

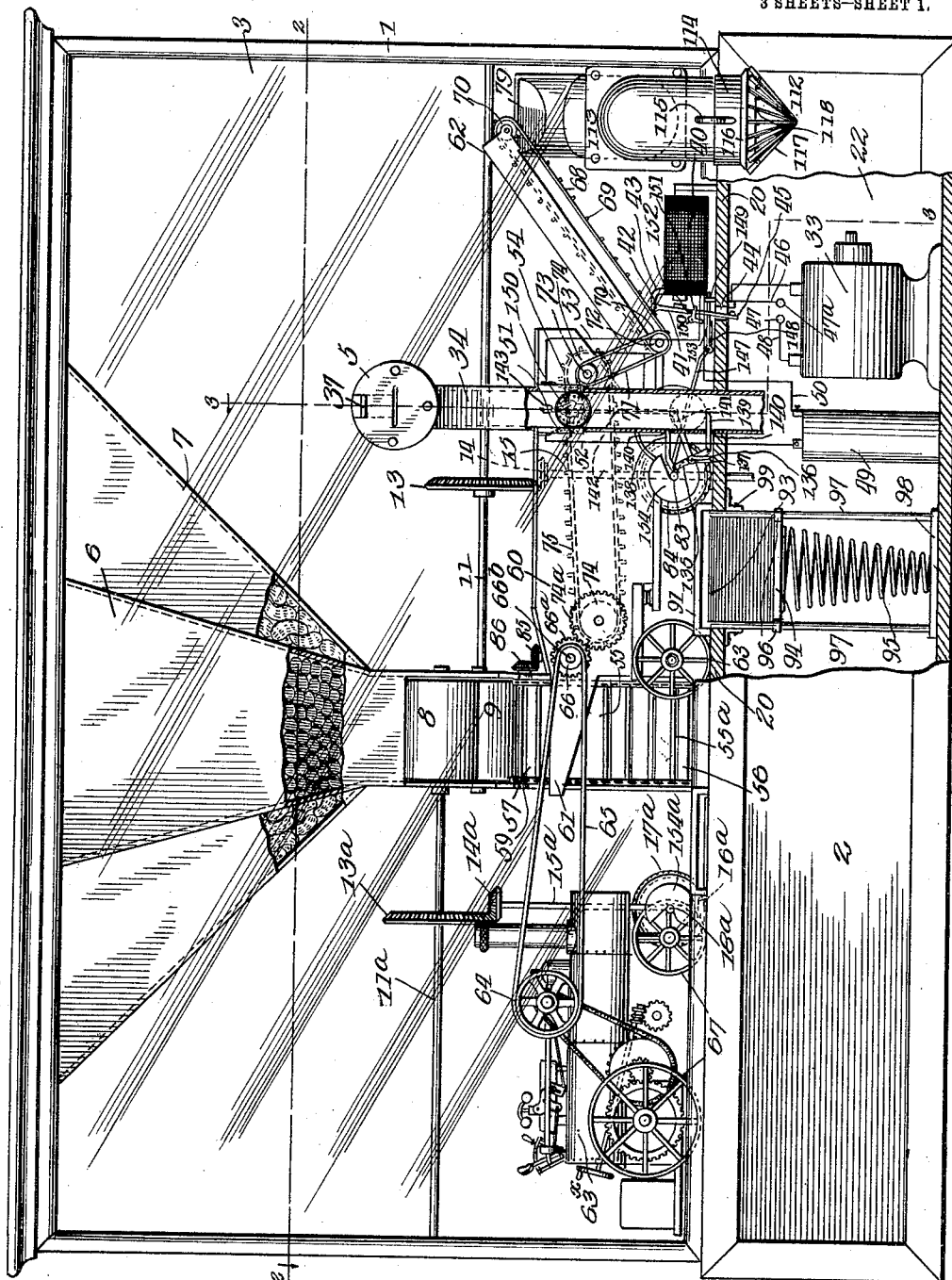
E. L. ROBINSON.
VENDING MACHINE.

