

No. 689,693.

Patented Dec. 24, 1901.

O. SMITH.

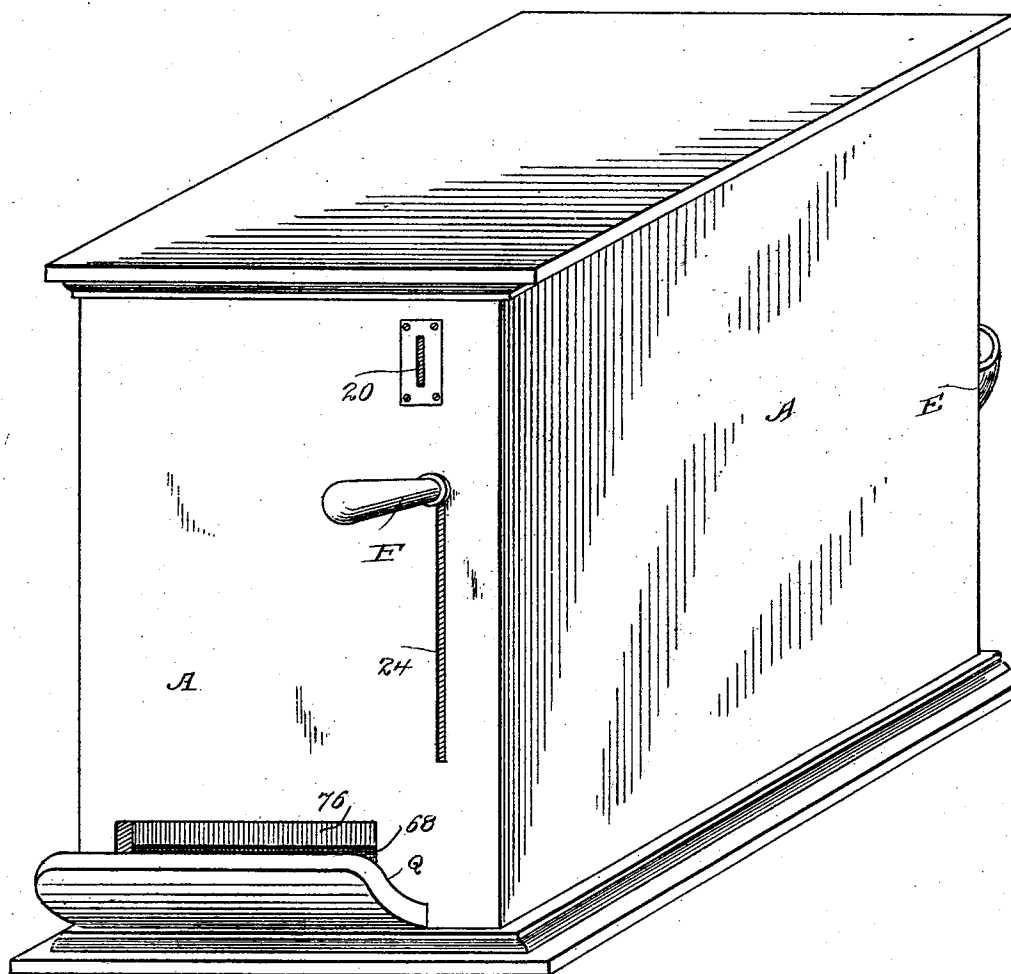
MACHINE FOR VENDING CIGARS FROM ORIGINAL BOXES.

(Application filed Feb. 23, 1901.)

(No Model.)

5 Sheets—Sheet 1.

Fig. 1.



WITNESSES.

H. A. Lamb.
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5 Sheets—Sheet 2.

Fig. 2.

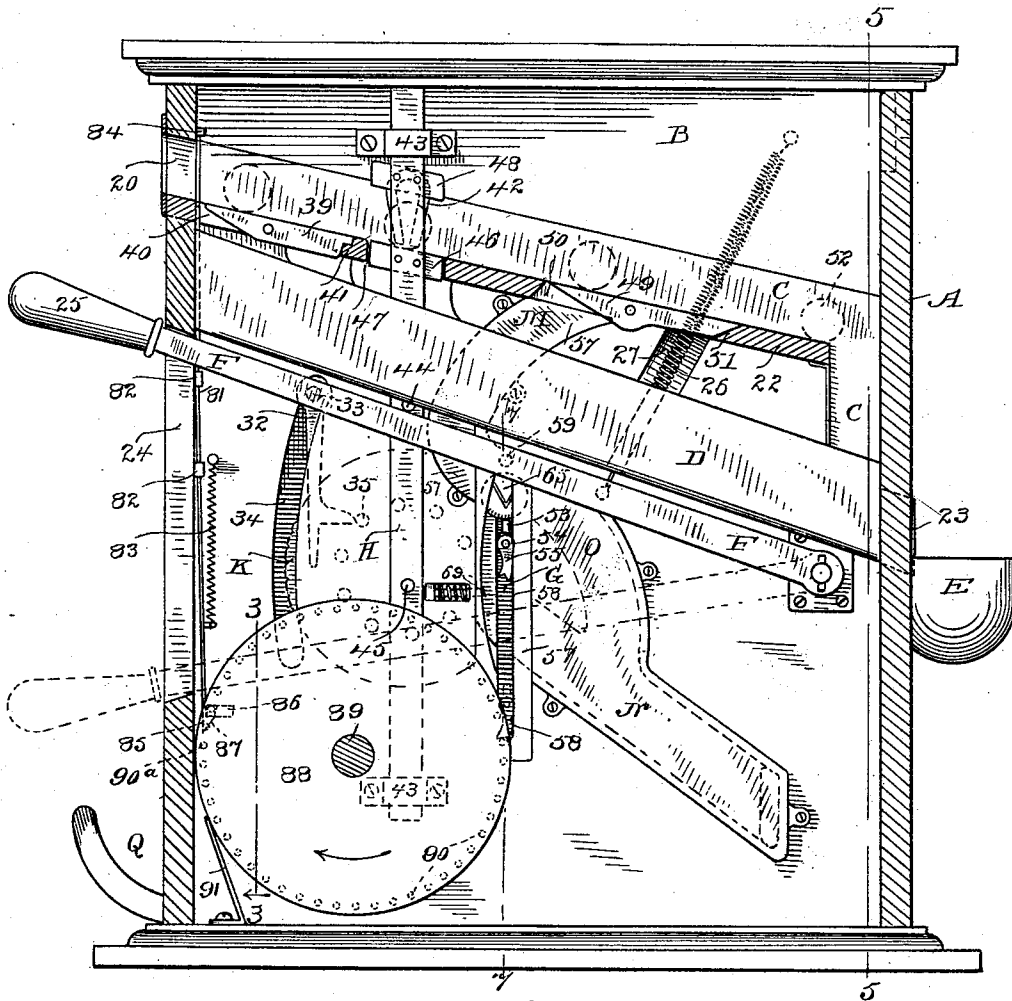
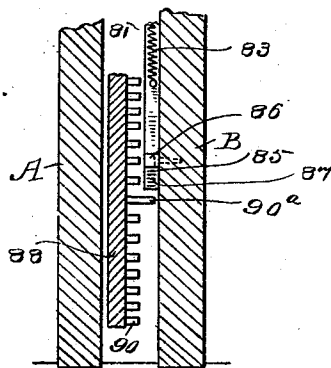


Fig. 3.



