

J. W. MATHES.
 COIN CONTROLLED VENDING MACHINE.
 APPLICATION FILED APR. 13, 1911.

1,002,722.

Patented Sept. 5, 1911.

6 SHEETS—SHEET 1.

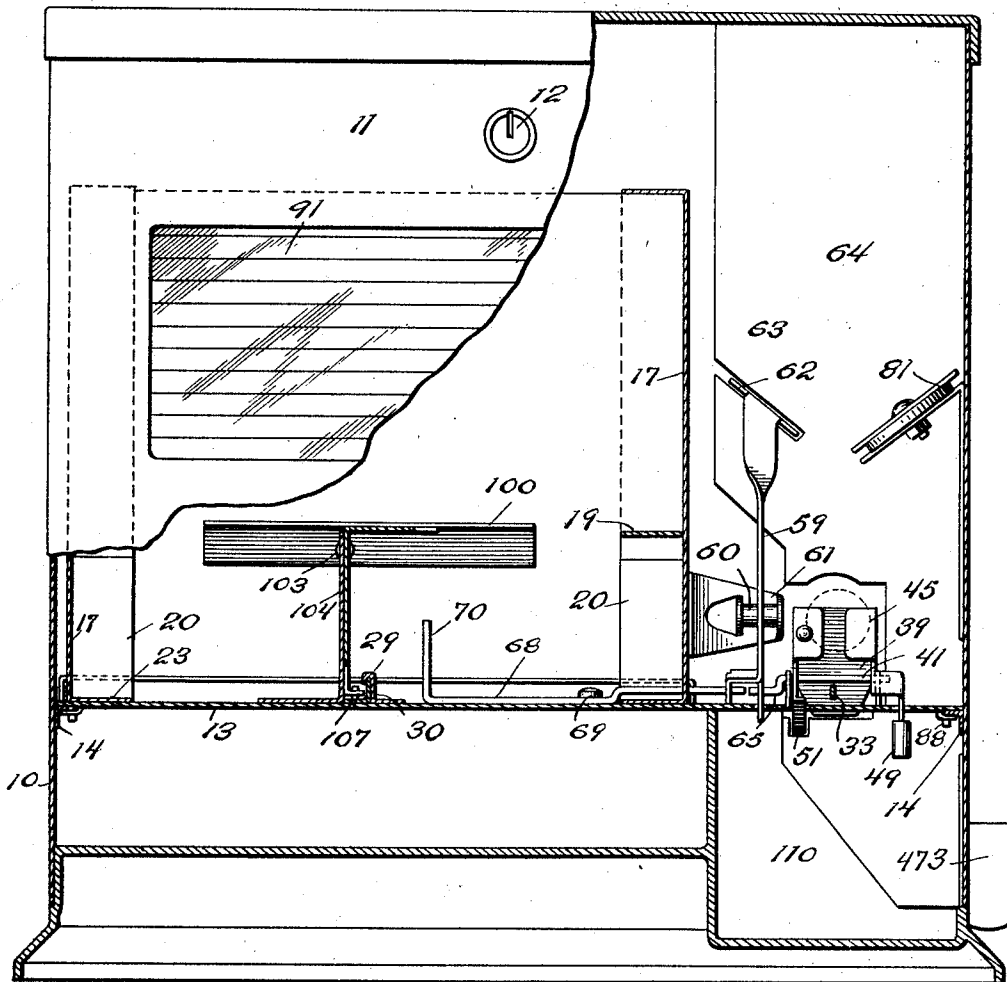


FIG. I.

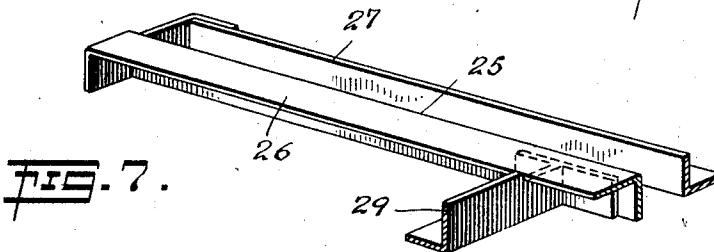


FIG. 7.

Witnesses:
 G. Robert Thomas
 D. Harold Bush

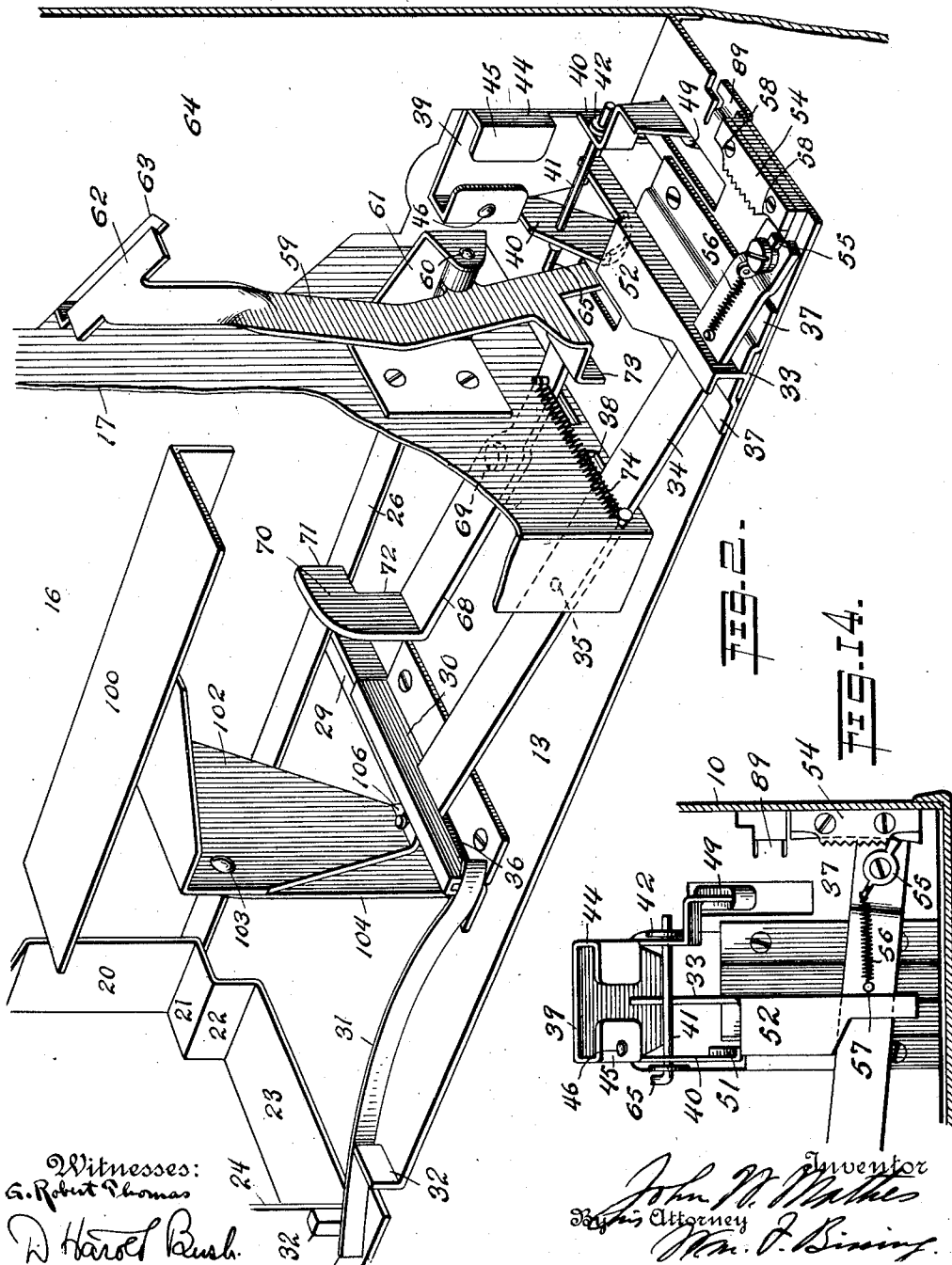
John W. Mathes
 By Attorney
 Wm. F. Bussing

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5 SHEETS-SHEET 2.