APPLICATION FILED NOV. 21, 1910.

1,005,749.

Patented Oct. 10, 1911.

3 SHEETS—SHEET 1.



WITNESSES:
Samuel E. Wade
C. E. Travis

Fig. 1.

• INVENTOR
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BY *Munn & Co.*
ATTORNEYS

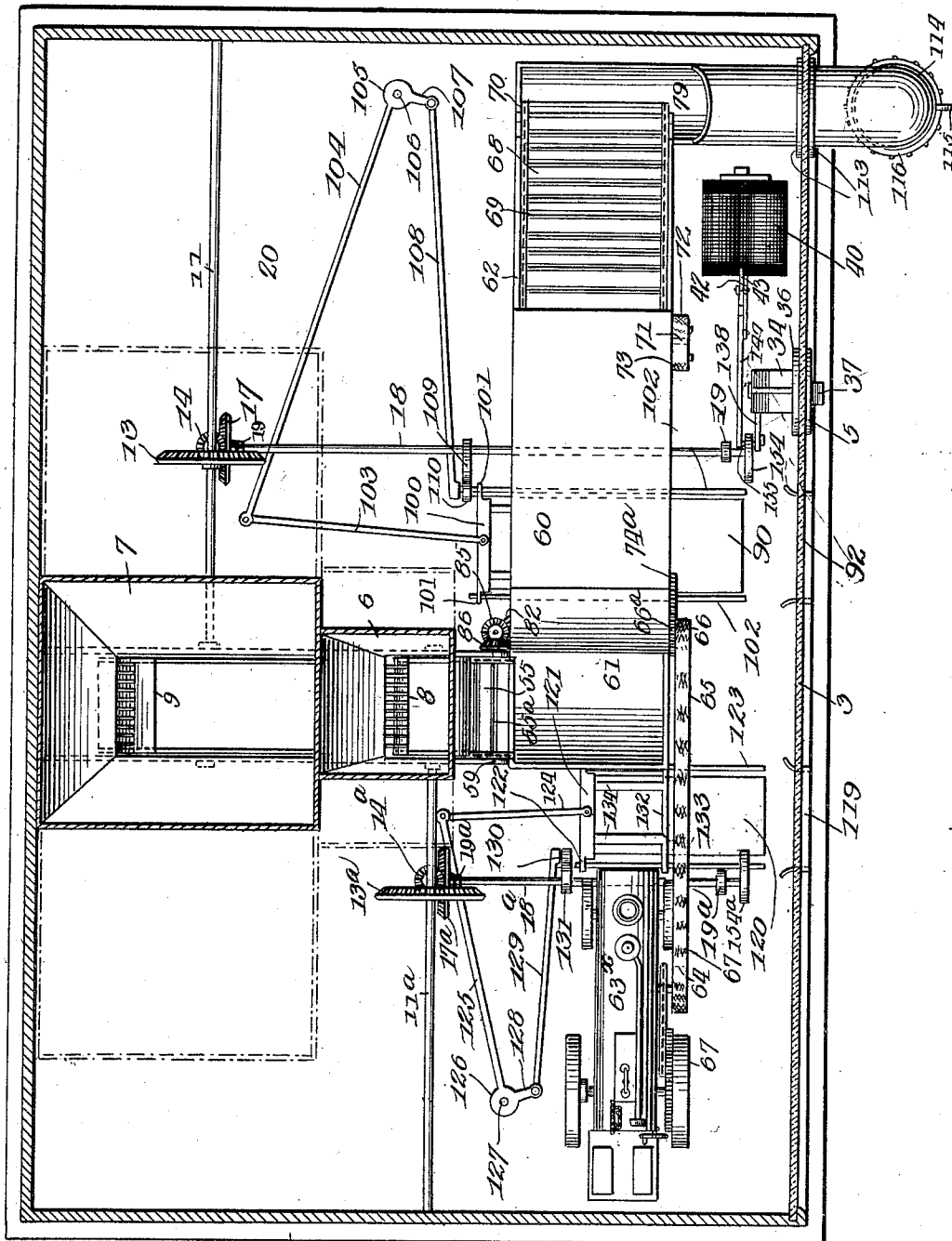
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3 SHEETS—SHEET 2.



