

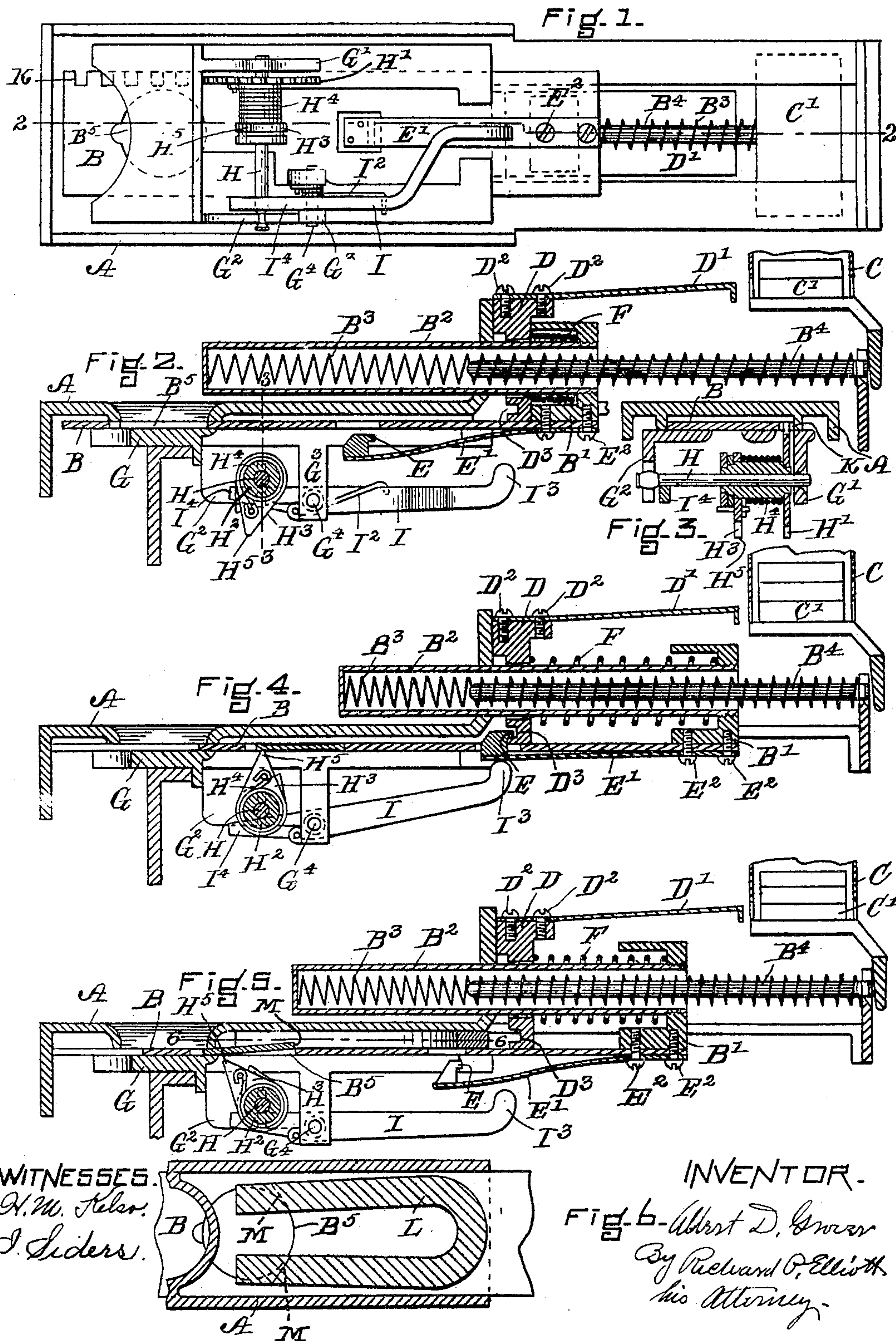
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A. D. GROVER.

COIN CONTROLLED FRAUD PREVENTING DEVICE FOR VENDING MACHINES.

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UNITED STATES PATENT OFFICE.

ALBERT D. GROVER, OF MALDEN, MASSACHUSETTS.

COIN-CONTROLLED FRAUD-PREVENTING DEVICE FOR VENDING-MACHINES.