Witnesses:
 G. Robert Thomas
 D. Harold Bush.

Inventor
 John W. Mathes
 By his Attorney
 Mr. F. B. Boring.

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6 SHEETS—SHEET 3.

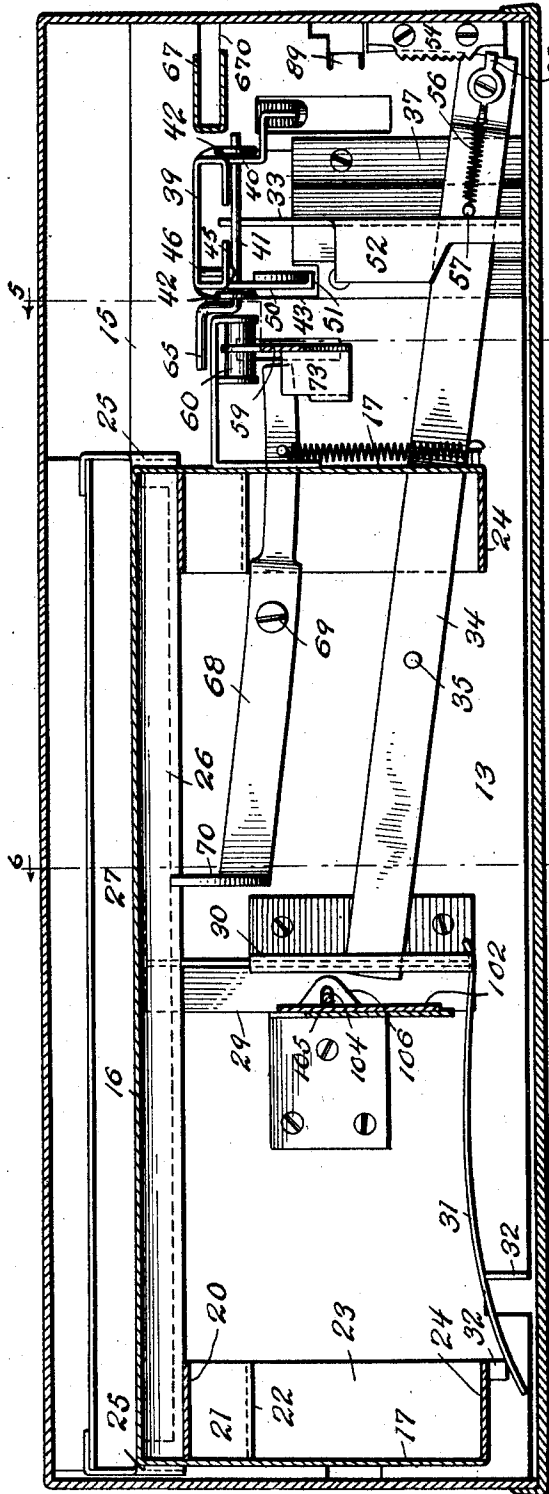


FIG. 3.

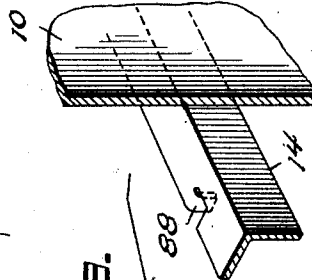


FIG. 4.

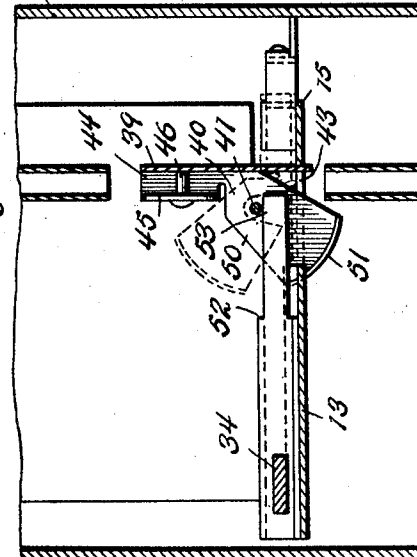
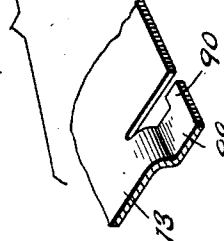


FIG. 5.



Witnesses
 G. Robert Thomas
 D. Harold Bush
 Inventor
 John W. Mathes
 By Attorney
 Wm. F. Bissling

1,002,722.

5 SHEETS—SHEET 4.

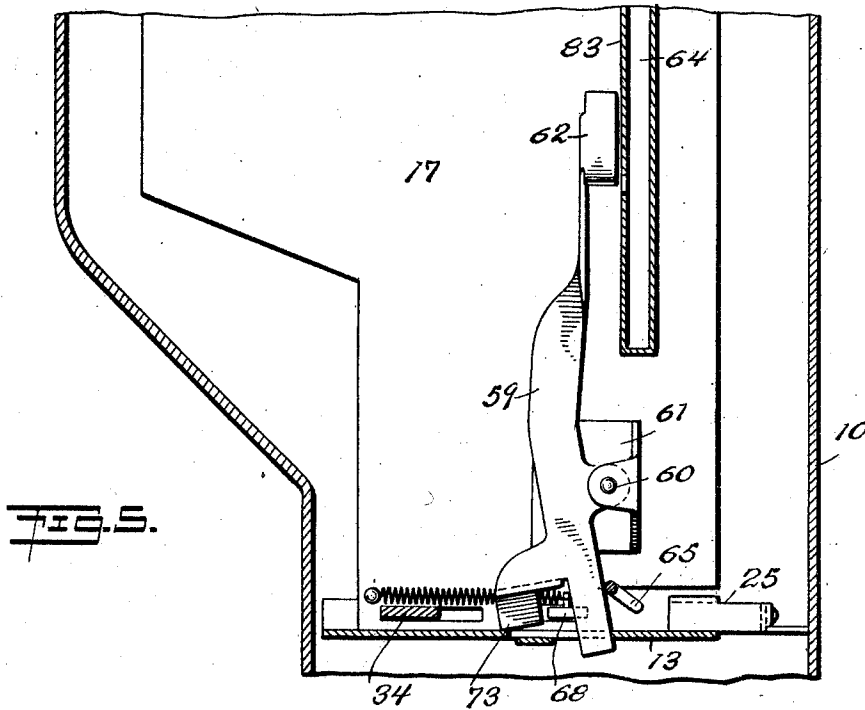


FIG. 5.

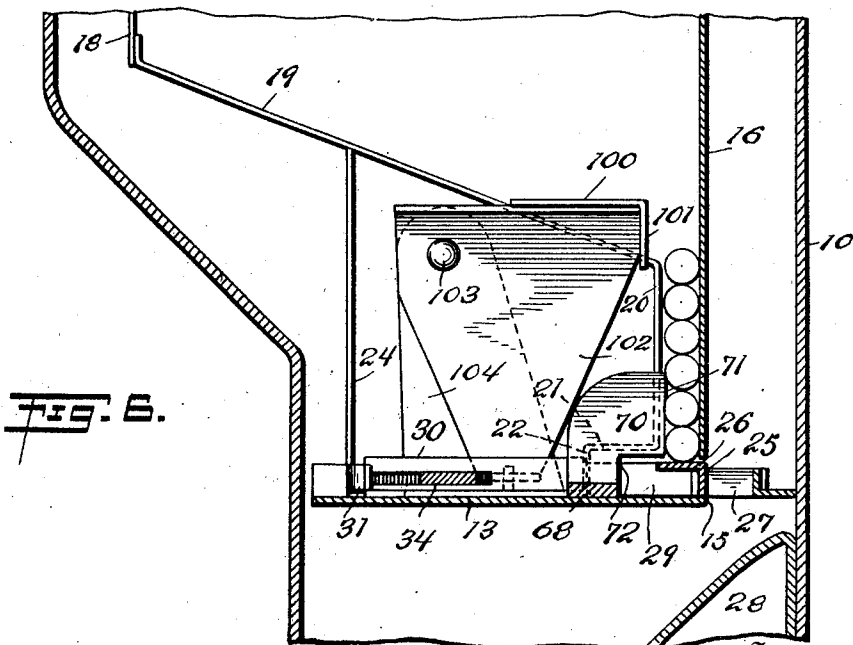


Fig. 6.

