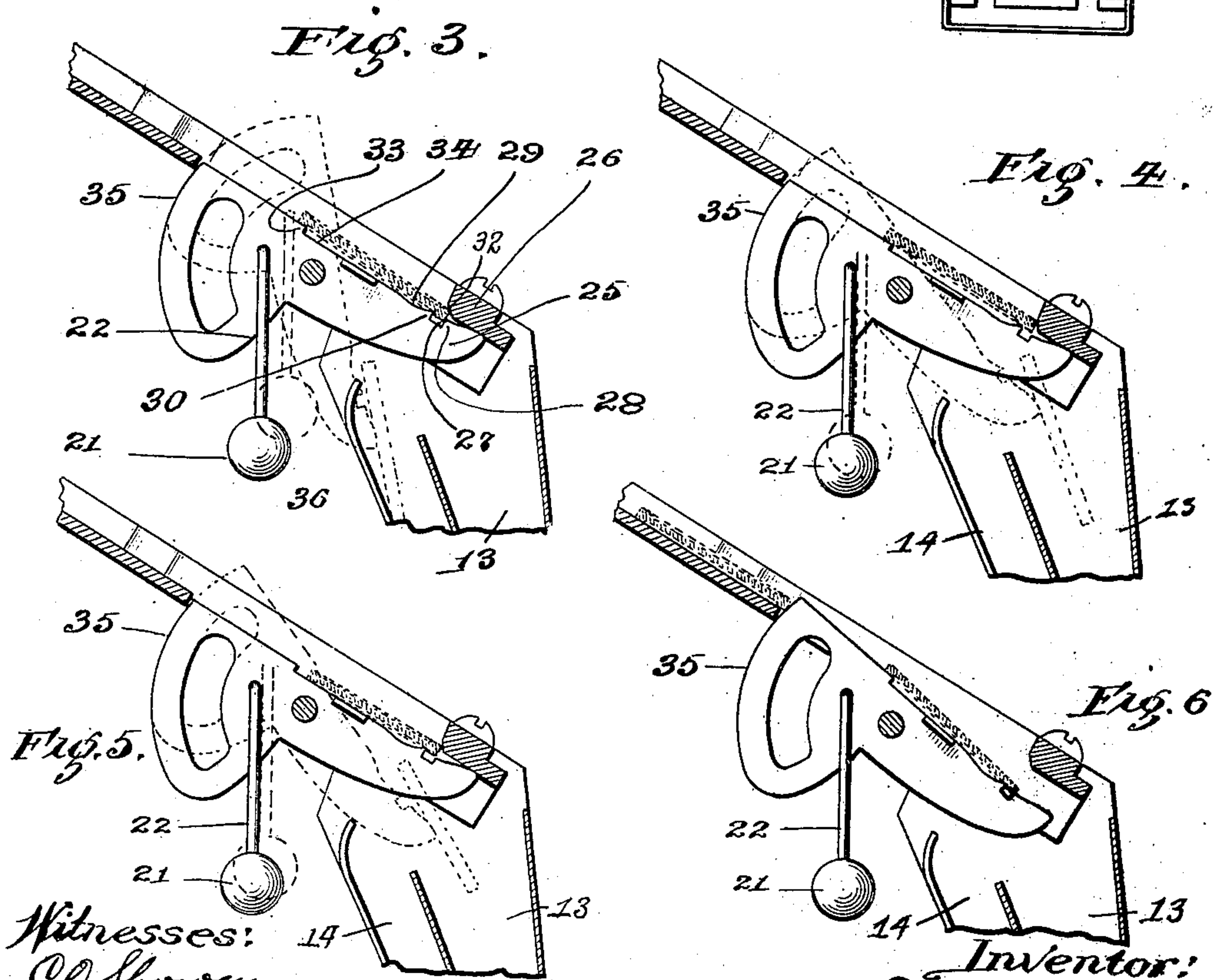