No. 799,045.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ALBERT D. GROVER, a citizen of the United States, residing at Malden, county of Middlesex, and State of Massachusetts, have invented certain new and useful Improvements in Coin-Controlled Fraud-Preventing Devices for Vending-Machines, of which the following is a specification, reference being had to the accompanying drawings.

My invention has for its objects to so construct a coin-controlled mechanism for ejecting goods from a vending-machine that the goods-ejector will be normally inoperative and disconnected from the coin-slide; to provide a coin-controlled mechanism wherein a coin of the proper denomination when placed in the coin-opening will lock the goods-ejector to the coin-slide when same is moved inward; to provide in a coin-controlled mechanism means whereby the milled raised edge of a coin will lock the goods-ejector to the coin-slide when same is moved inward; to provide means whereby a token of the size of a coin of a proper denomination having a smooth surface will not operate the goods-ejector to eject goods and whereby a magnetic substance provided with a milled raised edge will lock the coin-slide against inward movement before the goods-ejector and the coin-slide have interlocked.

I attain the objects above set forth, together with others not enumerated, by the mechanism shown and described in the drawings which accompany this specification.

In the drawings, Figure 1 represents a bottom plan view of the coin-controlled mechanism, the goods-ejector, and stack containing the goods. Fig. 2 is a sectional elevation through line 2 2, Fig. 1. Fig. 3 is a sectional elevation through line 3 3, Fig. 2. Fig. 4 is a sectional elevation through line 2 2, Fig. 1, showing a coin of the proper denomination in the coin-opening of the coin-slide and the locking mechanism attached to the slide interlocked with the goods-ejector, so that further inward movement of the coin-slide would eject a package of goods. Fig. 5 is a sectional view drawn longitudinally through the coin-controlled mechanism and shows the coin-slide locked against inward movement through means of a magnetic substance placed in the coin-opening. Fig. 6 is a sectional plan view of the magnet, which is located above the coin-slide.

In the drawings, A represents the top plate, in which the coin-slide has a bearing.

B is a coin-slide mounted in the bearing in the top plate A in such manner as to be free to move longitudinally therein.

B' is a block secured to the inner end of the coin-slide B by screws or other suitable means.

Attached to the block B' is a plunger B² which projects through an opening in the vertical part of the top plate A for the purpose of enabling the operator to push the slide inward to eject goods. The plunger B² is hollow and contains one end of the spiral spring B³, the other end of said spiral spring B³ being supported on a rod B⁴, the purpose of the spiral spring B³ being to push the slide outwardly to its normal position after a piece of goods has been ejected.

The rear portion of the top plate A supports a goods-stack C, the goods being indicated by the reference-letter C'.

The goods-ejector D is loosely mounted upon the plunger B² and has a slide bearing in the top plate A and is provided with the flexible portion D', so positioned as to contact with the bottom piece of goods in the stack C. It is attached to the ejector-block D by means of screws D² D² or any other suitable means. The bottom of the ejector-block D is provided with a notch D³, adapted to receive the hook portion E, secured to the flexible spring E', which in turn is attached at its inner end to the slide B by means of the screws E² E² or other suitable means. A spiral spring F surrounds the plunger B², one of its ends contacting with the block B', its other end being in contact with the goods-ejector block D. The coin-slide B is provided with a coin-opening B⁵ of a size to receive a coin of the proper denomination.

G is a bottom plate attached to the top plate A and is provided with a downwardly-extending lug G', having a hole adapted to receive the end of a shaft H, upon which is mounted a pinion H' and a bushing H². Upon one end of the bushing H² is loosely mounted the testing-segment H³.

H⁴ is a spiral spring surrounding the bushing H² and attached to the segment H³ by means of a pin secured therein. Said spring H⁴ is adapted to retain the segment in the desired position with relation to the shaft H, but permits said segment H³ to revolve slightly in either direction upon said bushing H².

against the tension of the spring. The outer end of said shaft H is supported in a slot in the downwardly-projecting lug G², secured to the bottom plate G in such manner as to permit it to have a free vertical movement.

I is a lever, which is pivoted to the bracket G³, attached to the bottom plate by means of the pivot G⁴, its inner end being normally held downward by means of a spring I², which surrounds the pivot G⁴, its inner end being secured to the lug G³ and its outer end projecting outwardly and being hooked over the top of the lever I. The lever I is provided with an upwardly-projecting portion I³, so positioned as to be in the path of the free end of the flexible spring E' and to contact therewith when the slide is moved inwardly. The end I⁴ of the lever I contacts with the under side of the shaft H and holds it in its normal horizontal position, as shown in Fig. 2.