Witnesses:
G. Robert Thomas
D. Harold Bush

Inventor
John W. Matthes
By his Attorney
Wm J. Bissong

J. W. MATHES.
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5 SHEETS—SHEET 5.

FIG. 10.

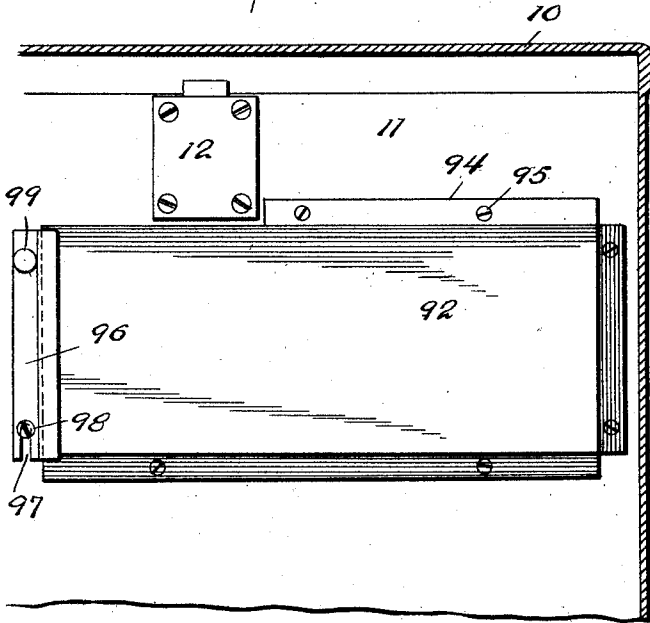


FIG. 8.

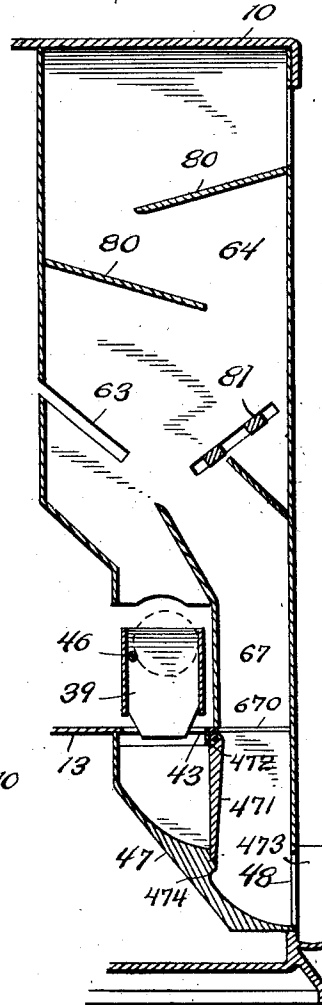


FIG. 11.

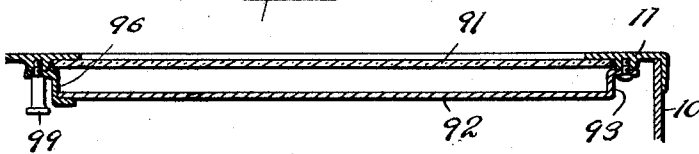


FIG. 12.

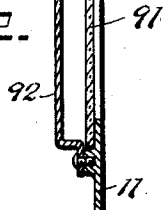
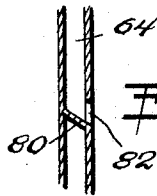


FIG. 13.



Witnesses:
 G. Robert Thomas
 D. Harold Bush

John W. Mathes
 By his Attorney
 Wm. F. Bissell

UNITED STATES PATENT OFFICE.

JOHN W. MATHES, OF LONG ISLAND CITY, NEW YORK, ASSIGNOR TO EDWARD KIAM,
OF HOUSTON, TEXAS.

COIN-CONTROLLED VENDING-MACHINE.

1,002,722.

Specification of Letters Patent.

Patented Sept. 5, 1911.

Application filed April 13, 1911. Serial No. 620,939.

To all whom it may concern:

Be it known that I, JOHN W. MATHES, a citizen of the United States, residing at No. 199 Jackson avenue, Long Island City, New York, have invented certain new and useful Improvements in Coin-Controlled Vending-Machines, of which the following is a specification.

This invention relates to coin-controlled apparatus, and more particularly to coin-controlled vending apparatus.

The invention has been designed more especially for machines for vending pencils; but it will be obvious that the features are applicable as well to machines for vending other kinds of merchandise.

The object of the invention is to provide a highly improved vending machine of this character, of comparatively simple construction, yet of efficient and reliable operation and thoroughly safeguarded against fraud.

The machines to which this invention relates preferably employ tiltable, freely movable, coin-receiving obstructors, which are removed by the deposited coin through a wide arc, to unobstructing position. When the obstructor is so tilted, the operating mechanism may be actuated, with a view to obtaining a pencil, and with the particular result that a reciprocative part passes over the prostrate obstructor so as to dislodge the coin therefrom. Such an obstructor may be termed coin-releasing means for the operating mechanism. In the typical case, the obstructor normally stands upright as a rigid barrier across the end of an operating push-bar, and tilts downward and backward away from the push-bar to a substantially horizontal position below the same, from which it follows that the push-bar is now free to proceed over the recumbent lock so as to remove the coin. When the push-bar rides back off the lock, the latter automatically tilts back to normal position, preferably by reason of being slightly over-weighted. It is important to prevent the operating mechanism being again quickly actuated, without the deposit of a fresh coin, so as to cause the push-bar to again travel rearward over the obstructor before the latter has had time to tilt upward to normal obstructing position. In accordance with this invention means are provided whereby the

tiltable obstructor interposes a barrier in the path of the reciprocative part toward the beginning of its return tilt to normal position, maintaining this barrier in the path of actuation of the part substantially throughout the transitional positions between prostrate and upright position.

In the preferred construction, the obstructor is provided with an arcuate abutment portion concentric with its pivot and normal to the path of travel of a thrust portion on the reciprocative part, so that the pivot of the obstructor receives the thrust at any time during the transitional phase of the obstructor, in event of an attempt being made to fraudulently reactuate the operating mechanism. While this arcuate abutment portion may also afford the barrier which is offered to the operating mechanism when the obstructor stands upright in normal position, it is preferred to so proportion and locate the arcuate abutment portion that it passes out of the path of said thrust portion on the reciprocative part at normal as well as at fully tilted or unobstructing position; it being considered preferable at normal position to interpose in the path of the reciprocative part a portion of the obstructor which is solidly backed by a stationary fixed support; so that the thrust is then communicated to such fixed support rather than to the pivot of the obstructor.

In addition to causing the obstructor to present a barrier to the push-bar during the return of the obstructor to normal position, as well as when the obstructor is at normal position, it is preferred to provide means whereby the push-bar is limited to full stroke, or substantially full stroke movement; so that the push-bar must return completely to its original position before an attempt, fraudulent or otherwise, to again actuate it can be successful. The parts are so related that at any intermediate position of the obstructor the thrust portion on the push-bar will contact with the arcuate or other abutment region on the obstructor before the full stroke mechanism can come into engagement. Otherwise an attempt at fraudulent operation of the machine might result in the push-bar being locked at a partially pushed-in position, the obstructor barring it against farther inward movement and the

full-stroke mechanism preventing it from returning to starting position.