WITNESSES:
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Fig. 2.

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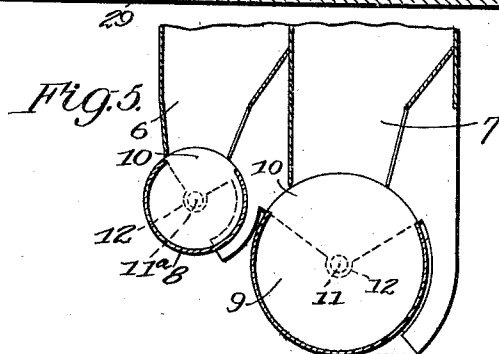
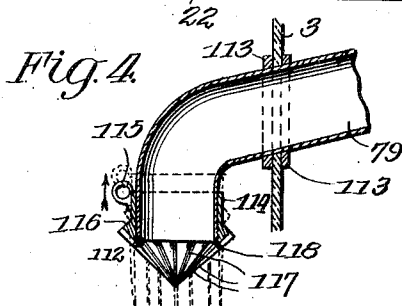
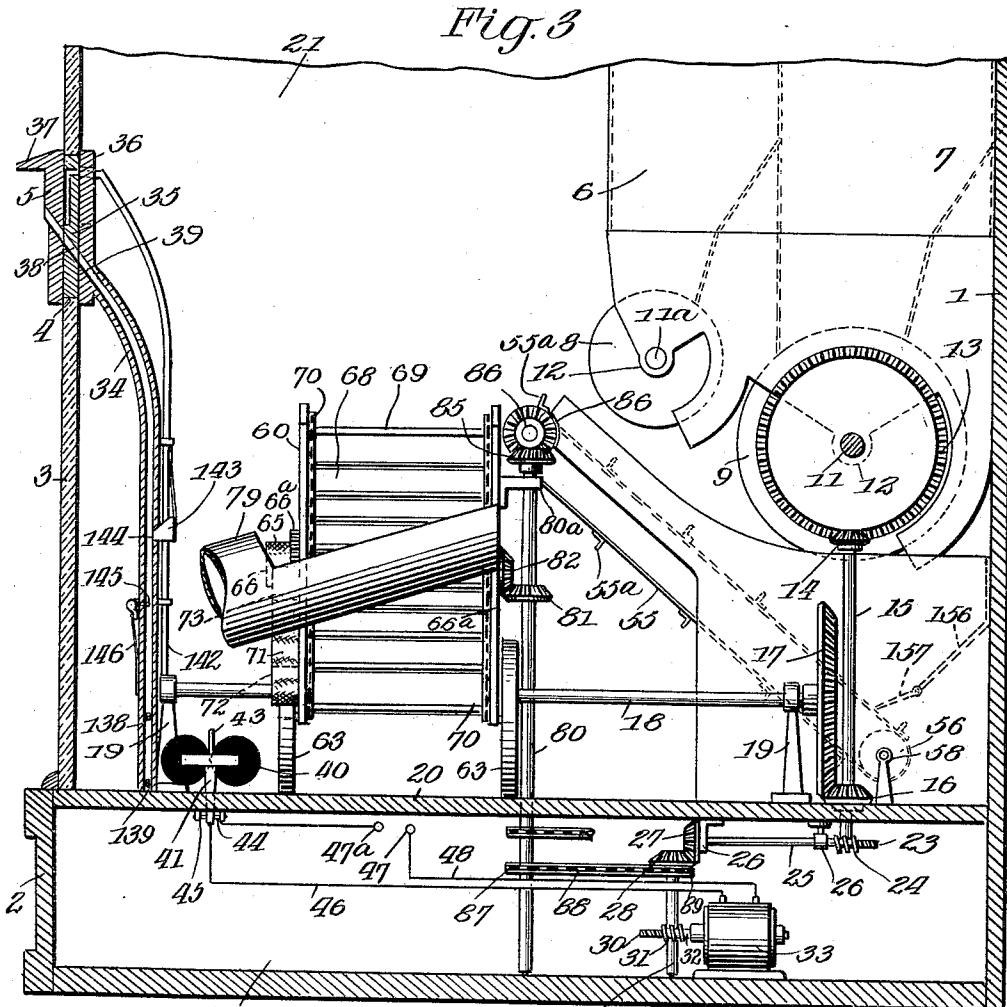
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3 SHEETS-SHEET 3.