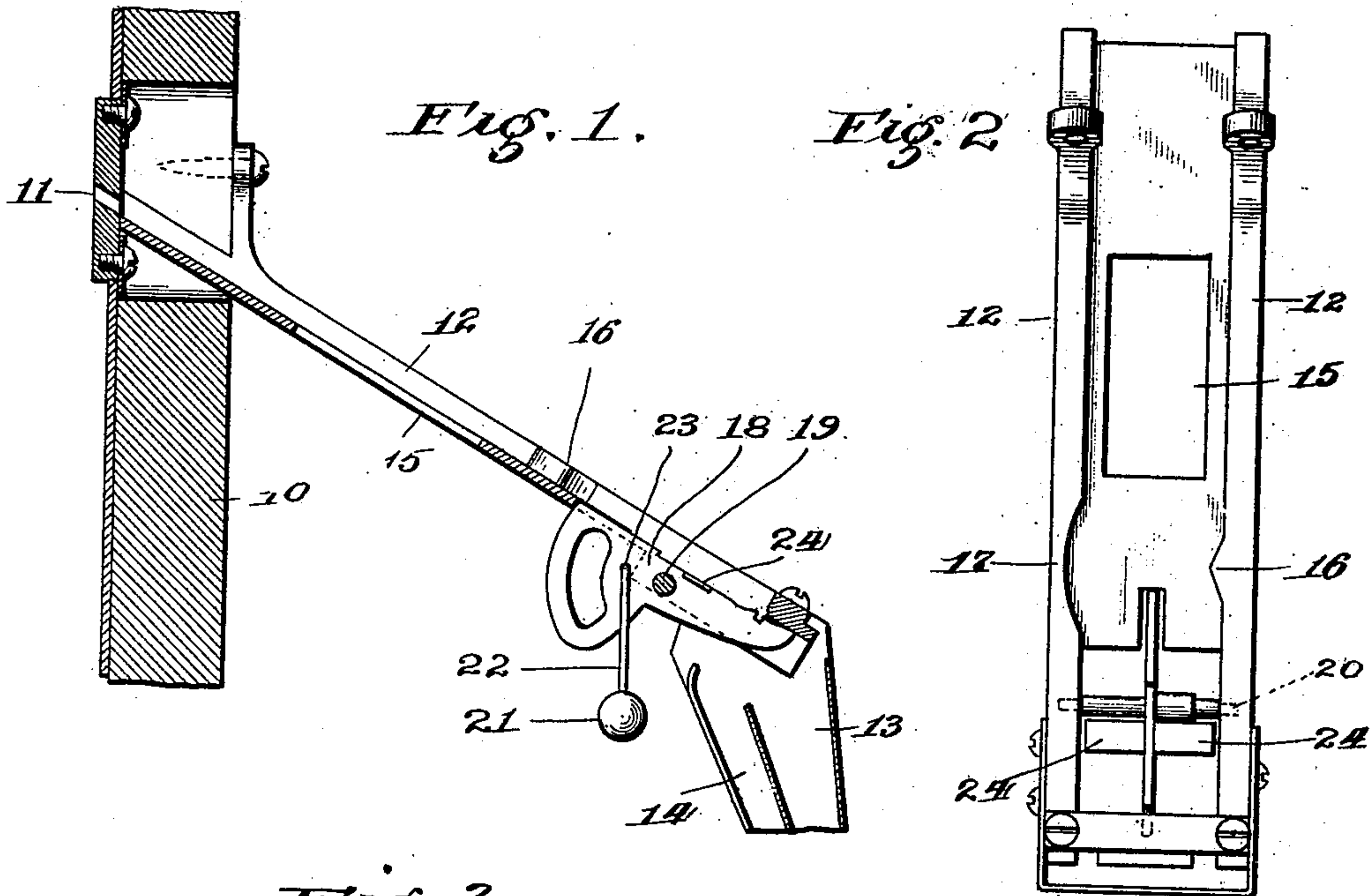