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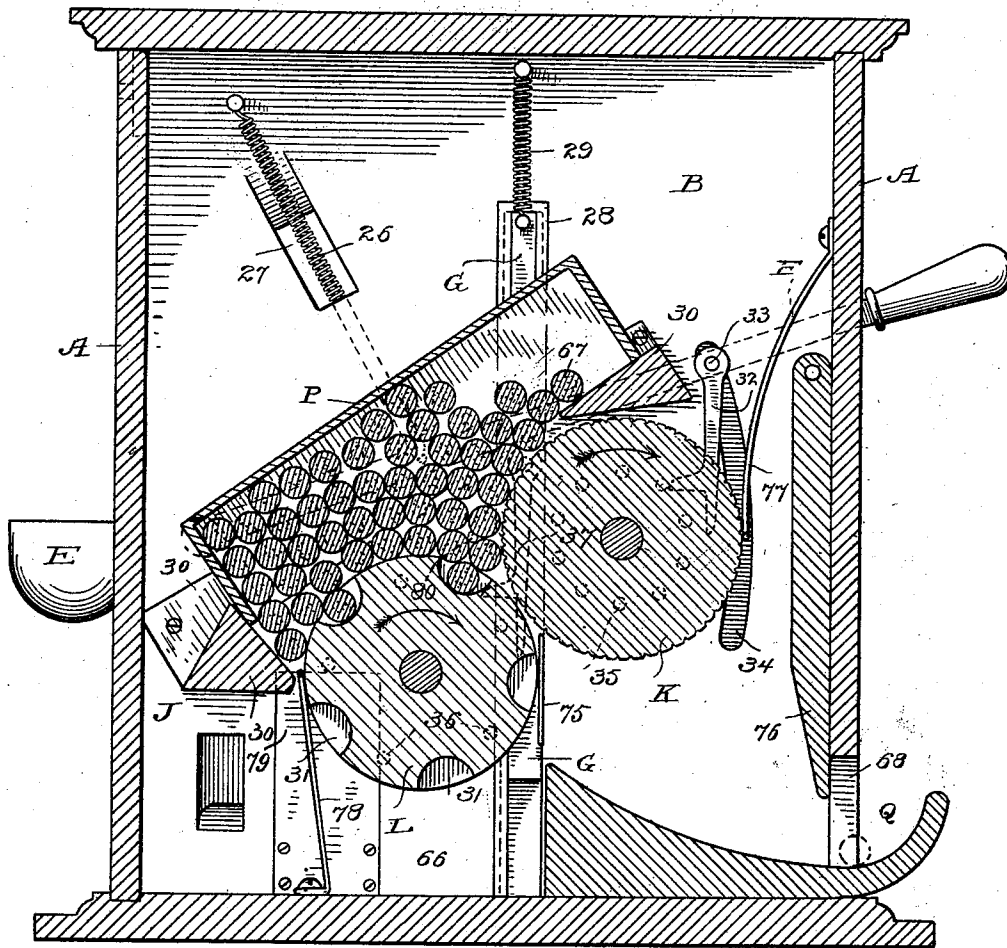
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5 Sheets—Sheet 3.

Fig. 4.



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MACHINE FOR VENDING CIGARS FROM ORIGINAL BOXES.

(Application filed Feb. 28, 1901.)

(No Model.)

5 Sheets—Sheet 4.

Fig. 5.

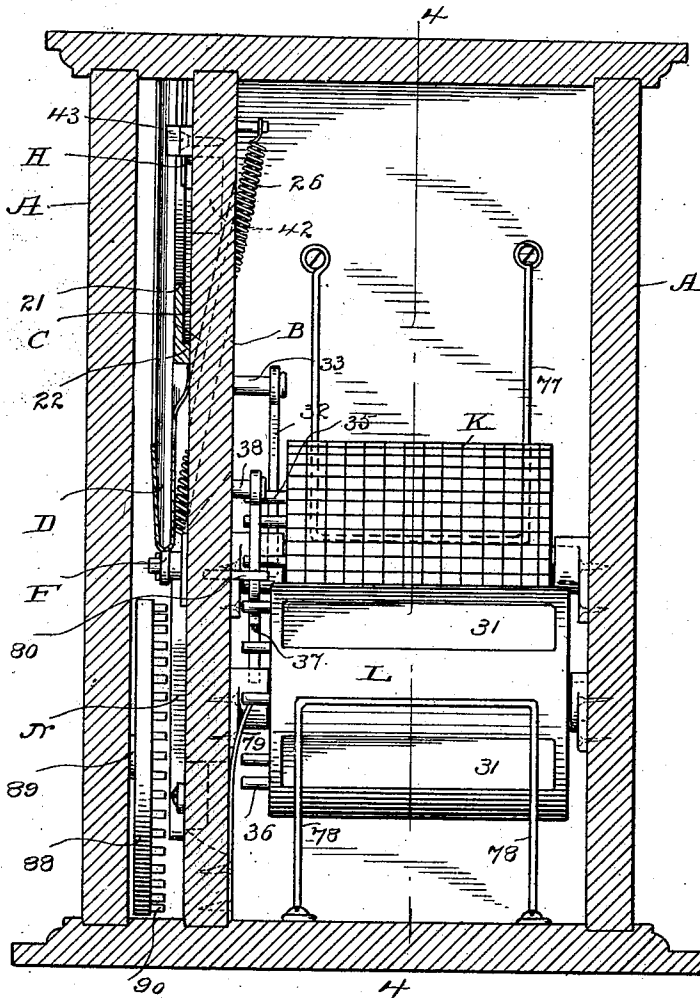
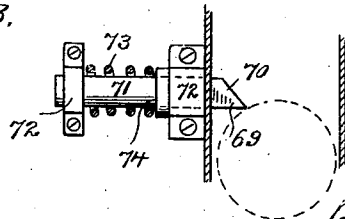


Fig. 8.



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Fing. 6.

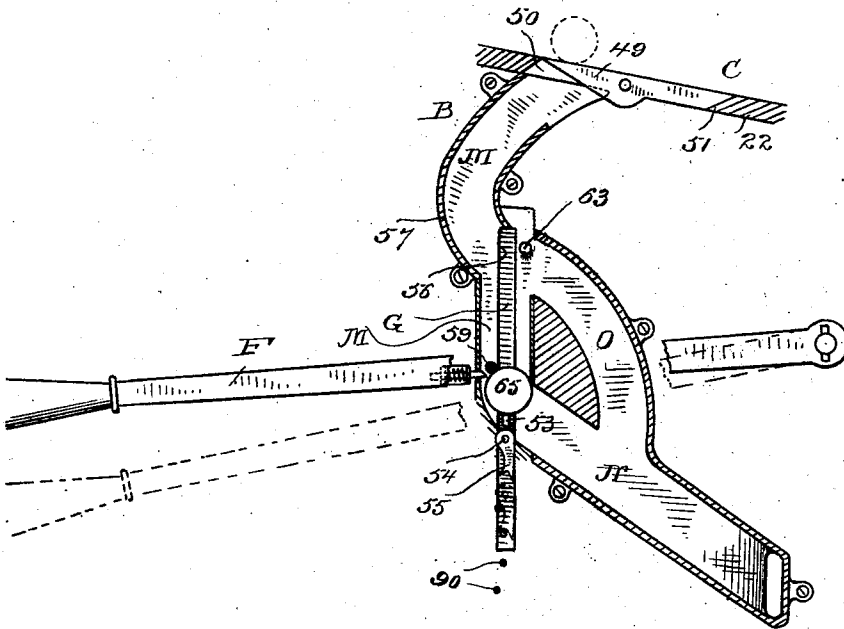
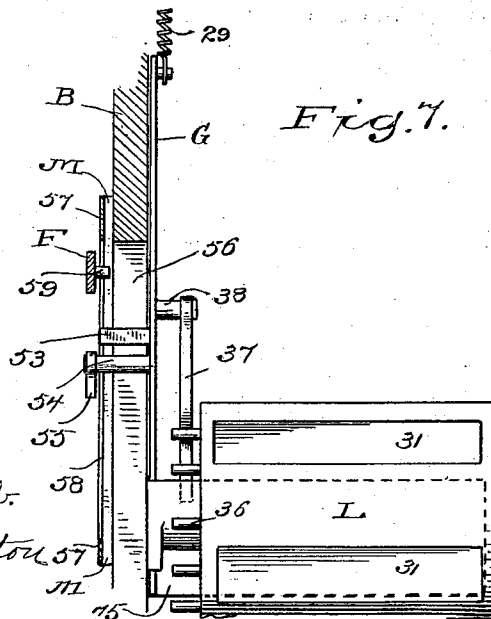


Fig. 7.