WITNESSES:
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UNITED STATES PATENT OFFICE.

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VENDING-MACHINE.

1,005,749.

Specification of Letters Patent.

Patented Oct. 10, 1911.

Application filed November 21, 1910. Serial No. 593,401.

To all whom it may concern:

Be it known that I, EZRA L. ROBINSON, a citizen of the United States, and a resident of Topeka, county of Shawnee, and State of Kansas, have invented certain new and useful Improvements in Vending-Machines, of which the following is a specification.

My invention is an improvement in vending machines, and consists in certain novel constructions, and combinations of parts, hereinafter described and claimed.

The object of the invention is to provide a device of the character specified, which, upon the insertion of a coin of the proper denomination, will deliver a measured quantity of unshelled nuts into a shelling device, and from thence into a bag, which has been taken from a pile of the same and held in the proper position by mechanism actuated by the same coin.

The invention has for further objects, other improvements, and consists in certain novel constructions and combinations of parts, as will be hereinafter described and claimed.

Referring to the drawings forming a part hereof, Figure 1 is a side view of the improvement partly in section. Fig. 2 is a section on the line 2—2 of Fig. 1. Fig. 3 is a section on the line 3—3 of the same figure. Fig. 4 is a vertical section of the end of the delivery chute, and, Fig. 5 is a vertical section of the measuring device.

In the embodiment of the invention shown, two magazines are provided, one for shelled, and one for unshelled nuts, and both deliver to a common delivering mechanism. A separate operating mechanism is provided for each magazine, set in action by a separate and independent coin operated means. The operating mechanism and the coin actuating mechanism is the same in both cases, however, so that but one is shown.

In the embodiment of the invention shown in the drawings, a casing 1 is provided having the lower portion of its front closed at 2, and the upper portion open, and covered by a sheet 3 of transparent material, as for instance glass. The sheet 3 is provided with an opening 4, for the insertion of the coin, and the sheet is reinforced about the slot by a metallic plate 5, having a slot registering with the opening of the glass. The arrangement of the other slot and chute is the same, and for this reason is not shown.

A plurality of hoppers or magazines 6 and 7 is provided, one of which 6 is designed to receive shelled nuts, and the other 7 to receive unshelled nuts. As shown more particularly in Figs. 3 and 5, the hoppers are arranged alongside each other, and the bottom of each is closed by a measuring cylinder or wheel 8 and 9, respectively. Each of the cylinders 8 and 9 has an opening 10 in its side wall and is secured to a shaft, the cylinder 8 to a shaft 11^a and the cylinder 9 to a shaft 11, each of which is journaled at one end in the casing wall and at the other in bearings 12 in the end walls of the magazine. Each shaft is provided with a bevel gear wheel, 13 on the shaft 11, and 13^a on the shaft 11^a, and the former gear wheel 13 is in mesh with a pinion 14, on the upper end of a vertical shaft 15. The shaft is provided near its lower end with a pinion 16 meshing with a gear wheel 17 on a horizontal shaft 18, journaled in bearing brackets 19 on a longitudinal partition 20, which separates the upper portion or compartment 21 of the casing from the lower compartment 22. The shaft 15 extends below the partition, and is provided with a worm wheel 23, in the lower compartment, the said wheel meshing with a worm 24 on a shaft 25, journaled in bearings 26 on the under face of the partition. The opposite end of the shaft 25 is provided with a bevel gear 27, meshing with a bevel gear 28, on a vertical shaft 29, journaled in the lower compartment, and provided with a worm wheel 30, meshing with a worm 31, on the shaft 32, of a suitable motor 33, preferably electrical as shown. The gear wheel 13^a of the shaft 11^a is driven by a pinion 14^a on the upper end of a vertical shaft 15^a, which is provided at its lower end with a pinion 16^a, meshing with a gear wheel 17^a, on the shaft 18^a journaled parallel with the shaft 18, in bearings 19^a on the partition 20. A similar motor not shown is provided for operating the shaft 15^a, and the connection between the motor and the shaft is precisely the same as that between the motor and the shaft 15.