A further object of the invention is to provide novel and simple means for returning a coin to the depositor, when the magazine is exhausted.

A further object is to provide simple and novel means for intercepting the normal path of the coins each time the obstructor is tilted out of receiving position by the weight of a previously deposited coin, preferably so as to return subsequently deposited coins to the depositors, the obstacle being maintained in the normal path of the coins as long as the obstructor is so tilted.

In the preferred embodiment of the invention the means for blocking the normal path of the coins when the obstructor is tilted, and the means for diverting the coins when the magazine is empty, are combined in a simple and effective fashion.

Another object of the invention is to provide a novel apparatus in which the obstructor cannot be moved by tilting the case so as to permit actuation of the operating mechanism without deposit of a coin.

In the preferred form of the invention, the means for intercepting the normal path of the coins when the magazine is empty or the obstructor is tilted is so related to the obstructor as to prevent removal thereof from the path of the actuating part by tilting of the case.

Another object of the invention is to provide, in connection with a suitable removable shelf or the like for supporting the operating mechanism, means for gaging the position of such shelf, so as to bring the parts into proper relation with the other parts in the case, and for retaining and guiding the shelf.

Numerous other objects and features of the invention will become apparent as the specification proceeds.

In the accompanying drawings illustrating the invention by the preferred embodiment thereof: Figure 1 is a view of the machine partially in front elevation and partially in vertical section, internal parts being shown partly in section and partly in elevation. Fig. 2 is a perspective view of the parts supported on the removable shelf, parts of the magazine being broken away and parts omitted. Fig. 3 is a sectional plan looking down on the supporting shelf and the parts thereon. Fig. 4 is a detail sectional elevation at right angles to Fig. 1, illustrating more particularly the relation of the tiltable obstructor to the push-bar, the obstructor being shown in normal position by full lines and in fully tilted position by dotted lines. Fig. 5 is a section on the line 5-5 of Fig. 3. Fig. 6 is a section on the line 6-6 of Fig. 3. Fig. 7 is a detail sectional perspective view of the ejector or

delivery device which coacts with the magazine. Fig. 8 is a transverse vertical section through the right-hand portion of the machine showing the interior of the coin-chute and the obstructor and coin-returning passage in relation thereto. Fig. 9 is a detail, dissociated perspective view of a supporting ledge on the side wall of the case and an engaging portion of the removable supporting shelf. Fig. 10 is an inside elevation of the removable front of the case with the attached display receptacle. Fig. 11 is a horizontal section through the same. Fig. 12 is a vertical section through these parts. Fig. 13 is a detail vertical section through a portion of the coin chute and a baffle therein. Fig. 14 is a detail plan view showing the tiltable obstructor and the push-bar, the obstructor being in an intermediate tilted position and the push-bar forced partly in but held against actuation to deliver an article by reason of the part 52 contacting with the arcuate flange 51, the full-stroke mechanism not yet engaging.

The mechanism is inclosed in a suitable case 10, which is preferably provided with a removable front 11, which may be held in place by a lock 12. Most of the mechanism is preferably supported on a shelf-plate 13 nearer the bottom than the top of the case. This shelf may be supported on ledges, such as the angle irons 14, on the sides of the case. The shelf may be removed from the case, upon removal of the front thereof, carrying with it the supporting mechanism. Preferably the shelf does not extend all the way to the back wall of the case, the rear edge of the shelf being indicated at 15.

The magazine is adapted to hold pencils or similar long articles. While it may be variously constructed it is preferably deep above, merging into a shallow lower portion, this shallow lower portion being of a width to contain a single tier of pencils, the bottom one of which is ejected or delivered at each actuation. In the particular construction illustrated a vertical wall 16, the full width of the magazine, constitutes the back thereof. As shown more particularly in Fig. 6, this back wall terminates at its lower edge at a distance above the shelf 13 proportioned to permit the passage of a pencil. The back wall 16 is preferably vertical throughout, the difference in depth, measured from front to back, between the upper part of the magazine and the lower part thereof being provided for by the conformation of the front boundaries of the magazine. In the construction illustrated, the vertical side walls 17 extend forward from the rear walls 16.

The front of the magazine is open, leaving two strip-like front wall sections at the two sides. The upper portions 18 of these

strip-like wall sections are preferably vertical and may be formed integral with the side walls 17 as shown in Fig. 3. From these portions 18 continuations 19 extend downward and backward into close proximity with the back wall 16, as shown more particularly in Fig. 6. From the lower end of the inclined portion 19 of each strip-like front wall section the vertical portion 20 extends down parallel to the back wall 16 and terminates at substantially the same level as the lower edge of the wall 16. The strip-like wall portions 19 and 20 may be formed of a single length of sheet metal, which is also bent to present the forward extending horizontal portion 21 at the lower end of the portion 20, the vertical portion 22 extending downward from the forward end of the portion 21 to the shelf 13, the horizontal portion 23 thence extending forward along and resting on the shelf 13 and the vertical portion 24 extending upward from the front end of 23 and affording support at its upper end to the inclined portion 19, see Figs. 2 and 6. These specific details of construction may, of course, be varied.

An ejector or delivery device 25, shown more particularly in Fig. 7, operates on the shelf 13, at the base of the shallow lower portion of the magazine 9, to deliver a pencil therefrom at each actuation. The delivery device may be considerably varied, but it preferably comprises a platform portion 26 and a recessed portion 27. The platform portion 26 normally stands beneath the lower end of the narrow portion of the magazine, so as to support the pencils therein and to prevent escape thereof, as shown clearly in Fig. 6. Upon actuation, the delivery device is moved forward to carry the platform portion 26 beyond the pencils which then descend so as to locate the bottom pencil in the recessed portion 27. The return movement of the delivery device locates the recessed portion 27 over the space between the rear edge of the shelf 13 and the back wall of the case, and since the recessed portion has no bottom the pencil falls upon the inclined delivery guide 28 and is conducted thereby forward to and through a suitable delivery opening in the lower front part of the case. The delivery device 25 may be advantageously formed from spaced angle pieces connected together at their ends. The delivery device may have a forward-extending stem 29, which may also be a simple angle piece, and which slides in a suitable guide 30 secured to the shelf. The operating or delivery mechanism includes, also, means whereby, upon the deposit of a proper coin, the delivery device 25 is operated manually in one direction, and by a spring 31 or the like in the opposite direction. This spring 31, which may be termed a main spring, may be a simple leaf-spring held at one end be-

tween supporting pieces 32 on the shelf and adapted to bear at its free end against the forward end of the stem 29 of the delivery device 25. The connections between the delivery device 25 and the manual actuator on the outside of the machine, such as a suitable plunger (not shown), may be widely varied. In the particular construction illustrated a push-bar 33, which may be in the nature of a T-bar is located in convenient position to receive the thrust of such an operating plunger or similar manual device, and is connected with the stem 29 of the delivery device 25 by means of a lever 34. This lever 34 is preferably pivoted intermediate its ends to the shelf, as shown at 35, and engages near its ends in suitable slots in the push-bar 33 and the stem 29 respectively. The guide 30 may be suitably slotted, as shown at 36, to permit the movement of the lever 34. The basal flanges of the push-bar 33 may be engaged by overhanging guides 37. The right-hand side wall 17 is shown as being suitably slotted at 38 to permit the passage and operation of the lever 34.

In accordance with the invention a tiltable, freely-movable coin-receiving obstructor is provided for barring the operating mechanism against actuation, until the deposit of a proper coin, which tilts the obstructor through a wide arc to unobstructing position, and means are provided whereby said obstructor interposes a barrier in the path of actuation of the operating mechanism, not only when the obstructor is in normal, blocking position, but also during the return of the obstructor from unobstructing to normal blocking position. The particular construction of the obstructor and the means whereby it performs these functions may be widely varied. In the best embodiment of the invention the obstructor consists of a simple shutter 39 which normally stands upright across the end of the push-bar 33. This shutter has forward-extending pivot wings 40, which are secured to a transverse pivot rod 41 turning in bearings in suitable brackets or lugs 42 on the shelf 13. The obstructor is automatically restored to its normal position by suitable means, preferably a weight 49 carried by an extension of one of the wings 40.

