically adjustable bar forming the lower wall of the exit side of the channel, said bar being disposed in vertical alignment with the forward wall of said slot and serving to adjust the vertical height of the discharge slot. 75

2. In a vending machine, a delivery slide having an article receiving slot, the upper portion of the front wall of said slot being recessed, a guiding channel through which the articles pass to the slot, a bar forming the lower edge of the exit wall of said channel and arranged to fit within said recess, and means for vertically adjusting said bar. 80

3. In a vending machine, an article delivery slide having a delivery slot, a guiding channel through which the articles pass to the slot, a vertically adjustable bar forming the lower edge of the front wall of the channel, a pair of vertically adjustable plates to which the ends of said bar are secured, means for guiding said plates, and adjusting screws for effecting vertical movement of said plates. 90

4. In a vending machine, a delivery slide comprising a flanged plate provided with a plurality of slots arranged in parallel relation with its side edges, a cross bar in front of the plate, said arms extending rearward from the ends of the cross bar and secured to the side flanges of said plate, a flanged plate mounted on the slotted plate, said flanged plate forming the rear wall of the delivery slide, lugs forming the side walls of the flanged plate and passing through the slots, and adjusting screws connected to said lugs. 100

5. In a vending machine, a pair of vertically disposed parallel plates provided with off set portions forming shoulders for engagement with the front of a cigar box or the like, said plates having inwardly extending webs that are provided with flanged forward ends for engagement with the bottom of the box, a central bar, and a plurality of links connecting the webs to said bar. 110

6. In a device of the class specified, the combination with an operating member and a delivery slide, of a pivotally mounted magazine support, a magazine actuating finger having a depending cam, and a slidable member having a lug arranged to engage said cam and agitate the magazine, said slidable member being connected to the operating lever. 115

7. In a device of the class described, a pivotally mounted magazine support, a cam arm for agitating the same, a delivery slide, an operating lever connected thereto, a slidable plate arranged under the magazine, and connected to the delivery slide, and a lug engaging cam on said plate. 125

8. In a device of the class described, the combination with a delivery slide, of a pair of magazine supporting plates having tongues, a guiding channel of which said tongues form the end walls, and means for agitating the magazine, the plates and tongues on each operation of the device. 130

9. In apparatus of the class described, a magazine, a delivery slide, a guiding channel having vertically movable end walls, and means for moving said walls to loosen the articles in the channel at each operation of the machine. 135

10. In a device of the class specified, the combination

with delivery mechanism, of an operating lever, a double ended pawl carried thereby, a pair of oppositely facing racks with which the opposite ends of the pawl alternately engage, a cam for shifting the position of the pawl during the up and down stroke of the lever, and means for holding the lever in adjusted position.

11. In a device of the class specified, the combination with delivery mechanism, of an operating lever, a double ended pawl carried thereby, a yieldable lock for holding said pawl in adjusted position, a pair of oppositely facing

racks with which the pawl engages, and means for shifting the position of the pawl at the completion of the down stroke and the up stroke of the lever.

In testimony that I claim the foregoing as my own, I have hereto affixed by signature in the presence of two witnesses.

PETER S. MCKENZIE.

Witnesses:

J. F. CHELF,
C. S. WADE.