



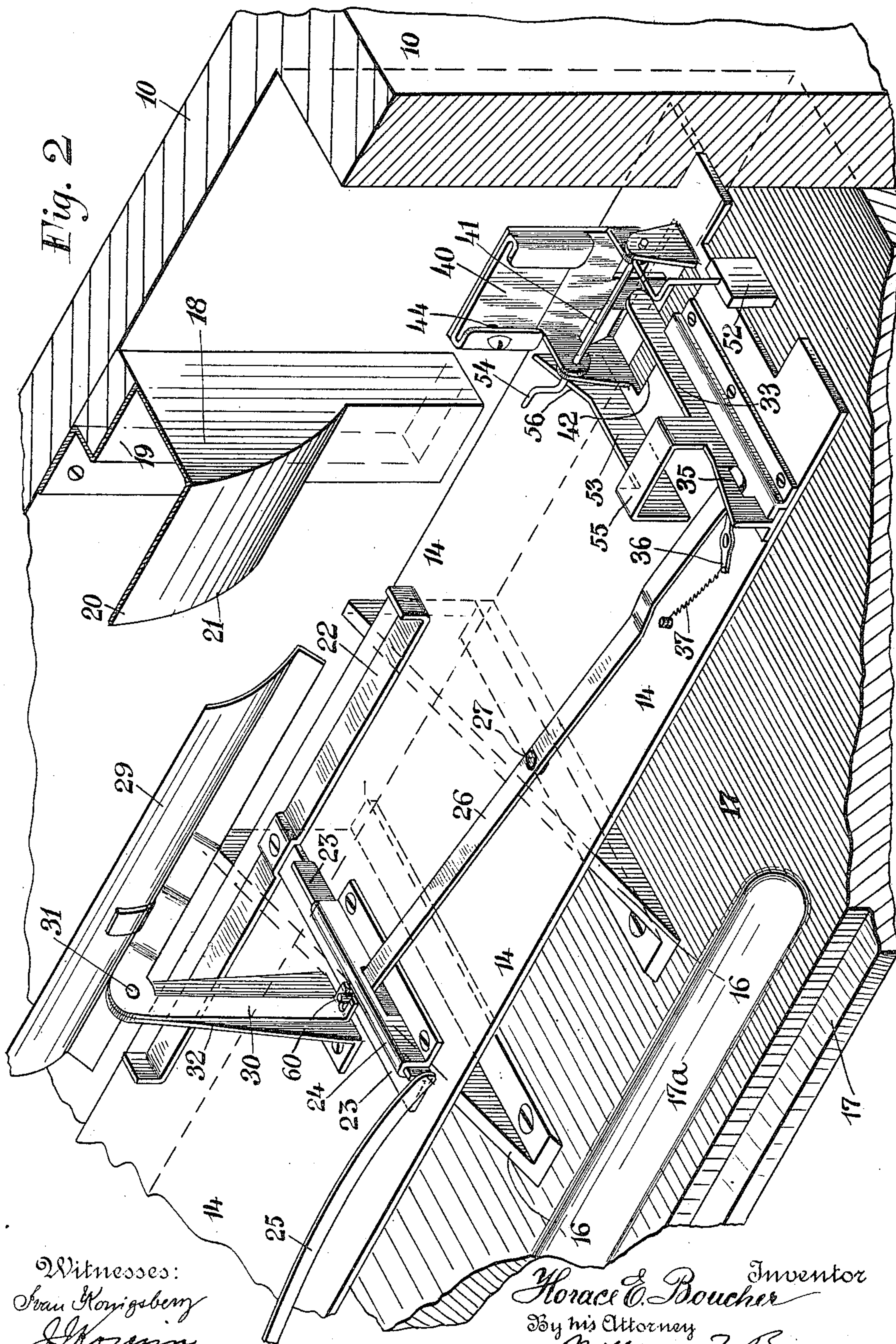


H. E. BOUCHER.  
COIN CONTROLLED VENDING MACHINE.  
APPLICATION FILED OCT. 22, 1910.

994,115.

Patented June 6, 1911.