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UNITED STATES PATENT OFFICE.

ORLAND SMITH, OF BRIDGEPORT, CONNECTICUT.

MACHINE FOR VENDING CIGARS FROM ORIGINAL BOXES.

SPECIFICATION forming part of Letters Patent No. 689,693, dated December 24, 1901.

Application filed February 23, 1901. Serial No. 48,475. (No model.)

To all whom it may concern:

Be it known that I, ORLAND SMITH, a citizen of the United States, residing at Bridgeport, county of Fairfield, State of Connecticut, have invented a new and useful Machine for Vending Cigars from Original Boxes, of which the following is a specification.

My invention has for its object to provide a coin-controlled vending-machine that will retail cigars, cigarettes, and similar articles from a box, my novel mechanism being especially adapted to retail cigars, for the reason that the internal-revenue law requires that cigars be retailed from the original box. With these ends in view my invention consists, broadly, in a certain construction and combination of parts whereby cigars may be retailed from their original box, and, furthermore, in certain coin-controlled mechanism whereby the vending mechanism is actuated, and, furthermore, in certain devices by which coins or checks of overweight or of underweight or of undersize or checks made of iron or steel are rejected by the machine and caused to pass out without actuating the vending mechanism, and, furthermore, in certain devices whereby would-be trespassers are prevented from actuating the vending mechanism except by means of the proper coin and from tampering with or injuring the vending mechanism, and, furthermore, in certain devices whereby if a genuine coin is followed instantly by a smaller coin and the operating-lever moved twice the vending mechanism will be prevented from acting a second time, and, furthermore, in a device by which the coin-slot is automatically closed when the cigars are exhausted.

In order to accomplish the desired results, I have devised the novel mechanism for vending from the original box which I will now describe, referring to the accompanying drawings, forming part of this specification, and using reference characters to designate the several parts.

Figure 1 is a perspective of my novel vending-machine, illustrating the coin-slot, the operating-lever, the receiving-tray, and also a receptacle for rejected coins; Fig. 2, a view with the outer side as seen in Fig. 1 removed, the front and back of the case or box being in section and the outer side of the

upper coin-conductor removed, leaving the bottom in section; Fig. 3, a detail sectional view on the line 3 3 in Fig. 2; Fig. 4, a longitudinal vertical section on the line 4 4 in Fig. 5; Fig. 5, a transverse vertical section on the line 5 5 in Fig. 2, the box-receptacle being omitted for the sake of clearness; Fig. 6, a detail view showing certain of the coin-conductors in section, the operating-slide and operating-lever being at intermediate positions, the operating-slide having been moved downward by means of the operating-lever and an interposed coin, which is about to pass into the final conductor and release the slide; Fig. 7, a detail sectional view on the line 7 7 in Fig. 2, the delivery-cylinder, the operating-slide, and the gravity-pawl by which the cylinder is operated being in elevation; and Fig. 8 is an enlarged detail view of a spring-operated coin-retaining slide.

A denotes the box or case, which may be of wood or metal and of any preferred shape or design and may be constructed to open in any preferred or convenient manner. For example, the top may be hinged and secured by lock and key, or it may be wholly removable, and either or both of the ends may be hinged or removable, it being simply necessary that an operator in starting the machine may have convenient access to all parts of the mechanism and that the case be adapted to be securely locked, so that any tampering with the mechanism shall be rendered practically impossible. Within the case is a vertical longitudinal wall or diaphragm B, which, however, is a mere support for parts of the mechanism that may just as well be supported by standards, cross-pieces, or brackets, if preferred, or the wall or diaphragm may be cast with the necessary slots and parts of the conductors already in it, as will be more fully explained. The drawings indicate a case or box made of wood and having within it a wall B, also made of wood, to which various parts of the mechanism are secured. I wish it distinctly understood, however, that my invention is not limited to any special style of wall or construction, arrangement, and attachment of the coin-conductors, the arrangement of these parts illustrated in the drawings being one that I have found thoroughly efficient and satisfactory in use, but which will quite

likely be changed in the future in matters of detail.

20 denotes the receiving-slot, which passes through the case from the front and leads into a downwardly-inclined coin-conductor C. This coin-slot is made of just the required size to receive the genuine coin by which the machine is adapted to be operated, but will not receive disks, checks, slugs, &c., of over-size. In the present instance I have shown conductor C as open at the top and as comprising an outer wall 21 and a bottom 22, which are formed integral and are attached to wall B, the wall itself forming the back or inner wall of the conductor. (See Fig. 5.) Below conductor C is a coin-conductor D, which is downwardly inclined and extends the entire length of the case, said conductor being open at the top and terminating in a slot 23 in the rear wall of the case, beneath which and on the outer side of the rear wall is a receptacle E for rejected coins.

F denotes the operating-lever, which is shown as pivoted to wall B near the rear end thereof and as projecting forward and extending through a slot 24 in the front of the case, the outer end of the lever being provided with a handle 25 for convenience in operation. The operating-lever is normally held at the raised position, as shown in full lines in Figs. 1, 2, and 4, by means of a spring 26, which is shown as extending through a slot 27 in the wall, one end of said spring being attached to the lever and the other to the wall on the opposite side thereof. It should be understood, however, that this is a mere matter of detail and of no importance whatever so far as the principle of my invention is concerned.

G denotes a slide, which may be termed the "operating-slide," and H another slide, whose functions I shall presently explain. Slide G is shown as adapted to slide in a way 28, attached to wall B, and as normally retained at the raised position by means of a spring 29. (See Fig. 4.)

J (see Fig. 4) denotes a suitable box-receptacle, which just receives a box of cigars. The special construction of this receptacle is of course of no importance. It is simply required that the receptacle receive the box freely and hold it securely in place. I have shown the receptacle as provided with walls and abutments 30, between which the cigar-box (indicated by P) is received. In use the cover is removed from the box and the box, with the cigars in place therein, is placed open side downward in the receptacle. Under the receptacle and completely closing the under side thereof I place an agitating-cylinder K and a grooved delivery-cylinder L. The two cylinders in use rotate in the same direction. The agitating-cylinder is shown as corrugated or grooved longitudinally and circumferentially, and its function is to move the cigars slightly as it rotates and prevent the possibility of the cigars packing or wedging in the grooves 31 of the delivery-cyl-

der. The agitating-cylinder is provided at its inner end with a series of pins 35, (see Fig. 5,) arranged in circular form, which are engaged by a gravity-pawl 32, carried by a pin 33, extending from the operating-lever. This pin (see Fig. 2) is shown as extending through a clearance-slot 34 in wall B, the pawl of course swinging freely thereon, so as to engage the contiguous pin 35 upon the end of the agitating-cylinder and impart a forward movement to said cylinder at each downward movement of the operating-lever. The delivery-cylinder is provided at its inner end with pins 36, arranged in circular form, which are engaged by a gravity-pawl 37, carried by a pin 38, extending from the operating-slide, (see Fig. 7,) the gravity-pawl of course swinging freely on the pin, so as to engage the contiguous pin 36 upon the end of the delivery-cylinder and impart a forward movement to said cylinder at each downward movement of the operating-slide.

