E. A. BOLEN.

VENDING MACHINE.

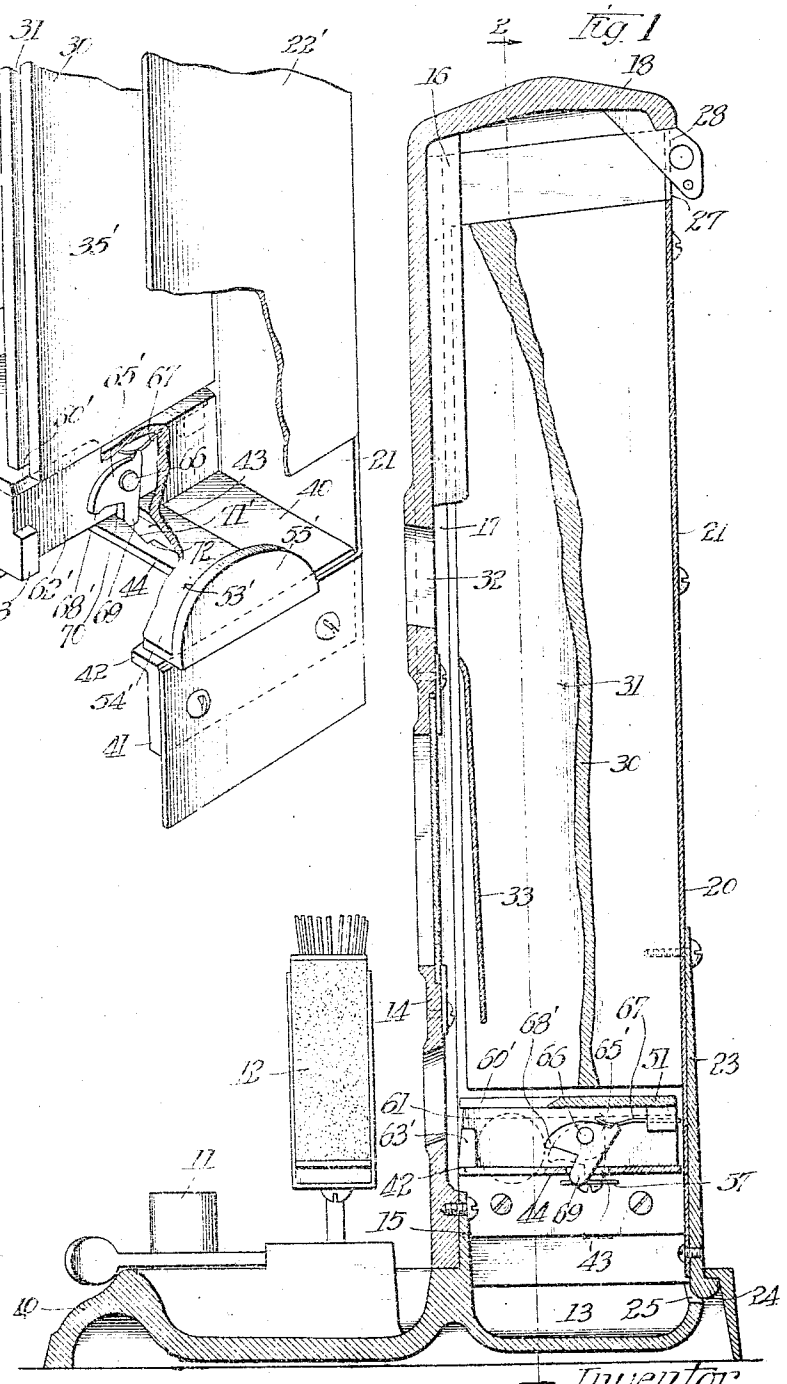
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1,144,100.

Patented June 22, 1915.

2 SHEETS—SHEET 1.

Fig. 1



Witnesses.

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2 SHEETS—SHEET 2.

Fig. 2.