3 SHEETS—SHEET 2.



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By his Attorney  
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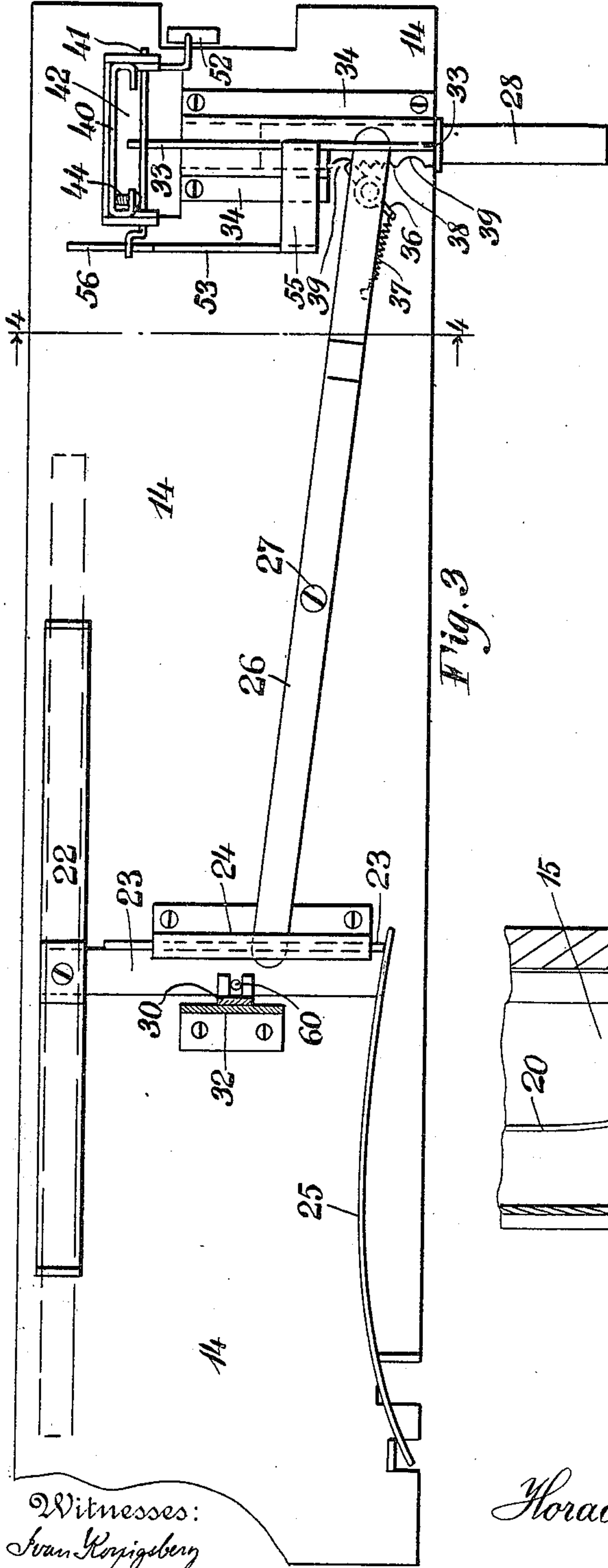