Turning now to Fig. 2, I will explain the manner in which the delivery-cylinder is actuated by means of a coin in connection with the operating-lever and operating-slide and will also explain the manner in which overweight checks, under weight coins and checks, undersized coins, and steel and iron checks are rejected by the machine and caused to pass out without actuating the delivery-cylinder. For convenience in description it will be assumed that the machine is constructed to vend five-cent cigars through the instrumentality of nickel five-cent pieces, it being understood, of course, that the principle of the machine is equally applicable to the vending of other articles than cigars and through the instrumentality of any other coin as well as a nickel five-cent piece. Assuming, of course, that there is a box or a portion of a box of cigars in the machine, to get one the operator passes a five-cent piece through slot 20 into coin-conductor C. The first safeguard is against lead or other overweight disks, slugs, or checks. The desired result is effected by means of a tilting lever 39, which is pivoted in an opening 40 in the bottom of coin-conductor C. The short arm of the lever is toward the upper end of the conductor, and the long arm, or necessarily the heavier arm, is toward the lower end of the conductor, the heavier arm of the lever resting upon a suitable stop 41, whereby it is retained in its normal position. The arms of this lever are so proportioned relatively to each other—that is to say, the lever is so delicately balanced—that it will not be affected to the slightest extent by the passage over it of an ordinary nickel five-cent piece or any light-weight coin, disk, or check, but will be tilted instantly by a lead disk or check of approximately the size of a five-cent piece or by any overweight disk or check that can be passed through the coin-slot. When lever 39 is tilted, it of course prevents the check or disk from passing any farther down conductor C and causes it to drop out

through opening 40 into conductor D, which is below it, as will be readily understood from Fig. 5 in connection with Fig. 2. Any coin received in conductor D simply rolls straight along and out through slot 23 into receptacle E on the outside of the case.

Suppose, now, that the operator has tried to operate the machine by means of a steel or iron disk or check near enough to the size of a five-cent piece to pass through the coin-slot and near enough to the weight of a five-cent piece to pass over lever 39 without being rejected thereby. As a safeguard against this special mode of defrauding the machine I provide a magnet 42, which is suitably secured in one side of conductor C, leaving one side of the magnet fully exposed, so that every coin or check must come in contact with it in passing down the conductor. In the present instance I have shown the magnet as secured in wall B. It is so well understood as to go without saying that in machines of this character the operator having placed a nickel in the slot is required to actuate a suitable operating device—in the present instance the lever. If, however, instead of putting in a nickel, which would not be attracted by the magnet, he has put in a steel or iron disk or check, said disk or check will be stopped and held by the magnet, so that it can pass no farther down conductor C. A steel or iron disk or check will be immediately removed from its contact with the magnet and disposed of without operating the delivery mechanism by means of slide H when the operating-lever is moved. This slide is shown as a mere gravity-slide normally held up by the operating-lever and adapted to drop by its own weight as soon as released. I have shown said slide as held in place by guides 43, which are secured to wall B, and as provided with a pin 44, which is engaged by the operating-lever to lift the slide whenever the lever is raised, and with a pin 45, which would be engaged by the lever in its downward movement, and thereby force the slide downward should the slide stick in its bearings sufficiently to prevent it from dropping freely or be retained in the raised position by means of the magnet and a disk or check. Slide H is recessed in conductor C on the side opposite to the magnet and is provided with a cross-bar 46, which fills an opening 47 in the bottom of the conductor, said cross-bar forming, in fact, the portion of the bottom of the conductor upon which a steel or iron disk or check would rest when stopped and retained by the magnet. High enough above cross-bar 46 to give free passage to a five-cent piece is another cross-bar 48. When the slide drops down, the cross-bars of course drop with it, and the upper cross-bar removes any disk or check that has been retained by the magnet out of contact therewith, so that it will roll off from the lower cross-bar, which is inclined downward to correspond with the bottom of conductor C, and drop into conductor D, which,

as clearly shown in Fig. 5, is so shaped as to catch all disks or checks that are rejected by lever 39 and caused to drop out from conductor C and also all steel or iron checks or disks that are stopped by the magnet and removed therefrom by slide H. As already stated, any coin, disk, check, or slug that gets into conductor D simply passes directly through and out of the machine through slot 23 in the case.

The next safeguard accepts genuine five-cent pieces, but rejects all coins, disks, or checks of undersize or of correct size, but of underweight. This third safeguard consists of a lever 49, which is practically a duplicate of lever 39. This lever is pivoted in an opening 50 in the bottom of conductor C, its light end being toward the upper end of the conductor and its heavy end toward the lower end of the conductor, said heavy end resting on a stop 51, by which the lever is retained in its normal position. This lever is so balanced that while it will not be affected to the slightest extent by the passage over it of any light-weight coin, disk, or check although it may be full size or even by a smaller genuine coin, the same being of less weight than a nickel five-cent piece, it will be tilted instantly by a genuine nickel five-cent piece and will prevent the passage of said genuine nickel five-cent piece any farther down conductor C. Light-weight and undersized disks, checks, and coins will pass lever 49 and will continue down conductor C, which leads into conductor D, as clearly shown in Fig. 2, an undersized coin being indicated at 52 as having passed levers 39 and 49 and being about to drop down into conductor D, from whence it will pass through slot 23 into outside receptacle E. It will be understood, therefore, that disks, checks, slugs, &c., of over-size cannot pass the receiving-slot. Over-weight slugs, &c., that pass the receiving-slot are rejected by lever 39, which passes genuine coins and light-weight checks, &c. Iron and steel checks, &c., are stopped by the magnet and removed by slide H, and genuine coins are stopped by lever 49 and turned into a conductor leading to the operative parts of the machine, said lever 49 permitting all light-weight and undersized coins, checks, &c., to pass on through the machine and into an outside receptacle without in any way affecting the operative parts of the machine and leaving it impossible to operate the vending mechanism, which will presently be fully described. Opening 50 in the bottom of conductor C leads into a coin-conductor M, down which a five-cent piece drops the instant lever 49 is tilted by said five-cent piece, the coin engaging a pin 53, which extends from operating-slide G. This pin and also a pin 54, which carries a gravity-pawl 55, are shown as extending through a slot 56 in wall B and into the conductor. (See Fig. 7 in connection with Fig. 2.) As I have illustrated it in the drawings the inner wall of coin-conductor M is wall B,

and the outer wall of said coin-conductor consists of one or more pieces 57 of either metal or wood, which are attached to wall B. The outer wall of conductor M is shown as provided with a slot 58, which registers with slot 56 in wall B. Pin 53, which is engaged by the coin, extends through slot 56 and into conductor M, but pin 54 extends through slot 58 in the outer wall of conductor M also, gravity-pawl 55 being pivoted to swing freely at the outer end of said pin 54 and lying on the outer side of the coin-conductor. The function of gravity-pawl 55 will presently be fully explained.