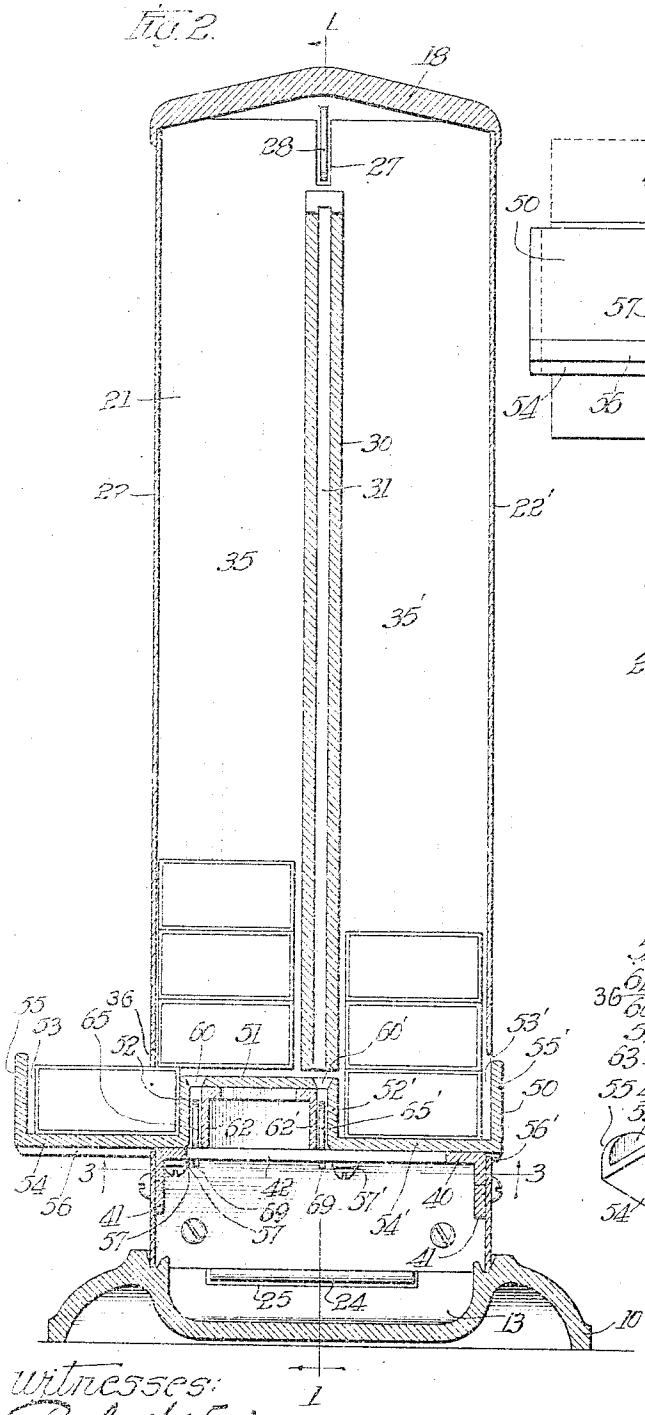


Fig. 3.

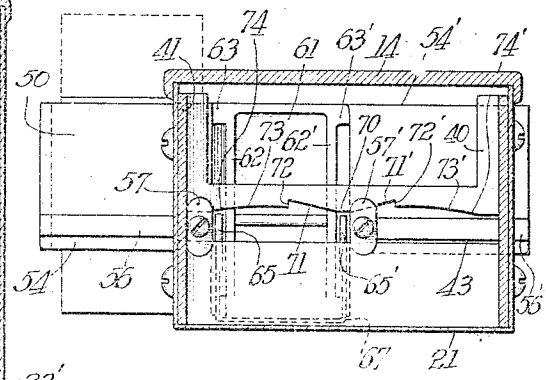
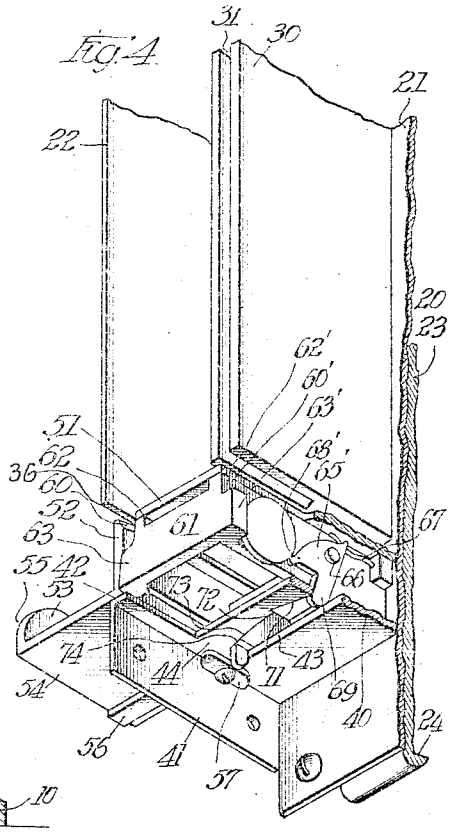