Fig. 3

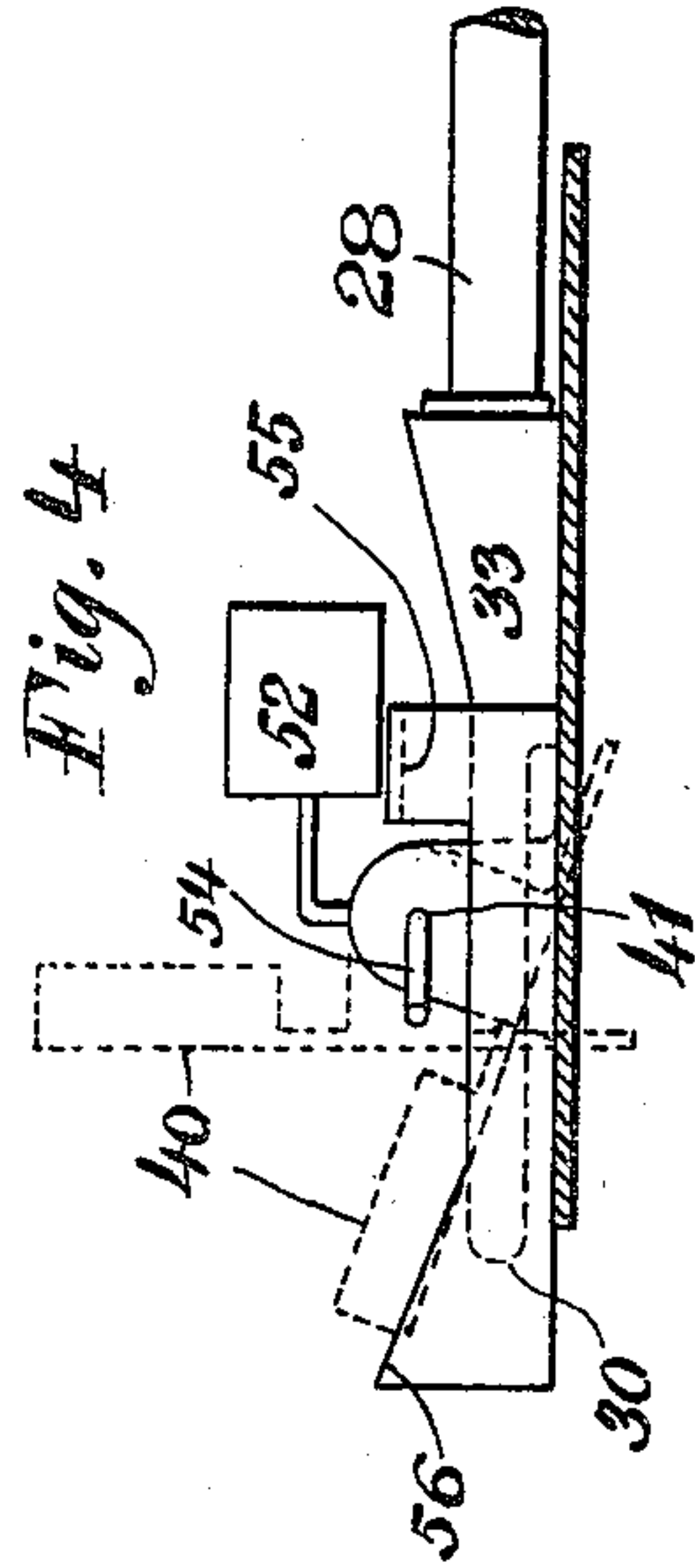


Fig. 4

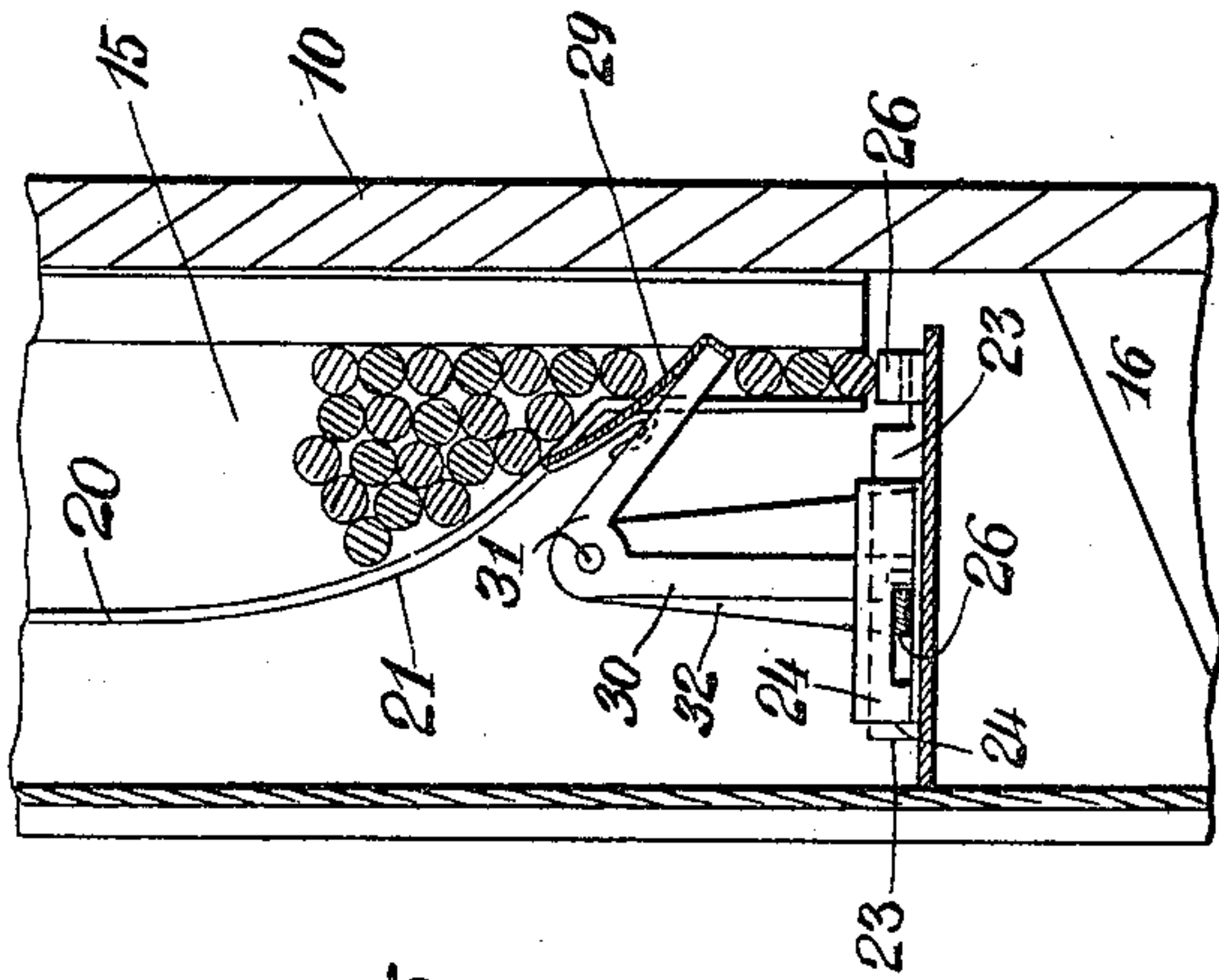


Fig. 5

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# UNITED STATES PATENT OFFICE.

HORACE E. BOUCHER, OF NEW YORK, N. Y., ASSIGNOR TO EDWARD KIAM, OF HOUSTON, TEXAS.

## COIN-CONTROLLED VENDING-MACHINE.

994,115.

Specification of Letters Patent.

Patented June 6, 1911.

Application filed October 22, 1910. Serial No. 588,477.

*To all whom it may concern:*

Be it known that I, HORACE E. BOUCHER, a citizen of the United States, residing at the city, county, and State of New York, have  
5 invented certain new and useful Improvements in Coin-Controlled Vending-Machines, of which the following is a specification.

This invention relates to coin-controlled  
10 delivery apparatus.

It is particularly designed for the delivery of long, narrow articles, especially pencils.

The chief object of the invention is to prevent defrauding of the apparatus by the repeated operation thereof so as to deliver a  
15 plurality of articles after the deposit of a single coin.

The invention relates to that type of coin-controlled mechanism in which a tiltable  
20 coin-receiving lock or movable obstruc-  
tively bars the movement of an operating push-rod or the like. In such devices fraud may be largely prevented by arrangements whereby the operating plunger or the like is  
25 limited to full-stroke movement, so that the mechanism cannot be rapidly and repeatedly actuated by a succession of short partial strokes, effected with such rapidity that the lock is not permitted to regain its normal  
30 locking position. I find, however, that even a full-stroke mechanism may be operated repeatedly after the deposit of one coin, providing the person desiring to defraud the apparatus is sufficiently active to work it  
35 with great rapidity.

One of the objects of my invention is to provide intermittently operating means for effecting quick return of the tiltable lock, which returns it to locking position before  
40 the operating plunger can make a second full stroke movement. This means is preferably distinct from the means which normally maintains the lock in its normal locking position and which yields under the  