Suppose now that a genuine five-cent piece has been put into the machine and has passed lever 39 and the magnet and has been thrown into conductor M by the tilting of lever 49. The coin will pass down said conductor M until it engages and rests upon pin 53, in which position the coin, which I have indicated by 65, is clearly shown in Fig. 2. The coin will now be directly under a pin 59, which extends from operating-lever F, said pin being shown in full lines in Fig. 7 and in dotted lines in Fig. 2. The coin is now in position to effect the vending operation, which is accomplished by a downward movement of the operating-lever. The coin is engaged by pin 59 on the operating-lever and pressed against pin 53 on the operating-slide, whereby the operating-slide is moved downward, gravity-pawl 37 carried by the slide engaging one of the pins 36 on the delivery-cylinder and causing the latter to move forward and deliver a cigar, as will presently be more fully explained. It will be noted that pin 59 upon the operating-lever swings in an arc of a circle, slot 58 in the outer wall of conductor M being enlarged to give clearance to the pin. (See Fig. 2.) It will be obvious from this figure that as pin 59 presses the coin downward it will gradually pass over on the left side of the coin, as the latter is seen in Fig. 2, and will consequently tend to press said coin slightly toward the right. This lateral movement of pin 59 prevents the possibility of the coin becoming wedged in conductor M and insures that the coin will pass out from conductor M and into a final coin-conductor N, which leads from conductor M. The upper end of conductor N is so located relatively to conductor M that at the instant the operating-lever has reached the extreme of its downward movement the coin will roll off from pin 53 on the operating-slide and into conductor N, pin 59 upon the operating-lever acting in practice to push the coin off from pin 53 and into conductor N. This conductor extends downward and through wall B, so that coins passing down this conductor will drop into the unoccupied space (indicated by 66) under the delivery-cylinder, where a removable receptacle may be provided for them, if preferred.

69 (see Figs. 6 and 8) denotes a check-bolt extending into conductor M slightly above conductor N, the action of which is to render

it impossible for a coin that has been carried down in conductor M past said check-bolt to be carried up again by pin 53 on the operating-slide under any circumstances. This check-bolt is beveled upon the upper side, as at 70, and straight upon the under side. The shank 71 of the check-bolt moves in guides 72, and said bolt is retained in operative position by a spring 73, which bears against a shoulder 74 on the shank and against one of the guides. Conductor M is made just large enough to permit an operative coin to pass freely, and when the coin is pressed into engagement with the bevel of the check-bolt the latter is forced back against the power of the spring and allows the coin to pass, the spring, however, forcing the check-bolt forward again above the coin the instant the latter has passed and before it has passed into conductor N. The coin being thus locked by the straight under side of the check-bolt against backward movement, it follows that the operating-slide cannot return until the coin has passed into conductor N, thus rendering it absolutely impossible to actuate the delivery mechanism twice with a single coin, no matter how vigorously the operating-lever may be manipulated.

I will now describe a fourth safeguard against still another method of "beating" the machine. This method consists in putting in a genuine coin of the proper value to pass the first, second, and third safeguards—i. e., levers 39 and 49 and the magnet—and into conductor M and following it instantly by a penny, the idea being to get the two coins into such a position that the machine may be operated twice by successive movements of the operating-lever. If the operator could get the smaller coin to follow the operative coin into conductor M before lever 49 tilted back to place after throwing the operative coin into said conductor, he might be able to get two cigars for six cents. It will be obvious that the instant the operative coin passes out from conductor M into conductor N the operating-slide will be released, it having previously been forced down by the engagement of the coin with pin 53, and spring 29 will return the operating-slide to its normal position, thus preventing the smaller coin from following the operative coin into conductor N. The smaller coin will therefore be lifted up in conductor M by pin 53. In order to remove this smaller coin from conductor M during the upward movement of the operating-lever so that it cannot be made to actuate the delivery-cylinder by another downward movement of the operating-lever, I provide a conductor O, which may be termed a "by-pass" conductor. Conductor O leads from the portion of conductor M at which the operative coin stops through engagement with pin 53 before the movement of the operating-lever commences and around the operative portion of conductor M into conductor N. If, therefore, a small coin is car-

ried up by pin 53 when the latter moves upward in conductor M, said small coin will roll off from pin 53 into conductor O and will pass into conductor N and thence into the receptacle at the bottom of the case with other coins. In order to guard against the possibility of an operative coin passing into conductor O, and thus failing to operate the machine, I provide a guard-pin 63 in conductor M in such a position as to render it impossible for an operative coin to get into conductor O at all, while, on the other hand, the position of said pin relatively to pin 53 when the latter is moving toward the raised position is such that should a small coin be brought up in conductor M by said pin the two pins will switch said coin off into conductor O and past the operative portion of conductor M, so that if the operating-lever is moved downward again no result will follow, as there will be no coin in position to actuate the operating-slide.

The operation of delivering a cigar will be readily understood from Fig. 4 in connection with the description already given. Each time the operating-lever is moved downward gravity-pawl 32, carried thereby, will engage one of the pins 35 upon the agitating-cylinder and will impart a forward movement to said cylinder. This, however, is all that can happen unless an operative coin has passed into conductor M in the manner already described, the agitation of the cigars in the box being of advantage rather than otherwise, as it tends to prevent the cigars becoming packed in the box and is not under any circumstances sufficient to do the cigars the slightest injury. Suppose now that an operative coin has passed into conductor M and has reached the position shown in Fig. 2—that is, a position in which said coin is resting upon pin 53—and is adapted to be engaged by pin 59 on the operating-lever as soon as the latter is moved downward. This downward movement of the operating-lever, through the instrumentality of the coin, forces down operating-slide D and by means of gravity-pawl 37, carried thereby and which engages one of the pins 36, imparts a forward movement to the delivery-cylinder. The normal position of these parts is clearly shown in Fig. 4, in which I have indicated cigars by 67. It will be noted that the grooves 31 in the delivery-cylinder will each receive one cigar freely, but will not receive two cigars. As the parts are so timed in practice that the movement of agitating-cylinder K commences slightly before the delivery-cylinder begins to move and as said cylinders rotate in the same direction, it follows that any packing or wedging of cigars is rendered practically impossible. As the delivery-cylinder moves forward the single cigar in the contiguous groove 31 will be carried past the agitating-cylinder; but the latter will hold all the other cigars back. As the groove 31 passes below the agitating-cylinder the cigar contained therein will roll

out upon a receiving-tray Q, which extends outward through a delivery-opening 68 in the case, the forward end of said tray being preferably curved upward, as shown, so as to keep the cigar from rolling off. Delivery-opening 68 is made amply large to enable the operator to remove the cigar freely. In order, however, to prevent any tampering with the mechanism, I provide a guard-plate 76, pivoted within the case, as clearly shown in Fig. 4, and adapted to swing inward against the agitating-cylinder and prevent interference therewith should any one attempt to manipulate the delivery mechanism through delivery-opening 68. The delivery-cylinder itself is fully protected by means of a guard-plate 75, carried by operating-slide G. As already explained, the operating-slide can only be actuated through the coöperation of an operative coin with the operating-lever, so that even should the delivery-cylinder be operated in some unauthorized manner the cigar in the groove 31 that passes the agitating-cylinder would still be retained in said groove by guard-plate 75, and should the delivery-cylinder be turned still farther forward the cigar instead of rolling out upon the receiving-tray would drop into the space 66 under the delivery-cylinder, so that even should the person attempting to manipulate the machine succeed in getting cigars out of the box he would still fail to get them out of the machine, as they could not roll out on the receiving-tray unless the operating-slide had been actuated and guard-plate 75 moved downward out of the way, and that in turn could only happen through the coöperation of an operative coin with the operating-lever. The two guard-plates 76 and 75 provide in practice efficient protection against manipulation of the delivery mechanism through the delivery-opening. In order to insure that both the agitating-cylinder and the delivery-cylinder, especially the latter, will remain in just the position to which they are carried by the gravity-pawls at each downward movement of the operating-lever and the operating-slide, I provide springs 77 and 78, shown as secured, respectively, to the side and to the bottom of the case. These springs bear with sufficient pressure against the peripheries of the cylinders to hold them just where they are left by the gravity-pawls. Backward movement of delivery-cylinder L under any circumstances is prevented by a spring 79, secured to wall B, which is engaged by the pins 36 on the cylinder. These pins as they move upward press the spring inward. The instant a pin has passed the spring, however, it flies back below the pin, as clearly shown in Fig. 5, and prevents backward movement of the cylinder. A pin 80, extending inward from wall B, acts as a stop to prevent the possibility of gravity-pawl 37 swinging around on the pin 38, by which it is carried; when the operating-slide moves upward and retains it in position to operate the delivery-cylinder

again at the next downward movement of the slide.