Fig. 4.



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UNITED STATES PATENT OFFICE.

EMERSON A. BOLEN, OF MORRIS, ILLINOIS, ASSIGNOR TO NORTH WESTERN NOVELTY COMPANY, OF MORRIS, ILLINOIS, A CORPORATION OF ILLINOIS.

VENDING-MACHINE.

1,144,100. Specification of Letters Patent. Patented June 22, 1915.

Original application filed October 26, 1910, Serial No. 727,320. Divided and this application filed December 19, 1913. Serial No. 806,929.

To all whom it may concern:

Be it known that I, EMERSON A. BOLEN, a citizen of the United States, residing at Morris, in the county of Grundy and State of Illinois, have invented certain new and useful Improvements in Vending-Machines, of which the following is a specification.

My invention relates to improvements in vending machines, and more particularly to the class of machines used for vending packaged articles, such as boxes of matches and the like.

One of the objects of my invention is to provide a double column, two-way slide-delivery machine, which is easily operated in either direction by power applied to the slide itself in alinement with its path of movement and of such construction as to practically prevent the contents of either column from being tampered with, or removed, save in the intended fashion following the functioning of the slide-unlocking mechanism.

Among the objects of my invention is to provide a machine of the character described which is attractive in appearance, small in size, simple and rugged in construction, not liable to get out of order, and positive and efficient in its operation.

In the drawings wherein I have shown an embodiment of my invention in a machine for vending boxes of matches Figure 1 is a vertical section from front to back of the machine taken on line 1—1 of Fig. 2; Fig. 2 is a vertical section transversely through the machine taken on line 2—2 of Fig. 1; Fig. 3 is a horizontal section on line 3—3 of Fig. 2, showing certain of the parts in inverted plan view; Fig. 4 is a perspective detail of the fragment of the mechanism as seen from below; and Fig. 5 is a perspective detail, with parts broken away, showing the delivery mechanism as seen from above.

My present invention, in some of its features, may best be embodied in a structure providing two vertical storage receptacles or compartments for the packages, from which said storage receptacles deliveries may alternately be made. I have accordingly shown my invention embodied in such form of structure, although it will be clear that a single compartment construction might be employed with a retention of some of the advantages.

In the specific construction 10 indicates the base casting which conveniently carries a cigar cutter 11 and a match box holder 12 to receive a sample box of matches, said casting providing in its rear portion a depression 13 forming a coin receptacle. In front of this coin receptacle a vertical face casting 14 is secured upon lugs 15 of the base, said casting 14 carrying a top member 18 and preferably having on its inner surface a vertical rib 16 centrally disposed near the top of the casting. Edge ribs 17 are also provided on the casting to cooperate with the side walls of the back unit.

All of the operating mechanism of the device is arranged in a detachable back unit 20, which provides the back wall 21 and side walls 22—22′ of sheet metal to interfit with the base and front-wall castings, said back wall being reinforced by plate 23 carrying in its lower end a lug 24 to interlock in a suitable notch 25 in the base casting. When the back unit is in position as shown in Figs. 1 and 3, the side walls 22, 22′ fit within the ribs 17 of the front plate, a slot 27 in the upper end of the back wall receives an apertured lug 28 projecting from the top casting 18 so that a padlock may be readily applied to lock the coacting parts in engagement thereby to complete the closure of the device and prevent it being tampered with.