It will be understood that the mechanism hereafter described for setting in motion the mechanism connected with the cylinder 9 is the same as that for setting in motion the mechanism connected with the cylinder 8.

The opening 4 before mentioned is filled

by a plate 35, which fits closely in the opening, and is held in place by the plate 5 before mentioned, and a plate 36 on the inside of the glass. The three plates are secured together, and since the plates 5 and 36 are of greater size than the opening 4, the plates are all held firmly in place. The plate 5 is provided with a laterally extending lug 37 above the slot, and the plates 35 and 36 are slotted at 38 and 39, respectively, the slots registering with the slot of the plate 5 and with the opening of the chute 34.

A pair of electromagnets 40 is arranged on the partition 20, and the core of the magnets acts upon an armature 41, hinged at its upper end at 42, to a bracket 43 extending above the magnets, and extends through an opening 44 in the partition at its lower end. The lower end of the armature when drawn toward the magnets engages and closes a switch 45, in circuit by wires 46 with the motor 33, thus starting the same. The motor is supplied with current from any suitable source, through the binding posts 47—47^a, connected by wires 48 to the motor.

A battery 49 or other source of electrical energy is arranged in the compartment 22, and one of the terminals thereof is connected with one of the terminals of the electromagnets by a wire 50. The other terminal of the battery is connected to a contact bar 51 in one side of the chute 34, by wire 52, and another wire 53 leads from a contact bar 54 in the opposite side of the chute to the other terminal of the electromagnets.

When a coin of the proper denomination is pushed into the slots 38—39, it will be passed down the chute until it reaches the contact bars 51—54. The said bars are arched inwardly as shown in Fig. 1, and the coin completes the circuit of the electromagnets and the battery. The armature is drawn toward the electromagnets, thus closing the circuit of the motor, and starting the same. As the motor shafts turn, the cylinders 8 and 9 are turned slowly, and as their normal position is with the opening 10 in register with the opening of the magazine, the cylinders are already filled. Before the cylinders turn far enough to deliver any of the nuts, the lower ends of the magazines are closed by the side walls of the cylinders. Each cylinder is turned a complete rotation, and the contents thereof is delivered onto a carrier to be described. The said carrier, (Figs. 2 and 3) is composed of an endless belt 55 provided at spaced intervals with transverse slats 55^a in the form of angle bars, and the belt is supported on rollers 56 and 57, journaled the former in bearing brackets 58 in the partition 20, and the latter in bearing brackets 59 and the separator to be described. The carrier delivers the nuts to the separator, which may be an operative device, or merely a toy. In

the present instance, it is the latter, comprising a body 60 shaped to represent a threshing machine, and provided with a feed table 61, and a straw carrier 62. The body is supported on wheels 63, which rest on the partition 20, so that the separator is visible through the glass. An engine 63^x, shaped to represent a traction engine is also supported on the partition, and is provided with a pulley 64, connected by a belt 65, with a pulley 66 on a shaft 66^b journaled in the separator. The engine is supported by wheels 67, and is preferably a working model as shown, operated by the motor, however, instead of by steam, through the mechanism just described, that is, the belt 65 and pulleys 64 and 66.

The separator is provided in the body with an endless carrier 75, supported on rollers 74, and an endless carrier comprising a belt 68 having slats 69, is arranged in the straw carrier, being supported on rollers 70, one at each end of the carrier. The belt 68 is driven by a belt 71, connecting a pulley 72 on one of the rollers 70 with a pulley 73 on the adjacent roller 74. The other roller 74 is provided with a gear wheel 74^a meshing with a pinion 66^a rigidly connected with the shaft 66^b.