The pivot rod 41 is above the push-bar 33, so that under normal conditions an attempt to force the push-bar in thrusts its end against the back of the obstructor 39 below the pivot. This wall of the obstructor is solidly backed by the rear edge of an opening 43 in the shelf 13, so that the obstructor is enabled to present a rigid barrier to the push-bar. When, however, the obstructor has been tilted downward and backward away from the end of the push-bar to substantially horizontal position, as shown by dotted lines in Fig. 4, its back is below the

push-bar 33, so that the latter may now ride over it to bring about the delivery of a pencil.

The obstructor 39 may be adapted in a simple manner to receive and hold a deposited coin, by providing its upper portion with side walls 44 and partial front walls 45, together with a gage pin 46, which will hold coins of proper diameter in the pocket thus formed, but will permit smaller coins to drop through the obstructor without tilting it to unobstructing position. In this connection a return chute 47 may be provided under the opening 43 to receive coins which may pass through the obstructor in this manner and to conduct them out through an opening 48 in the wall of the case.

As has been observed, the obstructor is adapted to bar the actuation of the operating mechanism at its various intermediate positions, as well as when standing in normal position. Such means may be widely varied. In the particular construction illustrated the left-hand wing 40 is provided with an extension 50 in front of the pivot 41, which extension terminates in an arcuate flange or abutment portion 51. This arcuate portion is concentric with the pivot 41, and is normal to the path of travel of a thrust portion on the push-bar 33. Such thrust portion may be variously formed, but preferably consists of the front edge of a horizontal flange 52 projecting laterally from the top of the push-bar. The arcuate abutment portion 41 is of such length and so positioned on the obstructor 39 as to pass out of obstructing relation to the thrust portion 52, when the obstructor is tilted under the weight of a coin to unobstructing position, as shown in dotted lines in Fig. 4. Preferably, also, it is out of obstructing relation to the portion 52 when the obstructor stands in normal upright position, so that under this condition the thrust of the push-bar is transmitted to the rear edge of the opening 43 by the contact of the rear end 53 of the push-bar with the back of the obstructor. It is an advantage thus to provide the obstructor with two obstructing portions, with which preferably cooperate two separate thrust portions on the push-bar, because in this way the pivot 41 is relieved of strain and a barrier of great rigidity is encountered, when an attempt is made fraudulently to re-actuate the operating mechanism under normal conditions, that is with the obstructor standing upright. However, this may be varied.

Means are provided for limiting the operating mechanism to full-stroke movement, such means preferably consisting of a rack 54 and a coacting two-way locking pawl 55. In the particular form of the invention illustrated the rack 54 is secured to the shelf 13 and the pawl 55 is pivoted on the end

portion of the lever 34. A spring 56 secured to the pawl and to a pin 57 on the said lever operates to return the pawl to mid-position.

It will be understood by those skilled in the art that the pawl 55 after engaging with the first tooth of the rack 54, at either end thereof, locks the lever 34 against reverse movement until the opposite end of the rack is reached, where the pawl may tilt in the opposite direction in the cut-away portion 58.

In accordance with the invention means actuated by the obstructor are provided for intercepting the normal path of the coins, preferably so as to return subsequently deposited coins to the depositor, when the obstructor is tilted, under the weight of a previously deposited coin or for other reason. In the particular embodiment of the invention illustrated an upward-extending lever 59 is pivoted intermediate its ends, as at 60 to a suitable support 61, and has its upper end 62 suitably formed and positioned to enter a slot or opening 63 in the front wall of the coin-chute 64. This lever normally stands with said portion 62 out of the coin-chute, and is actuated by the obstructor 39 in tilting under the weight of a coin, to project the said portion 62 into the chute. To this end, the pivot 41 may be provided with a crank extension 65 positioned to contact with the back of the lower part of the lever 59, when the obstructor is tilted.

In accordance with the invention the chute-obstructing lever or member 59 is adapted to return automatically to normal position, preferably by being overbalanced so as to tilt away from the coin chute, when the coin-receiving obstructor 39 tilts back to its normal position. When the portion 62 of the member 59 is projected into the slot 63 in the coin-chute it deflects any subsequently deposited coin out of the normal path into a passage 67 beside the coin-receiving obstructor 39, which side passage communicates through an opening 670 in the shelf with the return opening 48, see Fig. 8.

In accordance with the invention means are provided for diverting deposited coins from their normal path in the coin-chute after the exhaustion of the magazine. In accordance with this invention such means include a pressure device which presses against the articles in the magazine and is held thereby in set position until the exhaustion of the articles removes the bar to the actuation of such mechanism. Preferably, such pressure device operates transversely of the magazine and is held against the articles by a spring. In the particular construction illustrated, a horizontal lever 68 is pivoted intermediate its ends, as indicated at 69, to the shelf 13. This lever constitutes one embodiment of pressure device

adapted to contact with the pencils in the magazine. To this end the lever is provided with an upstanding head 70 which has a rear edge 71 positioned to rest against the pencils, as shown more particularly in Fig. 6. The lower part of this head 70 is cut away as shown at 72, to allow for the movement of the delivery device 25. The relation of these parts is such, however, that the delivery device 25 contacts with the head 70 toward the end of its forward movement, so as to force the pressure device slightly forward away from the tier of pencils, thereby allowing free descent of the latter.

The edge 71 is preferably of considerable length, so that it will press properly against the pencils irrespective of their individual width. The other end of this lever 68 is positioned adjacent a flange or offset 73 on the coin-diverting lever 59. A spring 74 constitutes suitable means for urging the lever 68 so as to cause the edge 71 to press against the pencils. When the last pencil has been delivered from the magazine, the lever 68 is free to swing under the influence of this spring, to carry the end 71 farther into the magazine and to cause the other end to move forward in contact with the offset 73 on the lever 59, thus tilting the latter to cause the portion 62 to enter the coin-chute. Since the parts 59 and 68 are separate from each other, the part 59 may be actuated by the coin-receiving obstructor 39 independently of the pressure device 68.

Means are provided for preventing the obstructor being put out of obstructing relation to the push-bar by tilting the inclosing case over on its face. Preferably this means is the lever 59. Such tilting of the case tilts the push-bar, while the obstructor remains upright by reason of its weight 49, so that the parts could be brought to a relation where the obstructor would not obstruct the push-bar. Before this can happen, however, the crank arm 65 contacts with the short arm of lever 59, which prevents further tilting of the obstructor relatively to the push-bar and maintains the thrust surface 51 in the path of the flange 52. The lever 59 is so overweighted that it is not tilted by this contact with the crank arm.

The chute 64 is preferably guarded against tampering through the utilization of longitudinally inclined, staggered baffles 80. The end of a magnet 81 may take the place of a lowermost baffle, serving to direct proper coins so as to drop into the coin-receiving obstructor 39. Iron slugs or the like will be retarded by this magnet and caused to roll around beneath the same so as to drop into the side passage 67 whence they emerge through the return opening 48. At one baffle suitable means may be provided, as indicated at 82, for causing an inserted wire

to catch or to pass harmlessly through the wall of the chute. The chute is preferably of brass, so as not to become magnetic and cause sticking of iron slugs, etc.