45 weight of a coin. The intermittently operating means is normally inoperative and starts the lock rapidly back to normal position at each stroke of the delivery mechanism. As an illustration of such quick-restoring means, I show herein a striker or repulser device actuated by the delivery mechanism to impart a quick-restoring impulse to the lock during the return stroke of the operating push-bar or the like.

55 Other objects of the invention are to im-

prove the magazine for holding the pencils or the like, and to provide novel feed-controlling means acting on the pencils in the magazine.

In general, the invention consists in parts, arrangements and combinations hereinafter  
60 described and more particularly pointed out in the claims.

In the accompanying drawings illustrating the invention: Figure 1 is a front elevation of the machine, with the major parts of  
65 the front of the case broken away; Fig. 2 is a perspective view of the moving parts in the lower part of the case; Fig. 3 is a plan view of the parts shown in Fig. 2; Fig. 4 is a section on the line 4—4 of Fig. 3, three positions of the lock being shown in dotted  
70 lines; and Fig. 5 is a section on the line 5—5 of Fig. 1.

The parts of the vending mechanism are inclosed in a suitable case 10, preferably an  
75 upright case, wide from side to side and shallow from front to back. The front of the case is preferably closed by a removable glass carrying panel 11, which may be held to the case at its lower end by dowel pins 12, and at its upper end by a lock 13. A horizontal shelf 14 may be mounted in the case a short distance above its bottom and constitutes convenient means for supporting the  
80 various operating parts. The pencils are held horizontally in a stack-holding magazine 15 above this shelf, and are preferably discharged over the rear edge of the shelf, which does not abut against the rear wall of the case, and downward and forward along  
90 inclined ways 16 below the shelf to a suitable slot-like opening (not shown) at the bottom of the front of the case. A tray or groove 17<sup>a</sup> may be formed in the base of the case just inside of this opening, to arrest the pencils so that they will not be ejected onto the  
95 ground.