In order to prevent the possibility of a would-be purchaser placing a coin in the receiving-slot after the cigars are exhausted, I provide a cover-slide 81, which when the last cigar is taken from the machine moves upward and covers the receiving-slot, so that no more coins can be passed into the machine. This slide is shown as adapted to move in guides 82. A spring 83 acts to draw the slide upward, so that it will cover the receiving-slot, a stop 84 limiting the upward movement. The slide is held downward against the power of the spring, leaving the receiving-slot open, by the engagement of a suitable hook 85 on the slide with an abutment 86 on wall B, said hook being provided with a bevel 87, by means of which it is disengaged from the abutment, as I shall presently describe.

88 denotes a wheel mounted to turn on a stud 89, extending from the case. This wheel is provided with a series of pins 90, corresponding in number with the cigars in a box. For example, if the box-receptacle J is adapted to receive boxes containing fifty cigars wheel 88 will be provided with fifty pins arranged in circular form equidistant from each other, and if the box-receptacle is adapted to receive boxes containing one hundred cigars then wheel 88 will be provided with one hundred pins similarly arranged. In the present instance I have shown the box-receptacle as adapted to receive boxes containing fifty cigars and wheel 88 as provided with fifty pins. These pins are adapted to be engaged by gravity-pawl 55, carried by pin 54, extending from operating-slide G, the parts being so arranged that when the operating-slide is near the end of the downward movement said gravity-pawl will engage one of the pins, so that the last portion of each downward movement of the operating-slide will cause a forward movement of wheel 88. These pins in practice all clear hook 85 on slide 81 with the exception of one pin, which for convenience I have designated by 90^a. (See Fig. 3.) This pin is made long enough to engage the bevel on hook 85 at the completion of each revolution of the wheel and to trip said hook—i. e., disengage it from the abutment—so that spring 83 will draw the slide upward and cause it to cover the receiving-slot, it being understood, of course, that when a box of cigars is placed in the machine the slide is drawn down against the power of the spring, the hook is placed in engagement with the abutment to retain it down, and pin 90^a on wheel 88 is placed just past the hook when the latter is in the engaged position. 91 denotes a friction-spring bearing against wheel 88 and acting to hold said wheel in any position in which it may be placed, either by the engagement of gravity-pawl 55 with one of the pins or by the operator when the machine is started.

I have shown the agitating-cylinder, the delivery-cylinder, and wheel 88 as actuated

through the engagement of gravity-pawls with pins, this being an ordinary means of producing intermittent reciprocatory movement. I wish it distinctly understood, however, that my invention is in no sense limited to the special means I have illustrated for producing intermittent rotary movement of the parts just above referred to, but that it is equally within the scope of my invention to produce said forward movements in any other well-known manner, and, furthermore, that my invention is not limited by the use of friction-springs to retain the agitating and delivery cylinders and wheel 88 in any position in which they may be placed, it being obvious that any ordinary lock ratchet movement may be substituted for the gravity-pawl, pins, and friction-springs as a means of producing the intermittent rotary movement of either the agitating-cylinder, the delivery-cylinder, or wheel 88, or of all of them. Equivalent forms of operating mechanism for the cylinders and wheel 88 not being of the essence of my invention and being within the province of any mechanic of ordinary skill are not thought to require illustration in the drawings.

The operation of the machine has already been so fully described in describing the functions and organization of the parts that other than brief description of the general operation in use is not thought to be required. In starting the machine the owner, who may at this moment be termed the "operator," removes the cover from a box of cigars, inverts it, and places it in box-receptacle J. Nothing else is required further than to see that the long pin 90^a on wheel 88 is placed just above the hook upon the cover-slide when the latter is locked in the retracted position. The box or case may then be closed and should be securely locked, although the special mode of closing and locking the case is not of the essence of my invention. A person desiring to purchase a cigar places an operative coin, in the present instance a nickel five-cent piece, in the receiving-slot and then pushes down the operating-lever. A gravity-pawl upon the operating-lever actuates the agitating-cylinder as the lever is moved downward, and the operating-slide is moved downward through the coöperation of the coin that has just been placed in the receiving-slot with a pin upon the operating-lever and another pin upon the operating-slide. A gravity-pawl upon the operating-slide causes a forward movement of the delivery-cylinder as the slide is moved downward, and another gravity-pawl on said slide causes a forward movement of the wheel, by which the cover-slide is released. The operating-slide carries a guard which normally lies in front of the delivery-cylinder, wholly covering the exposed side of it, so that unless the operating-slide is moved down, which can only occur with the coöperation of an operative coin wholly out of the control of the operator, no access can be had to the de-

livery-cylinder through the delivery-opening. Furthermore, should the delivery-cylinder be operated by any means whatever other than the downward movement of the operating-slide the cigar, which would be removed from the box by the delivery-cylinder, would not be delivered into the receiving-tray, but would be caused by the guard-plate on the operating-slide to drop into the open space under the delivery-cylinder and wholly out of reach of the operator. Operative coins after having operated the delivery mechanism pass into a receptacle within the machine wholly out of reach of the operator. Provision is made for rejecting light-weight coins, disks, &c., and overweight coins, disks, or slugs and also iron or steel disks and for causing them to pass out of the machine without affecting the delivery mechanism to the slightest extent. Mechanism is also provided for preventing the delivery mechanism from being actuated twice in succession by means of an operative coin immediately followed by a penny.

Having thus described my invention, I claim—

1. The combination with a receptacle to receive an open inverted box of cigars, of an agitating-cylinder, means whereby it is operated, and a delivery-cylinder having grooves which hold a single cigar, said cylinders closing the under side of said receptacle so that cigars in an inverted box will rest thereon and coin-controlled mechanism for actuating the delivery-cylinder whereby cigars may be removed from the box singly.

2. In a machine for vending cigars from the original box, the combination with an agitating-cylinder, means whereby it is operated, and a delivery-cylinder, of a receptacle for retaining an open inverted box of cigars over said cylinders in such position that the cylinders close the under side of the receptacle, and coin-controlled mechanism for actuating the delivery-cylinder.

3. In a machine for vending cigars from the original box, the combination with an agitating-cylinder, a grooved delivery-cylinder and means for retaining an open inverted box of cigars over the cylinders, of an operating-lever, mechanism intermediate the operating-lever and the agitating-cylinder whereby said agitating-cylinder is actuated, an operating-slide, mechanism intermediate said slide and the delivery-cylinder whereby said delivery-cylinder is actuated and coin-controlled mechanism intermediate the operating-lever and the operating-slide by which said slide is operated.

4. In a machine for vending cigars from the original box, the combination with an agitating-cylinder, a grooved delivery-cylinder, and means for retaining an open inverted box of cigars over the cylinders, of an operating-lever, mechanism intermediate the operating-lever and the agitating-cylinder whereby said agitating-cylinder is actuated, an operating-slide, a spring whereby said slide is normally

held at the raised position, mechanism intermediate said slide and the delivery-cylinder whereby the latter is actuated by downward movement of the slide, and coin-controlled mechanism intermediate said lever and slide whereby the latter is actuated against the power of the spring by movement of the lever, said spring acting to return the slide to its normal position as soon as the actuation of the delivery-cylinder has been effected.