In accordance with the invention suitable means are provided for retaining the shelf 13 and gaging its position, so that the parts carried thereby are in proper relation to the parts carried by the case, in particular the coin-chute 64 and the return chute 47. A simple and desirable construction is shown in the drawings, and includes an abutment 88 depending from the ledge 14, and preferably bent down from the material thereof, and a tongue 89 on the shelf 13 positioned to contact with the abutment when the shelf has been pushed in to the proper limit of movement. This tongue 89 is below the plane of the shelf 13 and underlies the top flange of the angle ledge 14, so that the shelf is locked against either upward or downward movement. Preferably the tongue 89 is bent downward out of the material of the shelf. Moreover, the tongue is provided with a rearward-extending lug 90 which enters between the abutment 88 and the vertical wall of the ledge 14 so as to afford a further lock for the shelf. It will be understood that these provisions are preferably duplicated at the two sides of the shelf.

The machine is illustrated as being provided with a display front. To this end the removable front wall 11 is provided with a glass panel 91, behind which is held a vertical tray-like box 92 adapted to hold a tier of pencils behind the display panel. This tray-like box 92 may have three side walls 93 with basal attaching flanges 94 secured to the front wall 11 as by means of screws 95. The remaining side or end wall of the box 92 is formed by a movable piece 96, constituting a closure by virtue of which the pencils may be inserted or removed. This removable member 96 may have a slot 97 open at one end to engage over the shank of a fixed screw 98, and a set screw 99 may be provided for locking the member 96 against removal.

Means are provided for suitably agitating the pencils in the magazine 9, to guard against clogging of the latter. To this end an agitator is located above the narrow lower portion of the magazine, preferably at or near the beginning of the widening part of the magazine. This agitator is preferably in the nature of a vibratory floor-piece, which is entered into the magazine and moves to raise and permit descent of the pencils. In the particular construction illustrated, the floor-piece 100 is a substantially horizontal plate of considerable length in a transverse direction, and having a depending lip or flange 101 at its forward edge. This floor-piece is shown as mounted on a tiltable lever 102, which may be formed

in a simple manner from sheet metal and pivoted at 103 to a standard 104 on the shelf 13. This lever 102 is connected with the operating mechanism by suitable means, such as a pin 105 on the stem 29 of the delivery device 25, such pin standing in a slotted opening 106 formed in a horizontally-bent toe portion 107 on the lever. Thus, at each actuation of the machine the floor-piece is vibrated up and down to agitate the pencils and insure proper feeding thereof into the lower narrow or shallow portion of the magazine.

Means are provided for preventing the machine being tampered with by access through the coin-return opening 48. To this end an outwardly-opening gate 471 is pivoted in the passage, being adapted to yield to permit the passage of a coin or improper token but closing tightly against ingress. The opening may be provided externally with a cup 473, from which the returned coin or token may be lifted. Such cup may serve to render it difficult to insert a wire or the like in the passage. A guard 474 is located at the lower, free end of the gate, being so constructed and arranged as to prevent entrance of wires or the like at this joint. Preferably the guard is so formed as to deflect a wire outward away from the gate. Another guard 472 is preferably located behind the upper, pivoted edge of the gate, so as to arrest a wire or the like at this point also.

The operation of the machine may be briefly summarized as follows. Normally the operating mechanism cannot be actuated because the back of the obstructor 39 affords a solid barrier to the rear end of the push-bar 33. Upon the deposit of a coin the obstructor tilts downward and backward to substantially horizontal position, where it is held by the coin and where the push-bar may pass over it to push the coin off the obstructor into the space behind the rear edge of the shelf 13, where the coin falls into a suitable receptacle 110. This operation of the push-bar also swings the lever 34 to cause the latter to draw the delivery device 25 forward so that the lowermost pencil falls into the recessed portion 27. Upon the pressure of the finger being released from the push-rod (not shown) the spring 31 which was tensioned during the preceding movement, operates to force the delivery device 25 rearward, thus again positioning the platform portion 26 beneath the tier of pencils in the narrow portion of the magazine and carrying the recessed portion 27 over the space at the rear of the shelf, so that the pencil contained therein falls and is delivered to the purchaser. The spring 31 by this movement returns the several parts linked thereto to normal position. During these movements the vibra-

tory floor-piece 100 has been tilted down and then up again. The full-stroke mechanism, embodied in the rack 54 and the pawl 55 compels the push-bar 33 and its connected parts to return fully to normal position before the operating mechanism can be again actuated. By this time the overweighted obstructor 39, now freed from the coin and no longer held down by the push-bar 33 is at least part-way on its return tilt to normal position, so that, even if the obstructor has not fully returned to normal position its arcuate abutment portion 51 is interposed in the path of actuation of the thrust surface 52.

It will be observed that the relation of the abutment portion 51, the thrust portion 52, and the single stroke mechanism, is such, that the parts 51 and 52 must contact before the full-stroke mechanism comes into engagement, providing that an attempt be made to re-actuate the machine at this time. At each tilting of the obstructor to unobstructing position the chute-blocking device 62 is interposed in the normal path of the coins, so that additional coins cannot be discharged onto the prostrate obstructor. In this way the machine is protected from becoming choked and patrons are saved from losing their coins. When the magazine becomes exhausted the device 59 moves to divert all subsequently-deposited coins into the return chute 47. The same thing happens in event of the magazine becoming blocked by a crooked or tilted pencil at the top of the narrow portion or throat of the magazine, or if the magazine becomes blocked above the narrow portion for any other reason. The exhaustion of pencils from this narrow portion or throat permits the lever 68 to tilt, thus moving the lever 59, just as if the entire contents of the magazine had been delivered. In the preferred embodiment of the invention this lever 59, being weighted so as to tilt automatically back to normal position after each movement under the actuation of the tiltable obstructor 39, imparts a return impulse to the obstructor when the latter is freed by the push-bar to tilt back to its normal position. In other words, the lever 59 assists in restoring the tiltable coin-receiving obstructor, to the extent at least of insuring that the obstructor will not be stuck in its down position. It will be observed that the crank-arm 65 is normally spaced from the short arm of the lever 59, so that the crank-arm does not contact with the latter until after the obstructor tilting under the weight of its coin has acquired sufficient momentum to tilt the said lever with ease.

What I claim as new is:

1. In a coin-controlled apparatus, the combination with operating mechanism, of a tiltable obstructor normally standing in po-

sition barring the movement of said mechanism and constructed and arranged to receive a deposited coin and to be tilted thereby downward to recumbent unobstructing position, said obstructor having means for barring said operating mechanism against actuation during the return of said obstructor to normal position.

2. In a coin-controlled apparatus, the combination with a reciprocative part, of a tiltable obstructor normally standing in position barring the movement of said part and constructed and arranged to receive a deposited coin and to be tilted thereby downward to unobstructing position below said part so that the latter may pass over it and dislodge the coin therefrom, said obstructor having means for barring said part against actuation during the return of said obstructor to normal position.

3. In a coin-controlled apparatus, the combination with operating mechanism, of a tiltable obstructor normally barring the movement of said mechanism and constructed and arranged to receive a deposited coin and to be tilted thereby through a wide arc to unobstructing position, said obstructor being constructed to bar said operating mechanism against actuation substantially throughout the range of movement of the obstructor.

4. In a coin-controlled apparatus, the combination with a reciprocative part, of a freely-movable coin-receiving obstructor tiltable under the weight of a deposited coin through a wide arc to unobstructing position, said obstructor having a thrust-receiving portion constructed and arranged to bar the actuation of said part at the different position of the obstructor between unobstructing and normal positions.

5. In a coin-controlled apparatus, the combination of a push-bar, a member operated thereby, a freely-movable coin-receiving obstructor tiltable under the weight of a deposited coin through a wide arc to unobstructing position, and full-stroke mechanism carried in part by said member, said obstructor having thrust-receiving surfaces constructed and arranged to bar the actuation of said push-bar substantially throughout the transitional phase of the obstructor as well as at normal position thereof.

6. In a coin-controlled apparatus, the combination with a movable part, of a freely-movable coin-receiving obstructor tiltable by a deposited coin through a wide arc to unobstructing position, said obstructor having means whereby toward the beginning of its return to normal position it interposes and thereafter maintains a barrier in the path of said part.