The pinion H is provided with gear-teeth cut on its periphery, adapted to enmesh with the teeth or notches K cut in the side of the coin-slide B, so that when said coin-slide B is moved inwardly it will revolve the pinion H', also the segment H⁸, through the medium of the spring H⁴.

The operation of my device is as follows: On placing a coin of the proper denomination in the coin-opening B⁵ and by moving the coin-slide B inwardly by pressing the outer end of the plunger B² the pinion H' will be revolved clockwise, carrying with it the sleeve H², attached to said pinion. This will revolve the segment H³ until it contacts with the lower surface of a coin placed in the coin-slide, as shown in Fig. 4. The point H⁵ will slide upon the surface of the coin until it contacts with the milled raised edge thereof, when it will be revolved clockwise in the direction of the arrow, Fig. 4, by said milled edge and press the end of the shaft H downward and through its contact with the end of lever I cause its inner end I³ to contact with the outer end of the flexible spring I² and press it upwardly until the hook portion E is interlocked in the notch D³, thereby locking the coin-slide to the goods-ejector block D. By further inward movement of the coin-slide B the goods-ejector D will be moved inwardly until the inner end of the flexible ejector D' contacts with a piece of goods, as C', pushing it outwardly until it is clear of the stack and drops of its own weight from the machine. Upon the removal of the finger of the operator from the plunger B² the spiral spring B³ will react and move the plunger and coin-slide outwardly to their normal positions. At the same time the spring F will push against the ejector-block D and move it outwardly to its normal position.

The purpose of the flexible spring-ejector D' is to provide a yielding medium, so that when a piece of goods is ejected and the goods remaining in the stack are pressed downward the said ejector-spring D' will yield to their

weight without producing undue friction upon the parts.

It has been found that machines of this description have goods fraudulently ejected therefrom by means of a magnetic substance placed in the coin-opening, such as a punching from an iron plate having a bur or raised edge upon which the point H⁵ of the segment H³ will contact to interlock the coin-slide and the goods-ejector block D. To prevent such fraudulent ejection of the goods, I have provided the magnet L, preferably of horseshoe form, which is inserted between the bottom of the top plate A and the top of the coin-slide B in such manner as to be positioned a slight distance above and away from said coin-slide B. The magnet L is notched to form the projecting stops M M, the lower edge of which just clears the top of the coin-slide B, so that when same is moved inwardly a coin or token placed in the coin-opening will just clear the lower edge of said stops M M; but when a magnetic substance is placed in the coin-opening it will be attracted by the magnet L and raised sufficiently to contact with the stops M M to lock the coin-slide against further inward movement, as shown in Fig. 5. The operation of this device is as follows: When a token of a magnetic substance the size of the coin is placed in the coin-opening B⁵ and the slide B moved inwardly, said token will be brought under the poles of the magnet L and the inner edge of the magnetic token will be attracted thereto, moving upward until said inner edge is brought into the path of the wall of the stops M M. The coin-slide B will then be locked against further inward movement by means of the magnetic token contacting at one of its edges with the wall of the stops M M and at its other edge against the outward edge of the coin-opening B⁵. This locking of the coin-slide B by a magnetic substance occurs before the hook portion E is in position to enter the locking-notch D³ in the ejector-block D.

I do not limit myself to the precise construction shown in the drawings and described in this specification, as the form of the mechanism may be modified and changed without departing from the spirit of my invention. Broadly stated, my invention consists of providing a goods-ejector for vending-machines or an operating device for weighing-scales and the like and a coin-slide normally detached from each other, each being free to move without affecting the other, but capable of being interlocked under normal conditions. Having described my invention and the best method now known to me of constructing the same, what I claim is—

1. In a coin-controlled mechanism for vending-machines; a goods-ejector; a coin-slide; and means for locking the goods-ejector to the coin-slide through the medium of the raised edge of a coin of the proper denomination.

2. In a coin-controlled vending-machine, a yielding goods-ejector; a coin-slide; yielding means on the coin-slide for interlocking with the goods-ejector; and means whereby the raised edge of a coin of the proper denomination placed in the coin-slide will cause the interlocking of the means on the said coin-slide and goods-ejector when the coin-slide is moved inwardly.