The upper portion of the space inclosed within the structure is vertically divided into two storage compartments by a central partition 30 attached to the back wall 21 and in said partition I preferably form the coin chute 31 in the form of a slot in which engages the rib 16 and which has a coin-reception opening communicating directly with a centrally arranged coin slot 32 in the front casting of the casing. A vertical strip 32 secured in the slot acts as the front wall of the chute to direct the coin in its downward traverse.

The arrangement above described is advantageous in affording a symmetrical division of the casing vertically into the two storage compartments 35—35′ and locating the coin chute centrally between said compartments so that, as hereafter described,

the deposited coin may be caused to effect the release operations which will permit the delivery of a package first from one compartment and then from the other alternatively.

The side walls 22 and 22′ of the casing are cut away as at 36 substantially in line with the bottom of the partition 30, so as to form a transversely free slide-way and across the space beneath the slide-way I arrange a bridge plate 40 having a flat top surface and downturned side walls 41 which are secured to the side walls of the back unit. Said bridge plate has its front portion cut away as at 42 and has in its horizontal portion a guide slot 43 separated from the opening 42 by the cam bar 44 the construction and operation of which will be hereafter described. Upon the bridge plate, as a convenient form of support therefor, I mount the transversely movable delivery slide member 50, working through the slide-way and wall openings 36. This slide member 50 serves as an ejector and as a column-guard, moving out of delivery position the single package which the intended functioning of the machine should so present, and preventing surreptitious removal of any other package or, as it is termed, "picking" of the machine.

In the specific construction shown the slide affords direct support to the two stacks of packages and each package being moved for delivery rests directly on the slide, thereby securing desirable, though not essential advantages in point of simplicity of construction and operating efficiency. Thus the delivery slide member provides a central elevated platform part 51 the top of which may preferably, support a column of packages and the side walls 52 whereof constitute ejector abutments and guards for openings 36. The ejector-portions are flanked by two corresponding package recesses 53—53′ preferably bottomed by the horizontal walls 54—54′ and these recesses are exteriorly bounded by upturned end-walls, 55—55′. Each recess is preferably almost as deep as and slightly wider than a package to be dispensed. The slide member is longer than the casing is wide and extends through the casing from side to side. Its arrangement is such that when it stands at one extreme of its limit of movement, one of its package recesses, say 53′ registers with the storage compartment 35′ thereabove; its central platform 51 substantially closes the bottom of the other storage compartment 35, and its remaining package recess 53 projects beyond the side wall 22 of the casing to present any package that may be contained therein in position for easy removal from the slide. It will therefore be apparent that in the absence of any coin-released locking mechanism the slide could be slipped back and forth at pleasure, each excursion of the slide from one limit of movement to the other delivering a package from within the storage receptacle to a position exteriorly accessible from one side of the casing and such delivery taking place alternately with respect to the two storage receptacles.

The upturned walls 55—55′ at each end of the sliding member are provided not only for the purpose of forming finger pieces for engagement by the hand of an operator in sliding the carriage from one side to the other, by pressure applied in alinement with the path of slide-movement but also for the purpose of restricting the opening 36 in one or the other of the side walls of the casing to prevent tampering with the stored contents. In Fig. 2 the slide is shown at the extreme left of its stroke, with a box of matches carried in the pocket 53, preferably, for simplicity, resting directly on the bottom of the pocket. At the right hand side of the figure it will be noted that the upturned wall 55′ practically coincides with the plane determined by the wall 22′ of the casing, substantially restricting the opening 36 through which the slide moves and so forming a closure which prevents the possibility of a package being withdrawn from the stack when the slide is in this position. On the other left side (Fig. 2), where a package has been pushed out to position for removal by the wall 52 of the ejector platform 51, said wall 52 is close enough to side wall 22 of the casing, and is high enough, substantially to restrict the side opening in the casing and so to prevent removal of a package from the stack in column 35 after the projecting package has been lifted from its recess. The relation of the parts is such that in no one position of the slide can more than one package be removed from the machine, and only when the slide is substantially at one end or the other of its throw can even a single package be extracted from its appropriate package-recess.