7. In a coin-controlled apparatus, the combination of a movable part, and a coin-receiving obstructor tiltable under the weight

of a deposited coin through a wide arc to unobstructing position, said part and obstructor being provided with stop portions constructed and arranged to abut if said part be actuated except when the obstructor is at fully tilted position.

8. In a coin-controlled apparatus, the combination of a movable part, a freely-movable coin-receiver tiltable under the weight of a deposited coin through a wide arc, and means operated by said receiver for barring said part against actuation both while said receiver is in normal position and substantially throughout the return movement thereof to normal position.

9. In a coin-controlled apparatus, the combination of a reciprocative part, a freely-movable coin-receiver tiltable under the weight of a coin through a wide arc, and obstructing means controlled by said receiver, being removed thereby from the path of actuation of said part when the receiver is fully tilted and being interposed in said path toward the beginning of the return stroke of said receiver.

10. In a coin-controlled apparatus, the combination of a reciprocative part, a coin-receiving tiltable obstructor normally barring the path of actuation of said part and tiltable under the weight of a deposited coin through a wide arc to unobstructing position, and means operated by said obstructor for interposing and maintaining a barrier in the path of actuation of said part from and after the early part of the return movement of said obstructor.

11. In a coin-controlled apparatus, the combination of a reciprocative part, a pivoted coin-receiving obstructor tiltable under the weight of a coin through a wide arc to unobstructing position, said obstructor having an arcuate thrust receiving portion constructed and arranged to bar the actuation of said part during the return movement of the obstructor.

12. In a coin-controlled apparatus, the combination of a reciprocative part, and a pivoted coin-receiving obstructor tiltable by a deposited coin through a wide arc to unobstructing position, said obstructor having an arcuate thrust-receiving portion concentric with its pivot, and said reciprocative part having a cooperating thrust portion the movement of which is normal to said thrust-receiving portion.

13. In a coin-controlled apparatus, the combination of a reciprocative part, and a pivoted freely-movable coin-receiving obstructor tiltable by a coin through a wide arc to unobstructing position, said obstructor having an arcuate thrust-receiving portion concentric with its pivot, and said reciprocative part having a cooperating thrust portion the movement of which is normal to said thrust-receiving portion, said thrust-

receiving portion being so constructed and arranged as to be in position to be contacted by said thrust portion during the transitional positions of the obstructor but
5 not at normal or fully-tilted positions.

14. In a coin-controlled apparatus, the combination of a longitudinally movable bar having two thrust portions, and a pivoted coin-receiving obstructor normally standing
10 as a rigid barrier in the path of one of said portions, said obstructor being tiltable by a deposited coin down to unobstructing position below said bar so that the latter may pass over it and dislodge the coin therefrom,
15 said obstructor being provided with an arcuate thrust-receiving surface concentric with its pivot and adapted to be in and normal to the path of the other thrust portion during the transitional positions of the obstructor.

20 15. In a coin-controlled apparatus, the combination of a push-bar carrying a thrust portion offset at one side thereof, and a pivoted coin-receiving obstructor normally standing as a rigid barrier across the end of
25 said push-bar and tiltable by a deposited coin down to unobstructing position below said push-bar so that the latter may pass over it and dislodge the coin therefrom, said obstructor being provided with a side wing
30 having an arcuate thrust-receiving portion concentric with the pivot of the obstructor.

16. In a coin-controlled apparatus, the combination of a reciprocative part, mechanism limiting the same to full-stroke movement, and a pivoted coin-receiving obstructor normally standing as a rigid barrier in
35 the path of said part and tiltable under the weight of a coin through a wide arc to unobstructing position, said obstructor having
40 an abutment portion which bars the actuation of said reciprocative part during the transitional positions of the obstructor, the relation between the parts being such that the reciprocative part contacts with said
45 abutment portion before said full-stroke mechanism comes into engagement.

17. In a coin-controlled apparatus, the combination of a reciprocative part, mechanism limiting the same to full-stroke movement, and a pivoted coin-receiving obstructor tiltable under the weight of a coin
50 through a wide arc to unobstructing position, said obstructor having an arcuate abutment portion concentric with its pivot, and
55 said reciprocative part having a cooperating thrust portion the movement of which is normal to said arcuate abutment portion, the relations between the parts being such that said thrust portion contacts with said abutment portion before the full-stroke mechanism comes into engagement.

18. In a coin-controlled apparatus, the combination with operating mechanism, and a pivoted obstructor having a portion nor-

65 mally preventing actuation of said mechanism, said obstructor being tilted by a deposited coin to unobstructing position, of auxiliary blocking means operated by said obstructor so as to bar said mechanism
70 against reactivation during the return movement of the obstructor, said auxiliary means being brought into blocking position immediately after the commencement of said return movement.

19. In a coin-controlled apparatus, the
75 combination with a reciprocative part, of a pivoted coin-receiving obstructor normally preventing actuation of said part and tiltable by a coin through a wide arc to unobstructing position, and a barrier which is
80 interposed by said obstructor in the path of actuation of said part early in the return movement of the obstructor.

20. In a coin-controlled apparatus, the combination of a push-bar, means for limiting
85 the same to full-stroke movement, a pivoted coin-received obstructor normally preventing actuation of said push-bar and tiltable through a wide arc to unobstructing position, and means whereby said obstructor
90 interposes a barrier in the path of actuation of said bar early in its return tilt.

21. Coin-controlled apparatus, comprising operating mechanism, and a tiltable obstructor having a main obstructing portion
95 normally preventing actuation of said operating mechanism and movable by a deposited coin to unobstructing position, said obstructor having auxiliary means for barring said mechanism against reaction during the re-
100 turn of said obstructor to normal position.

22. In a coin-controlled apparatus, the combination with operating mechanism, of a coin-operated obstructor for preventing
105 operation thereof and movable by a coin to unobstructing position, means for conducting the coins to said obstructor, and means actuated by the obstructor for intercepting the normal path of the coins to the obstructor while the latter is out of normal position.
110

23. In a coin-controlled apparatus, the combination with operating mechanism, of a coin-removed obstructor for preventing
115 actuation thereof, means for conducting the coins to said obstructor, and a member adjacent said means and means whereby said member is actuated by said obstructor to intercept the normal path of the coins when said obstructor is moved by a coin.

24. In a coin-controlled apparatus, the
120 combination with a reciprocative part, and a tiltable coin-receiving obstructor normally standing as a barrier in the path of said part and tiltable by a deposited coin down to a position below said part so that the latter
125 may pass over it and displace the coin therefrom, of means for returning subsequently deposited coins when the obstructor is in

tilted position comprising a coin-deflector and a part in the path of actuation of said obstructor.

25. In a coin-controlled apparatus, the combination with operating mechanism, of a tiltable coin-removed and gravity-restored obstructor normally preventing the actuation of said mechanism, a coin-chute, and a tiltable member adjacent said coin-chute and means whereby said member is actuated by said obstructor to block the normal path of coins when the obstructor is tilted by a deposited coin, said member being overbalanced so as to tilt away from blocking position.

26. In a coin-controlled apparatus, the combination with a reciprocative part, of a tiltable coin-receiving obstructor normally standing in barring position in the path of said part and tiltable by a deposited coin down through a wide arc to unobstructing position where said reciprocative part may pass over it and dislodge the coin therefrom, a coin passage leading to said obstructor, and a lever extending upward from said obstructor and having a portion positioned to enter said passage, said lever being positioned so as to be contacted and moved by said obstructor to carry said portion into said path when said obstructor is tilted.

27. In a coin-controlled vending machine, the combination of a magazine, actuating mechanism, coin-releasing means for said actuating mechanism, an inclosing case having a coin-entrance and a coin-return opening, a chute leading from said coin-entrance to said coin-releasing means, and mechanism inside the case for deflecting coins deposited in said chute to said coin-return opening, said mechanism including a part adapted and arranged to press against the articles in the magazine and to be held thereby in set position.