The magazine 15 is preferably of skeleton form and may be constituted by erect channel-shaped side pieces 18, rigidly secured to the interior of the case, and affording side walls for preventing endwise movement of the pencils and strip-like front and back walls. In accordance with the present invention the magazine has a lower portion adapted to hold a single tier of pencils and an upper wider portion adapted to hold a plurality of tiers. The back walls 19 of the magazine are preferably straight, and the front walls 20 inclined or curved downward  
100  
105  
110



and rearward at 21, between the upper and lower portions of the magazine. In this way, the magazine is adapted to hold a large number of pencils, thus avoiding frequent recharging, but is constructed to present, without choking, only one pencil at a time for delivery.

The reciprocating ejector 22, which may be in the nature of a horizontal bar having upturned supporting ends, is located at the base of the magazine 15, and preferably slides forward and backward on the shelf 14 and normally supports the bottom pencil. The ejector 22 may be provided with a forward extending stem 23 guided in a suitable keeper 24 on the shelf and affording means whereby the ejector may be actuated. A main spring 25, suitably secured to the shelf, presses against the forward end of this stem and maintains the ejector in its rearward position. Suitable means, such as a lever 26 pivoted intermediate its ends, at 27, to the shelf, connects the operating handle or plunger 28 with the forward end of the stem 23, and serves to draw the ejector forward against the tension of the main spring 25. The first movement of the ejector is a forward retreating movement away from the magazine so as to permit the bottom pencil to fall upon the shelf 14. The second movement of the ejector is in the nature of a forcible return into the bottom of the magazine under impulse of the spring 25, so as to strike the bottom pencil and force it past the rear edge of the shelf to fall upon the ways 16 and thence pass outward to the purchaser.

In accordance with the present invention, a vibratory floor piece or feed-controller 29 coöperates with the magazine 15. The construction of this floor piece or feed-controller may be widely varied, but in the particular embodiment of the invention illustrated, it is in the form of a plate, preferably horizontally elongated, which is normally entered within the magazine, preferably in the region of the shallow lower portion or of the inclined portion 21 of the magazine, so as to sustain the weight of the pencils contained in the upper, deeper portion of the magazine. As shown in Fig. 5, this plate is preferably inclined or curved downward and rearward in general conformity with the inclined or curved portion 21 of the front of the magazine. In the construction illustrated a floor or feed plate is caused to enter or recede from the front of the magazine, between the front walls 20 thereof, by means of a bell crank lever 30 to which the plate is rigidly secured. This bell crank lever 30 is shown as pivoted at 31 to a bracket or standard 32 on the shelf 14. The arm to which the feed plate is secured is shown as extending downward and rearward, while the other

arm extends substantially vertically downward and engages the stem 23, as indicated at 60, so that a rearward movement of the stem and ejector causes the floor piece 29 to move downward and forward, thus permitting general descent of the pencils to insure that the bottom pencil will settle squarely into ejecting position, and the rearward or ejecting movement of the stem and ejector causes the floor piece to move upward and rearward so as to lift the weight of the majority of the stack of pencils to insure easy ejection of the bottom pencil which is now in ejecting position.

The plunger 28 which operates through the front of the case, is in line with, and may or may not be fixed to or be a part of, a reciprocating push-bar 33, which may slide in suitable guides 34 on the shelf 14. This push-bar actuates the ejector through the mediate action of the lever 26, the end of which it engages as indicated at 35. The push-bar 33 may be and preferably is, limited to a full stroke in each direction by means of a two-way pawl 36, controlled by a spring 37 and engaging with the teeth of a rack 38 formed on the push-bar. Suitable pieces, such as notches 39, at the ends of the rack permit the push-bar to reverse its movement at the end of a full stroke in either direction.

The rearward movement of the push-bar 33 is normally prevented by a tiltable coin-receiving lock or obstructor 40, which is pivoted at 41 to the shelf 14. This lock may be embodied in different forms, but in the particular form of the invention shown it is in the nature of a short section of a coin-chute, and normally stands upright over an opening 42 in the shelf 14. In this position its back wall below the pivot affords a solid locking abutment for the end of the push-bar 33 by reason of the fact that the lower end of its back wall below the pivot 41 receives solid support against the rear side of the opening 42. When the lock receives a coin from the chute 43 it tilts backward and downward away from the end of the push-bar 33; and in this position the push-bar 33 may pass rearward over its back wall. The width of the passage through the coin-receiving lock may be determined by a calipering pin 44, which causes the lock to retain coins of proper diameter, while permitting those of smaller sizes to fall through the lock and the opening 42, into an inclined trough 45 in a cash drawer 46, which trough leads such coins out through an opening in the front of the case. Coins which are retained in the lock are forced rearward therefrom by the push-bar 33 over the rear edge of the shelf and into the cash drawer. The coin-chute 43 leads downward from a suitable admission opening 48 in a wall of the case, and may be provided with