A shaft 80 is journaled vertically in the bracket 59 before mentioned, on the separator, and the upper end thereof is provided with a bevel pinion 85, meshing with a similar pinion 86, on the roller 57 of the carrier 55. Intermediate its ends, the shaft 80 is provided with a bevel pinion 81 meshing with a similar pinion 82 on the shaft 66^a to which the pulley 66 and the pinion 66^a are secured. A sprocket wheel 87 is secured to the lower end of the shaft 80, and a chain 88 connects the said wheel with a sprocket wheel 89 on the shaft 29 before mentioned.

It will be evident from the description, that when the motor is set in motion by a coin, the shaft 15 will rotate the cylinder 9 to deliver a charge of nuts into the carrier 55, and the rotation of the shaft 80 will cause the separator to deliver the nuts to the straw carrier, from whence they pass into a chute 79. The connection between the motor and the shaft 15 is designed to greatly reduce the speed, so that the shaft 80 rotates much faster than the shaft 15.

The cylinder 8 is connected up in the same manner as the cylinder 9, but as only one cylinder is used at a time, the connection has not been described completely. The operation is precisely the same in both cases.

The shaft 18 operates a pusher bar or slide bar 90, moving in a guide way 91 on the partition 20, and the end of the bar is designed to engage and push out of the casing, through an opening 92 in the front wall thereof, the uppermost of a series of bags

93, resting in superposed relation on a follower 94. The follower is pushed upward by springs 95, and is provided at each corner with a bearing 96, slidable on a rod 97.

5 The rods are secured at their lower ends to a base 98, and are held at their upper ends by angle plates 99 on the partition 20. The partition is cut away to permit the bags to pass above the partition, and the
10 slide bar is in the form of a plate having a cross bar 100 at one end. The bar is provided at each end with a bearing 101 moving on a fixed guide-rod 102. A link 103 is pivoted at one end to the center of the
15 cross bar, and at the other end to one arm 104 of an elbow lever 105. The elbow lever is pivoted at 106 to the partition, and the other arm 107 thereof is pivoted to one end of a lever 108, having its other end provided
20 with a roller 110 in engagement with an eccentric 109 on the shaft 18 before mentioned. When the shaft 18 is rotated, the elbow lever is swung or oscillated and the slide bar is reciprocated to push out a bag
25 in position to be grasped by the purchaser. The bag is then held below the lower end of the chute 79, which is normally closed by a gate 112. The said lower end of the chute extends through an opening in the
30 sheet 3 of transparent material, and the sheet is reinforced around the chute by washers 113.

The gate 112 comprises a ring 114, having a handle 115, and encircling the end of the
35 chute, and movable vertically therein. A beveled annular rib 116 is provided on the lower end of the ring, and a plurality of fingers 117 are pivoted to the end of the chute intermediate their ends, as at 118.
40 When the ring is in the lowered or full line position of Fig. 4, the lower ends of the fingers are swung inwardly forming a conical closure for the chute. When the ring is lifted, the weight of the nuts opens the
45 fingers, permitting the nuts to drop into the bag held below the chute.

When shelled nuts are dispensed, a smaller bag is required, and a similar bag dispensing
50 device is connected with and operated by the nut dispensing machine. The said device comprises a holder for the bags, similar to that just described, but smaller, and the bags are pushed out of an opening 119 in the casing, by a slide 120. A cross bar 121
55 is connected with the inner end of the slide, and is provided at each end with a bearing 122 sliding on a fixed rod 123. A link 124 has one end pivoted to the cross bar, and the other end is pivoted to one arm 125 of an
60 elbow lever 126, pivoted at 127 on the partition. The other arm 128 has pivoted thereto one end of a lever 129, whose other end is provided with a friction roller 130, in engagement with a cam 131 on the shaft 18^a.
65 Each of the slide bars 90 and 120 is also

provided with a second cross bar 132, having end bearings 133 sliding on the fixed rods 102 and 123, and the bar is connected to the bar 100 or 121 by arms 134. It is the said
70 cross bar 132 that engages the end of the bag, the slide bars or plate proper passing between the uppermost bag and the remaining bags. This bar is not shown on the slide 90, being hidden by the separator.