28. In a coin-controlled vending apparatus, the combination of a magazine, actuating mechanism, coin-releasing means for said actuating mechanism, a coin passage, and means including a deflector for diverting coins in said passage from their normal path to said coin-releasing means when the magazine is empty, said means having a part movable transversely of the magazine and normally held in set position by contact with the articles therein.

29. In a coin-controlled vending machine, the combination of a magazine adapted to hold long articles, said magazine having a wide upper portion and a narrow lower portion, delivery mechanism coacting with the bottom of said narrow lower portion, coin-releasing means for said mechanism, a coin-chute for conducting deposited coins to said coin-releasing means, and means for deflecting deposited coins in said chute from their normal path to said coin-releasing means to

return them to the depositors upon exhaustion or choking of the magazine, said means including a pressure device adjacent and movable transversely of said narrow portion of the magazine and adapted to press against the articles therein and to be held thereby in set position preventing the actuation of the deflecting means until exhaustion of articles from said narrow portion permits the pressure device to move inward.

30. In a coin-controlled vending apparatus, the combination with a magazine, delivery mechanism, coin-releasing means for said delivery mechanism, and an inclosing case with a coin-entrance and a coin-return opening, of means for deflecting deposited coins from their normal path in said case to said coin-releasing means when the magazine is empty, said means including a coin-deflector and a lever mounted adjacent the magazine in position to press against the articles therein and to be held thereby against actuation.

31. In a coin-controlled vending apparatus, the combination with a magazine, operating mechanism, coin-releasing means for said operating mechanism, and a coin-passage leading to said means, of means for returning coins to the depositor when the magazine is empty, said means including a coin-deflecting portion positioned so as to deflect coins from their normal path to the coin-releasing means, and a portion adapted to press against the articles in the magazine and to be held thereby in set position, together with a spring for pressing the latter portion against the articles and actuating the former portion when the articles are exhausted.

32. In a coin-controlled vending apparatus, the combination with a magazine, operating mechanism, coin-releasing means for said mechanism, and a coin-passage, of means for diverting coins from their normal path when the magazine is empty, said means comprising a lever having a portion adapted and arranged to enter the normal path of the coins and a coacting lever adapted to press against the articles in the magazine and to be blocked thereby against movement.

33. In a coin-controlled vending apparatus, the combination with a magazine, operating mechanism, coin-releasing means for said mechanism, and an inclosing case having a coin-passage, of means for returning deposited coins outside of the case when the magazine is empty, said means comprising a lever adapted to contact with the articles in the magazine and to be blocked thereby against movement, a lever adapted to be actuated by the first-named lever and having a portion adapted to intercept the normal path of the coins, and a spring connected with the first-named lever.

34. In a coin-controlled vending apparatus, the combination with a magazine, delivery mechanism, coin-releasing means for said mechanism, and an inclosing case, of means for returning coins to the depositor when the magazine is empty, said means including a pressure device adapted to contact with the articles in the magazine and to be blocked thereby against actuation, said pressure device being in position to be moved away from the articles by the delivery mechanism at each actuation thereof.

35. In a coin-controlled vending apparatus, the combination of a magazine, a base plate, a delivery device operating on said base plate at the base of the magazine, mechanism releasable by a coin for preventing operation of said delivery device, a coin-passage, and means for returning coins to depositors when the magazine is empty, said means including a pressure lever lying over the base plate and having a portion in front of said delivery device and a portion above said device adapted to contact with the articles in the magazine to hold the lever against actuation, said delivery device being adapted to contact with said lever to relieve the pressure on the articles at each actuation of said device.

36. In a coin-controlled vending apparatus, the combination with operating mechanism, of a tiltable coin-receiving obstructor for preventing actuation thereof, a coin-passage leading thereto, a magazine, and means for diverting coins from their normal path at a point above the obstructor either when the magazine is empty or when said obstructor is in tilted position, said means comprising a member having a portion adapted to intercept the normal path of the coins positioned to be actuated by said obstructor when the latter is tilted, and a pressure device adapted to contact with the articles in the magazine and movable upon exhaustion thereof to actuate said member, the movement of said member by said obstructor being independent of the said device.

37. In a coin-controlled vending apparatus, the combination with operating mechanism, of a tiltable coin-receiving obstructor for preventing actuation thereof, a coin-passage leading thereto, a magazine, and means for diverting coins from their normal path at a point above the obstructor either when the magazine is empty or when said obstructor is in tilted position, said means comprising a lever having a portion adapted to intercept the normal path of the coins and a portion located in the path of actuation of said obstructor, a pressure lever adapted to contact with the articles in the magazine and movable upon exhaustion thereof to actuate said coin-intercepting lever, and a spring for actuating said pres-

sure lever, there being one-way connection between said levers so that the coin-intercepting lever may be actuated by the obstructor independently of said pressure lever.

38. In a coin-controlled apparatus, the combination with a case having a coin entrance and a coin-return opening, of a push-bar, a tiltable coin-receiving and coin-tilted obstructor normally barring said push-bar and having an opening therethrough to permit the free passage of improper tokens or coins and arranged to deliver such tokens to said coin-return opening, a passage around said tiltable obstructor, and means for deflecting coins or tokens into said passage.

39. In a coin-controlled machine, a case, a shelf plate therein, ledges on the side walls of said case on which said shelf slides, a coin-chute in the case, operating mechanism and a tiltable coin-receiving obstructor carried by said shelf-plate, and locating and retaining means for said shelf-plate comprising an abutment projecting from one of said ledges and a lip on said shelf-plate extending beneath said ledge in position to contact with said abutment.

40. In a coin-controlled machine, a case, a shelf-plate therein, ledges on the side walls of said case on which said shelf slides, a coin-chute in the case, operating mechanism and a tiltable coin-receiving obstructor carried by said shelf-plate, and locating and retaining means for said shelf-plate comprising an abutment projecting from one of said ledges and a lip on said shelf-plate extending beneath said ledge in position to contact with said abutment, said lip having a rearward extending lug adapted to fit between said abutment and the side wall beneath the ledge.

41. In a coin-controlled machine, the combination of a reciprocative part, a tiltable coin-receiving obstructor weighted to stand in barring position in the path of said part and adapted to be tilted by the weight of a deposited coin to unobstructing position, a member in position to be contacted and moved by said obstructor when the latter is so tilted, and means whereby said member prevents the relative tilting of the obstructor out of obstructing position through tilting of the machine.

42. In a coin-controlled machine, the combination with a movable part, of a tiltable weighted obstructor normally in position barring said part against actuation and adapted to be tilted by the weight of a deposited coin to unobstructing position, means for conducting the coins to said obstructor, and a lever adapted to place an obstacle in the normal path of the coins and having a part in the path of said obstructor so that the latter in tilting under

the weight of a coin actuates the lever, said part constituting a stop capable of preventing relative tilting of said obstructor out of obstructing position through tilting of the machine.

43. In a coin-controlled machine, the combination of operating mechanism, an obstructor normally barring the actuation thereof and adapted to be moved by a deposited coin to unobstructing position, a coin return passage, means whereby coins or tokens are returned outside of the machine through said passage, an outwardly-opening pivoted gate in said passage closing the same against ingress from without, and guards separate from the gate and disposed adjacent the pivoted edge and the opposite free edge thereof so as to prevent the passage of wires or the like at these regions.

44. In a coin-controlled machine, the

combination of operating mechanism, an obstructor normally barring the actuation thereof and adapted to be moved by a deposited coin to unobstructing position, a coin return passage, means whereby coins or tokens are returned outside of the machine through said passage, an outwardly-opening pivoted gate in said passage closing the same against ingress from without, and guards separate from the gate and disposed adjacent the pivoted edge and the opposite free edge thereof so as to prevent the passage of wires or the like at these regions.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

JOHN W. MATHES.

Witnesses:

D. HAROLD BUSH,
J. J. KOZINN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."