The structure providing the platform and package recesses is preferably made integral, and in the form shown in Fig. 2, the walls 54, 54′, have, on their under sides, ribs 56, 56′ to engage in the guide slot 43, but the space under the platform is left unobstructed for the reception of the coin-controlled releasing mechanism to be described. Cross 54, 54′, have, on their under sides, ribs 56, serve to limit the throw of the slide member by contacting with the side walls 41 of bridge member 40, and they also serve to retain the slide against vertical displacement with respect to the bridge member.

It will be observed with respect to Fig. 2 that the width of the platform 51 is greater than the limit of movement of the slide structure, so that some portion of said platform is always located directly below the coin chute. Coin-receiving slots 60 and 60′

are formed in the platform 51 at points appropriate to be brought in register with the coin chute when the slide structure is respectively at its opposite limits of movement, the solid surface of the platform closing the chute at all times save when one of these two slots 60 or 60′ registers therewith. The coin-released locking mechanism for the slide structure may be made in various forms, that which I prefer being located under the platform.

61 indicates a casting secured to the under side of the platform 51 and having side walls 62—62′ underlying the adjacent edges of coin slots 60—60′, and spaced apart from walls 52, 52′ as to form in the base two coin-receiving pockets respectively defined as to their front ends by lugs 63—63′ extending from the side walls of the casting 61. The rear walls of the two coin pockets are formed by the edge surfaces of two pivoted dogs 65 and 65′, mounted upon a pivot pin 66 and both acted upon by spring 67 which tends to move the top of each dog in the rearward direction. Each dog has its nose 68 or 68′ which coacts with the coin so eccentrically shaped that movement of the dog in the direction of spring tension tends to reduce the distance between the nose of the dog and the lug 63 or 63′ forming the front wall of the coin pocket to a distance less than the diameter of the coin, while opposite movement of the dog may retract its nose from said lug to open the space between them to more than the diameter of the coin. Each dog has a trigger 69 extending down into the guide slot 43 so that the spring pressure on the dog maintains it in sliding engagement with the edge of the cam bar 44. The cam bar, as best shown in Figs. 3 and 4, provides centrally a crest 70; opposite locking inclines 71 and 71′ flanking the crest and terminating at the respective shoulders 72—72′, the extremities of which substantially aline with the crest; straight surfaces 73—73′ continuing from the extremities of said shoulders; and terminal releasing inclines 74—74′ extending beyond the line of said crest and shoulders.

The operation of these parts is as follows: Assuming the slide to be at one end of its limit of movement, as shown in Fig. 3, the trigger 69 is spring-held against the crest of the cam bar. If, now, effort be made to move the slide to opposite extreme of movement, without the insertion of a coin, the slide may move only a short distance, for as it moves transversely the tension of spring 67 causes the trigger 69′ to follow the edge of the cam bar and slip down the latching incline 71 until it strikes against the shoulder 72′ to stop the movement of the slide. If now the slide be moved back to its starting position, so that the trigger 69′ of the dog rides up the crest again, and a coin be inserted in the coin chute, said coin will travel down the chute and drop into the coin-receiving pocket where it lies wholly below the level of the platform between the walls 52′ and 62′, the coin being retained in the pocket in the position as shown in Fig. 4 where it is interposed between the lug 63′ and the nose 68′ of the dog 65′. Now when the slide is moved transversely the presence of the coin interposed between the nose of the dog and the opposing abutment 63′ prevents the trigger 69′ from following the edge of the cam bar 44, so that said trigger passes by the shoulder 72′ without striking it and the full movement of the slide may be effected. As the slide approaches its further limit of movement the trigger 69′ rides along the releasing incline 74′, so that the dog is forced over against the restraining action of its spring, removing its nose from restraining relation with respect to the coin and freeing the coin to drop through the space between the nose of the dog and the opposing lug 63′ into the coin receptacle 13 in the base of the structure. It will be apparent now that in whichever extreme of position the slide may stand, the insertion of a coin frees it for movement to its other extreme of position and automatically conditions the mechanism to receive another coin to permit an opposing movement of the slide back to its original position, so insuring that delivery will be made first on one side of the machine, from one storage receptacle, and then on the other side of the machine from the other storage receptacle, the same coin chute centrally located, serving to deliver coins alternately to the two releasing means. The action is positive, the parts are simple, and the slide action is very free. As a further refinement, the relation of the parts is such that in case a second coin is sent down the chute 31, while the first is engaged between the lug 63 and nose 68 (Fig. 1, dotted lines) said second coin strikes the first and passes thence under the lower edge of the strip 33 and out through perforation 80 to be returned to the owner. The strip 33, however, extends low enough to prevent discharge of a coin which rests upon the platform 51 so that a coin so resting will fall into dotted-line position (Fig. 1) as soon as slot 60 is brought thereunder.