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PATENTED MAY 5, 1908.

F. ECKERT.
COIN DETECTOR.

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COIN-DETECTOR.

No. 886,962.

Specification of Letters Patent.

Patented May 5, 1908.

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To all whom it may concern:

Be it known that I, FRANK ECKERT, a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Coin-Detectors, of which the following is a full, clear, and exact description.

The invention relates to devices commonly known as coin-detectors which are adapted to control the passage of checks or coins to coin-controlled devices for the purpose of eliminating bogus-coins or slugs.

The present invention designs to provide a simple and efficient device whereby truly formed or genuine coins or checks will be disposed in one direction and bogus coins or checks or defective coins will be differentially disposed.

A coin or properly formed check is usually provided with a circumferential bead or rim of a particular size not present in bogus coins or slugs and the invention designs to utilize this characteristic of genuine tokens in the elimination of bogus checks or deficient coins. It has heretofore been common to employ a movable or tilting guide for the purpose of subjecting the tokens to a weight-test. This test alone, however, has been found insufficient in practice to eliminate differently formed checks, slugs or bogus coins of substantially the same weight as a token for which the device is designed.

One object of the invention is to provide an improved detector which will be operated to displace only a truly formed token in one direction while another will be displaced otherwise.

Another object of the present invention is to provide a gravity operated movable coin-support which will be operated by the token to deliver a genuine token or coin having all of the characteristics of such a genuine coin in one direction and which will reject a slug or bogus-coin.

The invention further designs to provide a simple, efficient, gravity-operated coin-detector of improved construction.

The invention consists in the several novel features hereinafter set forth and more particularly defined by claim at the conclusion hereof.

In the drawings: Figure 1 is a vertical sec-

tion taken through a device embodying the invention. Fig. 2 is a plan of the same. Fig. 3 is an enlarged sectional view showing the improved detector and the manner of disposing a coin or truly formed check of the proper size, form and weight. Fig. 4 is a similar view showing the manner of disposing of a slug having a beaded edge on one side and a flat face at the other, and the manner of disposing of the same by the detector. Fig. 5 is a similar view illustrating the manner of disposing of a genuine coin smaller in diameter than the token for which the device is designed. Fig. 6 is a similar view, showing the manner of displacing a coin of insufficient weight into the rejector-channel.

The coin detector is usually associated with some coin or check-controlled device or mechanism and in Fig. 1 of the drawings denotes the front wall of an inclosing casing of a coin-controlled apparatus and in which is provided, as usual, a coin-receiving slot through which the tokens can be inserted and deposited. An inclined channel, 12, is adapted to receive the tokens and direct them to the coin-detector. A guide or channel 14 is provided to which coins or tokens of the proper size and shape will be directed by the testing device and a guide or channel 13 is provided for the rejected tokens. Usually the guide 14 delivers the check or coin to a device to be controlled or operated thereby and the rejector-channel 13 directs the rejected coins or slugs to a refunding channel or into the machine to be retained.

It will be understood that the improved detector may be associated with any machine or check-controlled device and that the coins or checks may be disposed of in any desired way by the improved detector.

The bottom of channel 12 may be provided with an opening 15 through which tokens materially smaller in diameter than genuine checks or tokens will fall to eliminate them before they pass to the detector. Coin guide or channel 12 is inclined so that a coin will gravitate thereon at substantially uniform speed, and an inclined abutment or deflector 16 may be provided to retard the coin in transit to the detector in event the depositor attempts to force a token through the channel at materially

higher speed than that caused by gravity alone. The side-wall of the guide 12 is cut-away as at 17 to allow the token to be deflected slightly by abutment 16, and to retard the coins or tokens so that they will all be delivered to the detector at substantially the same speed. A movable lever 18 is arranged so that all the tokens will be delivered thereon by coin-channel guide 12.

The lever is pivotally sustained by a pintle or shaft 19 having its terminals 20 journaled in extended portions of the side-walls of the coin-guide 12. This lever serves as a coin-support and is movably sustained so that it will be operated by a token. The movable support is weighted so that it will be held normally in position to receive tokens and will be shifted by gravity of the token to displace or direct them into either of the guides for the tokens. To restore the gravity-operated coin-lever 18 to, and to hold it in, normal position and to prevent the operation of the lever by a token of deficient weight, a counter-weight 21 is suspended by a rod 22 which is pivotally connected as at 23 to the lever at one side of the lever-pivot. By suspending the counter-weight from a pivotal connection on the lever the weight is more evenly applied to counter balance the end of the lever on which the token is temporarily held. The tilting lever or support extends longitudinally of the channel and centrally thereof and has secured thereto wings or supports 24 which are adapted to prevent the tokens from lateral displacement while the tokens are on or passing over the lever. The lever is held normally in proper position with respect to coin-channel 12 by engagement of its outer end 25 with the bottom of a stop-bar 26. Near the outer end of the lever is provided a recess or notch 27 in which the circumferential bead or rim of a truly formed check or genuine coin can pass. At the outer end of this notch is an abutment or stop 28 whereby a genuine coin or check will be held on the lever during the tilting movement imparted thereto by the token itself. The lever is also slightly recessed as at 29 to direct the edge-portion of the token over an abutment 30 at the upper side of notch 27. Abutments 28 and 30 are so disposed with respect to each other that only a rim of the proper size on a genuine check or token can pass therebetween so that it will be held by abutment 28 during the travel of the lever. Abutment 30 engages the lower face of the token and determines the vertical position of the edge of the coin with respect to abutment 28 so that only a token having a rim or bead which will pass between abutments 28 and 30 will be held on the lever by abutment 28 and displaced in one direction, *i. e.* that for properly formed checks or coins. The front end of the stop