In Fig. 1 is shown the mechanism for moving the coin past the contact bars 51 and 54.
75 This mechanism comprises a lever 135, pivoted intermediate its ends at 136 on a bracket 137 rising from the partition. An arm 138, 139 is secured to each end of the lever, and each arm is movable through an opening
80 140 in the side wall of the chute 34. An arm 141 is rigidly connected with the lever at its center and extends substantially parallel with the arms 138, 139, but the said arm
85 is offset laterally and passes behind the chute 34. A link 142 is pivoted at one end to the arm 141, and at the other end the link is pivoted to a bracket 143 slidable on the back of the chute, and having a finger
90 144 extending through a slot in the chute wall. The finger is just above the coin, and when the lever is swung to move the bracket downwardly, the finger forces the coin past the contact bars. The coin is momentarily
95 held in position between the bars by a finger 145, extending through an opening in the chute and held on one end of a spring 146, whose other end is secured to the chute. A link 147 is pivoted at one end to the upper
100 end of the lever 135, and at the other end to a slide 148 movable in bearings 149 on the partition, and having an opening through which passes the armature 41. When the
105 armature is drawn toward the magnets, it is held in this position temporarily by an elbow lever 150, one arm of which extends alongside the armature, and is provided with a notch 151 for engagement by a pin 152 in the armature. The other arm of the elbow
110 lever is adapted for engagement by a catch 153 on the slide. The lever 135 is swung by a cam 154 on the shaft 18. The said cam engages a pin 155 on the lever 135, and swings the said lever when the shaft 18
115 rotates. A similar cam 154^a is provided on the shaft 18^a for operating a similar mechanism in connection with the magazine 8.

The operation is as follows. When a coin
120 is dropped into the chute 34, it passes down between the contact bars 51—54, closing the local circuit of the electromagnets, which draw the armatures toward themselves, closing the motor circuit. The motor now
125 begins to move, and the shaft is slowly rotated. A measured quantity of nuts is dropped onto the carrier, which delivers it to the separator, which in turn delivers the nuts to the chute 79. The bag dispensing magazine
130 pushes out a bag, which the purchaser re-

moves, and holds under the outer end of the chute 79. With the bag in position, the purchaser lifts the ring 114, and the nuts open the fingers, and drop into the bag. The armature is meanwhile held by the elbow lever, while the finger 144 draws the coin down out of contact with the contact bars. The finger 144 is operated by the cam 154, which forces the upper end of the lever 135 to the right of Fig. 1, that is, toward the armature. This movement swings the elbow lever into position to hold the armature closed and also the switch of the motor current. The coin drops out of the upper arm 138 and is held in this position. The cam 154 continues to rotate, and the lever 135 is swung in the opposite direction, releasing the elbow lever from the armature, and the slide draws the armature away from the magnets, and opens the motor current. The coin drops out the lower arm 139, and is held in this position until the device is again set in operation by another coin.

A baffle plate 156 is arranged below the magazine 7, to deflect the nuts onto the carrier, and a leaf 157 is hinged to the free edge of the plate, and rests upon the carrier. The operation of the engine and the separator makes the device attractive, and is for that purpose alone, although it is obvious that the separator might be an operative device.

It will be understood that a coin chute, a motor, and electromagnets, all provided in connection with the cylinder 8, so that the purchaser may receive shelled or unshelled nuts, depending upon the coin chute into which he deposits his coin.

I claim:

1. In a vending machine, a delivering mechanism for articles, a chute to which said mechanism delivers, said chute having a normally closed outer end, means for delivering a bag, a motor for operating the said mechanism and the bag delivering means, a normally open circuit for the motor, an electromagnet, an armature co-operating therewith and having means for closing the circuit when the armature is drawn toward the magnet, a catch for holding the armature closed, means operated by the motor for releasing the catch and for positively opening the armature when the articles are delivered, a normally open circuit for the magnet, means for closing the same, and means for opening the closed end of the chute.