5. In a machine for vending cigars from the original box, the combination with an agitating-cylinder and a grooved delivery-cylinder, each cylinder being provided with pins at one end, and means for retaining an open inverted box of cigars over the cylinders, of an operating-lever carrying a gravity-pawl which engages a pin on the agitating-cylinder at each downward movement and also carrying a pin 59, an operating-slide carrying a gravity-pawl adapted to engage one of the pins on the delivery-cylinder at each downward movement and also carrying a pin 53 and means for placing a coin between pins 53 and 59 so that downward movement of the operating-lever with a coin in operative position will move down the operating-slide and actuate the delivery-cylinder.

6. In a machine for vending cigars from the original box, the combination with an agitating-cylinder, a grooved delivery-cylinder, and means for retaining an open inverted box of cigars over the cylinders, of an operating-lever having a pin 59 and connections whereby the agitating-cylinder is actuated, a spring-controlled operating-slide having a pin 53 and connections whereby the delivery-cylinder is actuated, a conductor for placing a coin between said pins so that downward movement of the lever with a coin in operative position will actuate both cylinders, and means for retaining said cylinders in position after each movement.

7. In a machine for vending cigars from the original box, the combination with an agitating-cylinder, a grooved delivery-cylinder and means for retaining an open inverted box of cigars over the cylinders, of an operating-lever having a pin 59 and connections whereby the agitating-cylinder is actuated, an operating-slide having a pin 53 and a guard-plate 75 for the delivery-cylinder, and means for placing a coin between said pins so that downward movement of the lever with a coin in operative position will actuate the cylinders and will also remove the guard-plate from before the delivery-cylinder so that a cigar delivered thereby may be removed by the operator.

8. In a machine for vending cigars from the original box, the combination with a case having a receiving-slot, an agitating-cylinder, a grooved delivery-cylinder and means for retaining an inverted open box of cigars over the cylinders, of an operating-lever and connections whereby the agitating-cylinder is operated, an operating-slide and connections

whereby the delivery-cylinder is actuated, said operating-slide carrying a gravity-pawl 55, coin-controlled connections between the operating-lever and the operating-slide, a spring-actuated closing-slide adapted to cover the receiving-slot, means for locking said slide in the retracted position, and a wheel 88 carrying pins one of which is engaged by the gravity-pawl at each downward movement of the operating slide, one of said pins acting to trip the closing-slide when a rotation of the wheel is completed.

9. In a machine for vending cigars from the original box, the combination with a case having a receiving-slot, an agitating-cylinder, a grooved delivery-cylinder and means for retaining an open inverted box of cigars over the cylinders, of an operating-lever and connections by which the agitating-cylinder is operated, an operating-slide carrying a gravity-pawl 55, coin-controlled mechanism intermediate the operating-lever and the operating-slide, connecting mechanism intermediate the operating-slide and the delivery-cylinder, a spring-controlled cover-slide for the receiving-slot, means for locking said slide at the retracted position and mechanism intermediate the gravity-pawl and the cover-slide, whereby the latter is released at a predetermined time.

10. In a machine for vending cigars from the original box, the combination with an agitating-cylinder, a grooved delivery-cylinder and means for retaining an open inverted box of cigars over the cylinders, of an operating-lever, mechanism intermediate the operating-lever and the agitating-cylinder for actuating the latter, an operating-slide, coin-controlled mechanism intermediate the operating-lever and the operating-slide, operating connections intermediate the operating-slide and the delivery-cylinder and means for retaining the delivery-cylinder against backward movement.

11. In a machine for vending cigars from the original box, the combination with an agitating-cylinder and a grooved delivery-cylinder, each cylinder being provided with pins at one end and means for retaining an open inverted box of cigars over the cylinders, of an operating-lever carrying a gravity-pawl which engages a pin on the agitating-cylinder at each downward movement, an operating-slide carrying a gravity-pawl adapted to engage one of the pins on the delivery-cylinder at each downward movement, coin-controlled mechanism intermediate the operating-lever and the operating-slide and a spring 79 adapted to be engaged by the pins on the delivery-cylinder whereby said cylinder is locked against backward movement.

12. In a machine for vending cigars from the original box, the combination with an agitating-cylinder, a grooved delivery-cylinder and means for retaining an open inverted box of cigars over the cylinders, of an operating-lever and intermediate mechanism for

actuating the agitating-cylinder, an operating-slide, coin-controlled mechanism intermediate said lever and said slide, operating mechanism intermediate the slide and the delivery-cylinder and springs 77 and 78 whereby said cylinders are retained in the position at which they stop after each forward movement.

13. In a machine for vending cigars from the original box, the combination with an agitating-cylinder, a grooved delivery-cylinder and means for retaining an open inverted box of cigars over the cylinders, of an operating-lever and mechanism for actuating the agitating-cylinder, an operating-slide, coin-controlled mechanism intermediate the operating-lever and the slide, operating mechanism intermediate the slide and the delivery-cylinder and a guard-plate 75 carried by the operating-slide which covers the grooves in the delivery-cylinder after they pass the agitating-cylinder unless the forward movement of the agitating-cylinder is produced through the cooperation of an operative coin.

14. In a machine for vending cigars from the original box, the combination with a case having a delivery-opening, a receiving-tray in said opening for convenience in removing cigars, an agitating-cylinder, a grooved delivery-cylinder and means for retaining an open inverted box of cigars over the cylinders, of an operating-lever and connections intermediate said lever and the agitating-cylinder whereby the latter is actuated, an operating-slide, coin-controlled mechanism intermediate the operating-lever and the operating-slide and operating mechanism intermediate the slide and the delivery-cylinder, whereby at each downward movement of the operating-lever in cooperation with an operative coin a single cigar in the nearest groove will pass the agitating-cylinder and drop into the receiving-tray.

15. In a machine for vending cigars from the original box, the combination with a receiving-tray, an agitating-cylinder, a grooved delivery-cylinder and means for retaining an open inverted box of cigars over the cylinders, of an operating-lever, connections intermediate said lever and the agitating-cylinder, and intermediate coin-controlled mechanism whereby at each actuation of the operating-lever in cooperation with an operative coin a single cigar will be carried in one of the grooves of the delivery-cylinder past the agitating-cylinder and will roll out on the receiving-tray.

16. In a machine for vending cigars from the original box, the combination with a receptacle for holding an open inverted box of cigars, of an agitating-cylinder and a grooved delivery-cylinder which close the under side of said receptacle, means for actuating the agitating-cylinder and coin-controlled mechanism for actuating the delivery-cylinder whereby cigars may be removed singly from the receptacle.

17. In a machine for vending cigars from

the original box, the combination with a delivery-cylinder, and operating-slide having a pin 53, mechanism intermediate the operating-slide and the cylinder whereby the latter is actuated when the slide is moved downward, and an operating-lever having a pin 59, of a coin-conductor M having slots through which pins 53 and 59 extend from opposite directions, said parts being so constructed and arranged that an operative coin in conductor M will lie between said pins and when the operating-lever is actuated will coact with said pins in imparting movement to the operating-slide and actuating the delivery-cylinder.

18. In a machine for vending cigars from the original box, the combination with delivery mechanism, an agitating-cylinder, an operating-slide having a pin 53, operating mechanism intermediate said slide and the delivery mechanism, an operating-lever having a pin 59, and connections intermediate said lever and the agitating-cylinder, of a coin-conductor M having slots in its opposite sides through which pins 53 and 59 extend and a coin-conductor N into which operative coins pass at the end of the downward movement of the operating-lever.