3. In a coin-controlled mechanism for vending-machines, a goods-ejector; interlocking means on said goods-ejector; a coin-slide; interlocking means on the coin-slide; and means whereby the raised milled edge of a coin of the proper denomination when placed in the coin-opening in the coin-slide, and same moved inwardly, will interlock the coin-slide and the goods-ejector.

4. In a coin-controlled mechanism for vending-machines, a longitudinally-movable flexible goods-ejector; a longitudinally-movable coin-slide; and means operable by the raised milled edge of a coin of the proper denomination to interlock the goods-ejector and the coin-slide when said coin-slide is moved inwardly.

5. In a coin-controlled mechanism for coin-operated machines, a coin-slide; interlocking means mounted on said coin-slide; an operating device; interlocking means mounted on the operating device; the interlocking means on the coin-slide arranged to interlock with the interlocking means on the operating device through the medium of the raised edge of a coin of the proper denomination when the coin-slide is moved inward.

6. In a coin-controlled mechanism for coin-operated machines, a coin-slide; interlocking means mounted on said coin-slide; an operating device; interlocking means mounted on the operating device; the interlocking means on the coin-slide arranged to interlock with the interlocking means on the operating device through the medium of the raised edge of a coin of the proper denomination, when the slide is moved inward; and means for returning the coin-slide and operating device to their normal positions.

7. In a coin-controlled mechanism for coin-operated machines operable through a coin of the proper denomination, a coin-slide; a coin-opening in said coin-slide adapted to receive a coin; interlocking means mounted on the coin-slide; an operating device having means arranged to interlock with the interlocking means on the coin-slide; and means mounted in the path of the coin-opening adjacent to the coin-slide, operable through the medium of the raised edge of a coin, to interlock the coin-slide with the operating device.

8. In a coin-controlled mechanism for coin-operated machines operable through a coin of the proper denomination, a coin-slide; a coin-opening in said coin-slide adapted to receive a coin; interlocking means mounted on the

coin-slide; an operating device having means arranged to interlock with the interlocking means on the coin-slide; means mounted in the path of the coin-opening adjacent to the coin-slide, operable through the medium of the raised edge of a coin, to interlock the coin-slide with the operating device; and means for returning the coin-slide and the operating device to their normal positions.

9. In a vending-machine, a coin-controlled device for ejecting goods, comprising a flexible goods-ejector; interlocking means on said goods-ejector; a coin-slide; a coin-opening in the coin-slide; means mounted on the coin-slide for interlocking with the goods-ejector; a spring-controlled segment mounted contiguous to the coin-slide in the path of the coin-opening; and means whereby contact of the point of the segment with the milled edge of a coin of the proper denomination when the coin-slide is moved inward will lock the goods-ejector to the coin-slide to eject the goods.

10. In a coin-controlled mechanism for coin-operated machines, a coin-slide; a coin-opening in said coin-slide; a magnet mounted adjacent said coin-slide, its poles in the path of the coin-opening; notches cut in the poles of the magnet in such manner that one of its edges will constitute a stop, and so arranged that a magnetic substance placed in the coin-opening will be attracted to the poles of the magnet, one of its edges contacting with a stop, its other edge with the wall of the coin-opening.

11. In a coin-controlled mechanism for coin-operated machines, a coin-slide; a coin-opening in said slide; interlocking means on the coin-slide; an operating device; interlocking means on the operating device; a magnet mounted adjacent the coin-slide; a stop adjacent the poles of the magnet so arranged that a magnetic substance placed in the coin-opening will be attracted by the magnet and contact with said stop and lock the coin-slide against sufficient inward movement to interlock the interlocking means.

12. In a coin-controlled mechanism for coin-operated machines, a coin-slide; a coin-opening in said coin-slide; interlocking means on the coin-slide; an operating device; interlocking means on the operating device; a magnet mounted adjacent the coin-slide, its poles formed to provide a stop whereby a magnetic substance placed in the coin-opening will lock the coin-slide against sufficient movement to interlock the interlocking means; and means for returning the coin-slide to its normal position.

In testimony whereof I have hereunto set my hand, in the presence of two subscribing witnesses, this the 8th day of August, 1904.

ALBERT D. GROVER.

Witnesses:

I. SIDERS,

R. P. ELLIOTT.