2. In a vending machine, a delivering mechanism for articles, a chute to which said mechanism delivers, said chute having a normally closed outer end, means for delivering a bag, a motor for operating the said mechanism and the bag delivering means, a normally open circuit for the motor, an electromagnet, an armature co-operating therewith and having means for

closing the circuit when the armature is drawn toward the magnet, a catch for holding the armature closed, means operated by the motor for releasing the catch when the articles are delivered, a normally open circuit for the magnet, means for closing the same, and means for opening the closed end of the chute.

3. In a vending machine, a delivering mechanism for the articles, an electric motor for operating the said mechanism, a normally open circuit for the motor, an electromagnet, an armature co-operating therewith and having means for closing the circuit when the armature is drawn toward the magnet, a catch for holding the armature closed, means operated by the motor for releasing the catch, and for positively opening the armature when the articles are delivered, a normally open circuit for the electromagnet, and means for closing the same.

4. In a vending machine, a delivering mechanism for the articles, an electric motor for operating the said mechanism, a normally open circuit for the motor, an electromagnet, an armature co-operating therewith and having means for closing the circuit when the armature is drawn toward the magnet, a catch for holding the armature closed, means operated by the motor for releasing the catch when the articles are delivered, a normally open circuit for the electromagnet, and means for closing the same.

5. In a vending machine, a delivering mechanism for the articles, a chute to which the said mechanism delivers, said chute having a closed outer end, means for delivering a bag, a common normally inoperative means for operating the delivering mechanism and the bag delivering means, an electromagnet having an armature for actuating the said operating means, a catch for holding the armature closed, a normally open circuit for the electromagnet, means for closing the circuit, and means operated by the said common operating means for releasing the catch and for positively opening the armature when the articles are delivered, and means for opening the end of the chute.

6. In a vending machine, a delivering mechanism for the articles, a chute to which the said mechanism delivers, said chute having a closed outer end, means for delivering a bag, a common normally inoperative means for operating the delivering mechanism and the bag delivering means, an electromagnet having an armature for actuating the said operating means, a catch for holding the armature closed, a normally open circuit for the electromagnet, means for closing the circuit, and means operated by the said common operating means for releasing the catch when the articles are de-

livered, and means for opening the end of the chute.

7. In a vending machine, a delivering mechanism for the articles, a chute to which the said mechanism delivers, means for delivering a bag, a common normally inoperative means for operating the delivering mechanism and the bag delivering means, an electromagnet having an armature for actuating the said operating means, a catch for holding the armature closed, a normally open circuit for the electromagnet, means for closing the circuit, and means operated by the said common operating means for releasing the catch and for positively opening the armature when the articles are delivered.

8. In a vending machine, a delivering mechanism for the articles, a chute to which the said mechanism delivers, means for delivering a bag, a common normally inoperative means for operating the delivering mechanism and the bag delivering means, an electromagnet having an armature for actuating the said operating means, a catch for holding the armature closed, a normally open circuit for the electromagnet, means for closing the circuit, and means operated by the said common operating means for

releasing the catch when the articles are delivered.

9. In a vending machine, a delivering mechanism for the articles, a normally inoperative motor for operating the said mechanism, an electromagnet, an armature co-operating with the magnet and having means for actuating the motor when the armature is drawn toward the magnet, a catch for holding the armature closed, means operated by the motor for releasing the catch after the articles are delivered, a normally open circuit for the electromagnet, and means for closing the same.

10. In a vending machine, a delivering mechanism for the articles, a normally inoperative motor for operating the said mechanism, an electromagnet, an armature co-operating with the magnet and having means for actuating the motor when the armature is drawn toward the magnet, means operated by the motor for opening the armature after the articles are delivered, a normally open circuit for the electromagnet, and means for closing the circuit.

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Witnesses:

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CARLES A. BOLTINGHOUSE.