means for rejecting iron disks or other spurious tokens of magnetic material. To this end, the chute may have an opening 49 in its side through which a coin may pass laterally if deflected by a magnet 50 disposed over and in front of this opening. A coin or the like so deflected out of the opening leaps into the upper end of a chute 51 which conducts the spurious token out through the side of the case.

The lock 40 is maintained in normal position by means which is yieldable under the weight of a coin. Such holding means for maintaining the lock in normal upright position may consist of a light spring, or may be afforded by an overbalancing of the lock, which are equivalent constructions for automatically restoring the lock to normal position. In the illustrative form shown, the lock is provided with a counter-weight 52 which has the power to return the lock, but which is overbalanced by the weight of the coin.

In order to start the lock quickly back toward normal position, I provide a repulser or striker mechanism; an illustrative embodiment of which is shown in the accompanying drawings. The striker is here shown as a cam slide 53 secured to the push-bar 33. The striker is shown as cooperating with a lateral projection 54 on the lock 40; and the slide 53 is consequently spaced laterally from the push-bar 33 and united thereto by a bridge piece 55. The slide or striker 53 has a downward and forward directed incline 56 on its upper surface for engagement with the said projection 54. This projection may be, as illustrated, a crank extension of the pivot of the lock. The beveled or cam surface 56 normally lies below this crank projection 54, but out of contact with the crank extension, which as shown in Fig. 2 normally stands in a vertical plane. When the lock is overbalanced by the weight of a coin it tilts until the crank projection 54 rests upon the incline 56. This is the intermediate dotted line position shown in Fig. 4. The rearward movement of the push-bar now causes the cam surface to move rearward also, thus permitting the lock to fall to the horizontal position indicated in Fig. 4, so that the push-bar may pass on over the back wall of the lock. When the finger pressure is removed from the push-bar the main spring 25, which may also be regarded as an intermittently operating repulser spring, causes the striker 53 to move rapidly forward. The rear end of the push-bar is so disposed with reference to the cam surface 56 that the push-bar passes forward in front of the pivot of the lock to a point where the lock may rise before the cam surface strikes the crank projection 54. In other words, the push bar clears the lock so as not to inter-

fere with the upward swinging movement thereof before the striker comes into operation. Since the means, such as the counter-weight 52, for maintaining the lock in normal position is preferably in the nature of a restoring means, the lock would in any event start to swing back to normal position when cleared by the push-bar, but the cam surface 56 now strikes the crank extension a forcible blow and materially hastens the return movement of the lock to vertical position. The member 53 preferably acts as a stop, in addition to its function as a striker. After the lock is returned to normal position under the influence of the blow of the striker, there may be a tendency for the lock to rebound. In such event, it cannot rebound all the way back to horizontal position, because the lateral projection 54 contacts with the incline when the lock has reached the inclined position shown by dotted lines in Fig. 4. This feature is of advantage in preventing the fraudulent manipulation of the apparatus.

The operation, which will be clear from the foregoing description, will be briefly summarized.

A proper coin deposited in the chute 43 descends into the lock 40 and tilts the latter downward and rearward against the incline 56. The push-bar 33 may now be forced rearward, causing the ejector to retreat from the magazine so that the pencil falls into position to be ejected, and pushing the coin out of the lock into the cash box. The same movement of the push-bar causes the striker to move rearward in preparation for its blow. When the finger pressure is removed from the push-bar, the main spring 25 causes the ejector to eject the bottom pencil, and also causes the repulser to strike a glancing blow against the under side of the crank projection at the moment when the push-bar 33 has slid forward to a point where it will not interfere with the quick return of the lock. The action of the repulser 53 thus impels the lock rapidly back toward normal position, and the counter-weight 52 insures that the return movement will be fully performed. The main function of the counter-weight, however is to maintain the lock in normal position.

I claim:

1. In a coin-controlled apparatus, a reciprocative push-bar, a freely movable tiltable coin-receiving lock yieldable under the weight of a coin, and a striker uncoupled from the lock and having an impact portion locked in position to drive the lock freely back toward normal position.