As best shown in Fig. 2 I prefer that the parts be so proportioned with respect to the packages to be sold that the delivering movement of the slide shall not completely move the package contained in the exposed package recess from under the edge of the package next above it in the storage receptacle, so that if one should fail to remove a package which is positioned for delivery it will not block the operation of the machine.

While I have herein described in some detail a particular embodiment of my invention, which I have found to be practical and advantageous, and some of the details whereof I may claim for their specific advantage, it will be apparent to those skilled in the art that numerous changes in the structure and the arrangement might be made without departing from the spirit of my invention and within the scope of the appended claims.

In this application I have described and illustrated a machine shown in my co-pending application for match vending machines Serial Number 727,820 filed by me October 26, 1912, of which this forms a division. Whereas in the parent application referred to I have claimed certain features of the coin operating mechanism, the present application claims are directed more particularly to structural features.

Having described my invention, what I claim is:—

1. In a machine of the character described, the combination of a casing providing two storage compartments, and having alined openings in opposite walls of the casing, a slide extending through said casing from side to side thereof across the end of said compartments and projecting from the casing through said openings, said slide comprising two spaced-apart package receptacles, separated by a raised ejector-wall each said receptacle arranged for protrusion outside of the casing when the contiguous storage compartment is guarded by the ejector portion and the other receptacle coacts with the remoter storage compartment, and upwardly extending lips forming the end walls of said receptacles and respectively coöperating with the contiguous side wall openings to restrict the same against the removal of any package save the one contained in the protruded package receptacle.

2. In a machine of the character described, the combination of a casing providing two storage compartments and having alined openings in opposite walls of the casing, a slide extending through said casing from side to side thereof across the end of said compartments and projecting from the casing through said openings, said slide comprising two spaced apart package receptacles open at their tops, and a horizontal table portion joining the upper ends of the adjacent side walls of said receptacles, adapted and arranged to guard the end of either of the storage compartments, when the other is opened to a receptacle, each said receptacle arranged for presentation outside of the casing when the other receptacle coacts with the appropriate storage compartment, and the appropriate inner and outer walls of the said receptacles respectively coöperating with the contiguous side wall openings to restrict the same against the removal of any packages save one contained in a package receptacle.

3. In a machine of the character described, the combination of a substantially closed casing providing two storage compartments, alined openings in opposite walls of the casing, a slide extending through said casing from side to side to coact with said compartments and projecting from the casing through the said openings, said slide comprising two spaced apart U-shaped receptacles having the upper ends of their adjacent legs joined by a horizontal table portion, for coaction with the respective storage compartments, each said receptacle arranged for presentation outside of the casing when the other receptacle coacts with the appropriate storage compartment, and the appropriate inner and outer legs of the U-shaped receptacles respectively coöperating with the contiguous side wall openings to restrict the same against removal of any package save one contained in a package receptacle.

In testimony whereof I hereunto set my hand in the presence of two witnesses.

EMERSON A. BOLEN.

In the presence of—
STANLEY W. COOK,
MARY F. ALLEN.