19. In a machine for vending cigars from the original box, the combination with delivery mechanism, an operating-slide having a pin 53, operating mechanism intermediate said slide and the delivery mechanism, and an operating-lever moving in an arc and having a pin 59, of a coin-conductor M having in one side a slot to receive pin 53 and in the other side a slot to receive pin 59 which moves in an arc, and a coin-conductor N leading from the lower end of conductor M, the parts being so constructed and arranged that an operative coin in conductor M will lie between said pins and when the operating-lever is moved will be engaged by pin 59 and will itself engage pin 53 and move the operating-slide downward, pin 59 having lateral movement relative to the coin so that at the end of the downward movement pin 59 will push the coin off from pin 53 and into conductor N.

20. In a machine for vending cigars from the original box, the combination with delivery mechanism, an operating-slide having a pin 53, operating mechanism intermediate said slide and the delivery mechanism and an operating-lever having a pin 59, of a coin-conductor M having slots in its opposite sides through which pins 53 and 59 extend, a conductor N into which the coin passes from conductor M, a spring for returning the slide to its normal position as soon as released by the passage of the coin into conductor N, and a check-bolt in conductor M which when passed by the coin renders it impossible for the coin to be carried upward again in said conductor.

21. In a machine for vending cigars from the original box, the combination with delivery mechanism, an operating-slide and operating mechanism intermediate said slide and the delivery mechanism, of coin-controlled

mechanism intermediate said slide and the operating-lever, a spring for returning the slide to its normal position, and a check-bolt for preventing backward movement of the coin after the delivery mechanism has been actuated.

22. In a machine for vending cigars from the original box, the combination with delivery mechanism, an operating-slide having a pin 53, operating mechanism intermediate said slide and the delivery mechanism, and an operating-lever having a pin 59, of a coin-conductor M having slots in its opposite sides through which pins 53 and 59 extend and a spring-controlled check-bolt 69 in conductor M which is provided with a bevel upon its upper side, said check-bolt being readily pressed back by the coin as the latter is moved downward and moving forward again the instant the coin is passed, so that backward movement of the coin after the delivery mechanism has been actuated is rendered impossible.

23. In a machine for vending cigars from the original box, the combination with delivery mechanism, an operating-slide having a pin 53, operating mechanism intermediate said slide and the delivery mechanism, and an operating-lever having a pin 59, of a coin-conductor M having slots in its opposite sides through which pins 53 and 59 extend, a conductor N into which coins pass from conductor M after the delivery mechanism has been actuated, a spring for returning the operating-slide to its normal position when released and a by-pass conductor O leading from conductor M around the operative portion of said conductor M and into conductor N, said parts being so arranged that a small coin entering conductor M immediately after an operative coin will be carried up by the slide and will pass into conductor O.

24. In a machine for vending cigars from the original box, the combination with a case having a receiving-slot, a spring-actuated cover-slide therefor provided with a beveled hook and an abutment by which said hook is engaged, of delivery mechanism, coin-controlled mechanism for actuating the delivery mechanism, a wheel having a series of pins corresponding in number with the articles to be delivered, one of said pins being adapted to engage the beveled hook and trip the cover-slide at the completion of a revolution and mechanism for actuating the wheel each time the delivery mechanism is actuated.

25. In a machine for vending cigars from the original box, the combination with a receptacle for receiving an open inverted box of cigars, and an agitating-cylinder and a delivery-cylinder which close the under side of the receptacle, of coin-controlled mechanism for actuating the delivery-cylinder, and a guard for the delivery-cylinder carried by said mechanism.

26. A machine for vending cigars from the original box consisting essentially of a recep-

tacle adapted to receive an open inverted box of cigars, an agitating-cylinder and a delivery-cylinder upon which the cigars rest, mechanism for actuating the agitating-cylinder and coin-controlled mechanism for actuating the delivery-cylinder whereby the cigars may be removed singly from the receptacle.

27. In a machine for vending cigars from the original box, the combination with a receptacle for receiving an open inverted box of cigars, and an agitating-cylinder and a delivery-cylinder upon which the cigars rest, of an operating-lever and intermediate connections for actuating the agitating-cylinder, an operating-slide and intermediate connections for actuating the delivery-cylinder, and coin-controlled mechanism intermediate the operating-lever and the operating-slide whereby the latter is actuated.

28. In a machine for vending cigars from the original box, the combination with a receptacle for receiving an open inverted box of cigars, and agitating and delivery cylinders on which the cigars rest, of an operating-slide having a pin 53, operating mechanism intermediate said slide and the delivery-cylinder, an operating-lever having a pin 59, mechanism intermediate the operating-lever and the agitating-cylinder and a coin-conductor M through which pins 53 and 59 extend, whereby the operating-lever through the coöperation of an operative coin is caused to actuate the operating-slide and the delivery-cylinder.

29. In a machine for vending cigars from the original box, the combination with receptacle J, and agitating and delivery cylinders which close the under side of the receptacle, of an operating-slide having a pin 53 and a guard-plate 75 which normally lies in front of the delivery-cylinder and prevents delivery of cigars, operating mechanism intermediate said slide and the delivery-cylinder, an operating-lever having a pin 59 and means for conducting a coin into its operative position between said pins, so that downward movement of the operating-lever will remove the guard-plate from before the delivery-cylinder and will cause the latter to deliver a cigar.

30. In a machine for vending cigars from the original box, the combination with an operating-lever, a receptacle J, agitating and delivery cylinders which close the under side of the receptacle, a spring-controlled operating-slide and connections intermediate said slide and the delivery-cylinder, of coin-controlled mechanism intermediate the operat-

ing-lever and the operating-slide and a guard-plate carried by the operating-slide whereby vending is prevented unless the operating-slide is actuated.

31. In a machine for vending cigars from the original box, the combination with receptacle J, and agitating and delivery cylinders which close the under side of said receptacle, of an operating-slide, mechanism intermediate said slide and the delivery-cylinder, an operating-lever, operating mechanism intermediate said lever and the agitating-cylinder, coin-controlled mechanism intermediate the operating-lever and the operating-slide, and means for retaining said cylinders in the positions in which they are placed by their respective operating mechanisms.

32. In a machine for vending cigars from the original box, the combination with delivery mechanism, a spring-actuated operating-slide having a pin 53, connections intermediate said slide and the delivery mechanism and an operating-lever having a pin 59, of a coin-conductor M having slots through which said pins extend from opposite directions, a conductor N into which coins pass after the delivery mechanism has been actuated, a by-pass conductor O leading from conductor M above the operative portion thereof and into conductor N, said parts being so arranged that a small coin brought up by the operating-slide will pass into conductor O, and a guard-pin in said conductor by which the passage of operative coins is prevented.

33. In a machine for vending cigars from the original box, the combination with delivery mechanism, a spring-actuated operating-slide having a pin 53, connections intermediate said slide and the delivery mechanism and an operating-lever having a pin 59, of a coin-conductor M having slots through which said pins extend from opposite directions, a conductor N into which coins pass after the delivery mechanism has been actuated, a spring-actuated check-bolt in conductor M which permits coins to pass down freely but prevents backward movement thereof and a by-pass conductor leading from conductor N which receives a small coin carried up by the operating-slide should a small coin have immediately followed an operative coin.

In testimony whereof I affix my signature in presence of two witnesses.

ORLAND SMITH.

Witnesses:

A. M. WOOSTER,
S. W. ATHERTON.