2. In a coin-controlled apparatus, a reciprocative part, a freely movable tiltable lock normally in locking position in the path of said part and having yielding restoring means for maintaining it in said position,



said lock being provided with means for receiving a coin and adapted to be tilted thereby to non-locking position, an intermittently-operating spring and means actuated  
 5 thereby and in position to fling the lock freely back toward normal position whereby said spring imparts an impulse to said lock.

3. In a coin-controlled apparatus, a reciprocative part, means for limiting the same  
 10 to a full-stroke movement, a tiltable lock normally in locking position in the path of said part, said lock being provided with means for receiving a coin and adapted to be tilted thereby to non-locking position,  
 15 and repulser means located in position for throwing said lock quickly back to locking position.

4. In a coin-controlled apparatus, delivery mechanism including a reciprocative  
 20 part, a lock normally in locking position in the path of said part and having yielding restoring means for maintaining it in said position, said lock being provided with means for receiving a coin and adapted to be  
 25 moved thereby to non-locking position, and repulser means free from the lock actuated by said delivery mechanism and in position for imparting a quick-return impulse to said  
 30 lock when the latter is cleared by said reciprocating part on the return stroke thereof.

5. In a coin-controlled apparatus, delivery mechanism including a reciprocative part, a self-restoring tiltable coin-receiving and coin-removed obstructor normally barring  
 35 the movement of said part, and a striker free from the lock and in position to contact therewith and a connection between said striker and said delivery mechanism whereby the former is actuated to de-  
 40 liver a quick-return blow to said obstructor.

6. In a coin-controlled apparatus, delivery mechanism including means for limiting the same to full-stroke movement, a reciprocative part, a main spring for restoring the  
 45 delivery mechanism, a self-restoring tiltable coin-receiving and coin-overbalanced obstructor normally barring the movement of said part, and adapted to move through a wide arc and repulser mechanism for hast-  
 50 ening the return of the obstructor having a connection whereby it is actuated by said main spring during the restoration of said delivery mechanism.

7. In a coin-controlled apparatus, delivery mechanism including a push-bar, a self-restoring tiltable lock normally standing up-  
 55 right in locking position across the end of said push-bar and having coin-receiving means and adapted to be tilted by the weight  
 60 of a coin down and back away from the end of the push-bar to a substantially horizontal position where the push-bar may pass over it, and a quick-return device connected with the delivery mechanism and in opera-  
 65 tive relation to the lock and adapted to be

actuated by the delivery mechanism to forcibly start said lock rapidly toward normal position during the return stroke of the push-bar, said lock being unobstructed in its return to normal position. 70

8. In a coin-controlled apparatus, reciprocative part, a freely movable tiltable coin-receiving and coin-removed obstructor normally maintained in position barring  
 75 said part, and combined repulser and stop means located in position to contact with the obstructor for hastening the return and limiting rebound thereof, said obstructor being free to reach normal position independent of the return of the reciprocative part to  
 80 its normal position.

9. In a coin-controlled apparatus, a freely movable tiltable coin-receiving and coin-removed obstructor having yielding restoring means for maintaining it in normal posi-  
 85 tion, a reciprocative part normally barred by said obstructor, and combined return accelerating and rebound-limiting mechanism for and in operative relation to said obstructor, said obstructor being free upon  
 90 receiving the impulse from said mechanism to return to normal position.

10. In a coin-controlled apparatus, delivery mechanism including a reciprocative part, a tiltable coin-receiving and coin-re-  
 95 moved obstructor normally maintained in position barring said part, and a movable rebound stop for said obstructor connected to and actuated by said reciprocative part.

11. In a coin-controlled apparatus, delivery mechanism including a push-bar, a tiltable coin-receiving and coin-removed ob-  
 100 structor normally maintained in position barring said push-bar, and a rebound stop for said obstructor carried by said push-bar. 105

12. In a coin-controlled apparatus, delivery mechanism including a reciprocative part, a freely movable self-restoring tiltable coin-receiving and coin-removed obstruc-  
 110 ter normally maintained in position barring said part, and a return accelerating device for the obstructor actuated by said reciprocative part and in position to drive the obstructor freely back toward normal position.

13. In a coin-controlled apparatus, delivery mechanism including a reciprocative part, a tiltable coin-receiving and coin-re-  
 115 moved obstructor normally maintained in position barring said part, and a striker actuated by the reciprocative part on the re-  
 120 turn stroke of the latter and in position to drive the obstructor freely back toward normal position.

14. In a coin-controlled apparatus, delivery mechanism including a reciprocative  
 125 part, a freely movable self-restoring tiltable coin-receiving and coin-removed obstructor normally maintained in position barring said part, and a striker secured to  
 130 said reciprocative part and in position to



drive said obstracter freely back toward normal position, said obstracter being adapted to be hit by said striker on the return stroke of the reciprocative part.

15. In a coin-controlled apparatus, delivery mechanism including a push-bar, a freely movable self-restoring tiltable coin-receiving and coin-removed obstracter normally maintained in locking position across the end of said push-bar and a bar spaced laterally from said push-bar and connected rigidly thereto and having a beveled upper striking surface, said obstracter having a lateral projection in position to be hit by said beveled surface on the return stroke of the push-bar and being free to be driven by the impact of the striking surface back toward normal position.

16. In a coin-controlled apparatus, delivery mechanism including a reciprocative part, a freely movable tiltable coin-receiving and coin-removed obstracter normally maintained in position barring said part, a striker repulser actuated by said delivery mechanism for driving the obstracter freely back toward normal position, and a pivot for the obstracter having a crank extension in position to be engaged by said repulser.

17. In a coin-controlled vending apparatus, the combination of delivery mechanism including a reciprocative part, a tiltable self-restoring lock normally standing upright in locking position in the path of said part and having coin-receiving means and adapted to be tilted downward by the weight of a coin, said part being adapted on its first stroke to pass along said lock so as to hold the lock in its down position and to push the coin off the lock, and a quick-return device in position to drive the lock freely back toward normal position, being connected with the delivery mechanism and adapted to be actuated thereby to forcibly start said lock rapidly toward normal position when the reciprocative part on its return stroke rides back off the lock.

18. In a coin-controlled vending apparatus, the combination of a magazine, an ejector, a spring for actuating said ejector to deliver an article from the magazine, an operating push-bar connected with said ejector so as to retract the same and to tension said spring on the inward stroke of the push-bar, a tiltable self-restoring lock normally standing upright in locking position across the end of said push-bar and having coin-receiving means and adapted to be tilted by the weight of a coin down and back away from the end of the push-bar, said push-bar being adapted on its inward movement to pass over said lock so as to hold the same down and to displace the coin therefrom, and a combined repulser and stop actuated by said spring when the push-bar on its return stroke rides back off the lock for

hastening the return of said lock and limiting rebound thereof.

19. In a coin-controlled vending apparatus, the combination of delivery mechanism including a push-bar, a tiltable self-restoring lock normally standing upright in locking position across the end of said push-bar and having coin-receiving means and adapted to be tilted by the weight of a coin down and back away from the end of the push-bar, said push-bar being adapted on its inward movement to pass over said lock so as to hold the same down and to displace the coin therefrom, and a striker secured to said push-bar and having a beveled striking surface, said lock having a projection in position to be hit by said beveled surface on the return stroke of the push-bar when the lock is freed so as to hasten the return of the lock to normal position.

20. In a coin-controlled vending apparatus, the combination of delivery mechanism including a push-bar, a tiltable self-restoring lock normally standing upright in locking position across the end of said push-bar and having coin-receiving means and adapted to be tilted by the weight of a coin down and back away from the end of the push-bar, said push-bar being adapted on its inward movement to pass over said lock so as to hold the same down and to displace the coin therefrom, and a part carried by the push-bar and positioned to contact with the lock when the latter has been freed by the push-bar on the return stroke thereof so as to drive the lock freely back toward normal position.

21. In a coin-controlled vending apparatus, the combination of a magazine, an ejector, a spring for actuating said ejector to deliver an article from the magazine, an operating push-bar connected with said ejector so as to retract the same and to tension said spring on the inward stroke of the push-bar, a tiltable self-restoring lock normally standing upright in locking position across the end of said push-bar and having coin-receiving means and adapted to be tilted by the weight of a coin down and back away from the end of the push-bar, said push-bar being adapted on its inward movement to pass over said lock so as to hold the same down and to displace the coin therefrom, and a repulser actuated by said spring and in position to drive the lock freely back toward normal position when the push-bar on its return stroke frees the lock.

22. In a coin-controlled apparatus, a slidable operating bar, means limiting the same to full-stroke movement, a tilting lock normally standing across the end of the operating bar, said tilting lock provided with means for receiving a coin and being yieldable under the weight of the coin and being so mounted that in tilting under the weight



of a coin it moves into position to bring the coin into the path of movement of the operating bar to enable ejection of the coin by the operating bar, and quick-return mechanism including a striker located in position  
5 to drive the lock freely back toward normal position.

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

HORACE E. BOUCHER.

Witnesses:

J. M. LEBWOHL,

H. FRIEDMAN.

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

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