bar 26 serves as a stop or abutment which arrests the tokens at the proper point to cause them to be held if of the proper form by the lever and this stop is inclined or under-cut as at 32 to direct a properly formed coin or token so that it will be held by abutment 28. A coin of the proper size and form will be stopped so that a portion thereof will remain on a rest 33 formed on the lever and thereby a genuine token will be held in such relation with respect to the lever that the outer edge or rim will engage abutment 28. Rest 33 terminates at a point slightly within the periphery of a genuine token engaging abutment 28 so that a token of lesser diameter will be differently disposed on the lever and with respect to abutment 28. By terminating rest 23 as aforesaid, a genuine coin of smaller diameter can pass into a depressed portion or recess 34 which causes the token to be held at such an angle with respect to the lever that even if the usual beaded rim is present the coin or token will be so directed by the rest and abutment that it will ride over abutment 28. The weighted end of the lever is provided with an extension or guard 35 which is adapted to block the coin-channel or guide when the lever is out of normal position to detain a succeeding token if one is deposited before the previously deposited token has been discharged from the lever.

The operation and manner of disposing of a truly formed check or coin is illustrated in Fig. 3. A deposited coin directed by coin-guide 12 to the gravity-operated coin-support passes over the inner end of the lever and into position indicated by the dotted lines, *i. e.*, at the outer end of the lever, the bead or rim of the coin passing between abutments 30 and 28, being directed thereinto by inclined abutment 30 of the lever and stop 32. The opposite rim-portion of this token lies on rest 33 so that the relation of the token with respect to the lever will be such that the rim will be held against slipping off the lever by abutment 28. This occurs only when the token is of sufficient diameter to be held on rest 33 and when the circumferential bead is of such size that it can pass between abutments 28 and 30. In its descent the token encounters undercut stop 32 which prevents the coin from rebounding upwardly and aids gravity in directing the rim of the coin against abutment 28. Such a token is of sufficient weight to operate the inner end of the lever downwardly and overcome the weight of the other end of the lever, so that as soon as the coin is arrested and engages abutment 28 of the lever, the lever will swing about its pintle into position indicated by dotted lines, abutment 28 preventing the token from sliding off the lever. Thus a genuine coin or token will remain on the lever

until it is discharged therefrom, *e. g.*, when the coin strikes an abutment 36 as the lever is swung and thereupon the token will be released from abutment 28 and discharged

into guide 14 which is designed to conduct genuine coins and properly formed checks to the coin-operated or controlled mechanism.

In Fig. 4 is illustrated the operation of the detector when a slug or check of the same diameter as a genuine coin but of improper form, is deposited. The slug there shown is provided with one smooth face and a bead somewhat wider than the circumferential bead on a coin, on the other face. When such a token is deposited with its smooth face uppermost the bead on the under face will ride over abutments 30 and 28, so that as soon as the lever is tilted by the token it will slide downwardly on the lever and fall into the rejector-channel 13, thus being differently disposed from a genuine coin or token. If such a slug is deposited with its beaded face uppermost, it will be likewise disposed of and the lever will operate in the same manner to direct it into the rejector-channel.

In Fig. 5 is shown the operation of the detector when a genuine coin of smaller size than that for which the machine is designed, is deposited. Such a coin will be momentarily arrested by stop-bar 26 and the circumferential bead will ride over abutment 30 but the upper portion of the coin will rest on the depressed portion 34 of the lever, thus causing the coin to be disposed at an angle with respect to the lever. Resultantly the coin will be disposed so that its lower edge or rim will be directed over and not engage abutment 28, and when the lever is depressed by the token it will ride over abutments 30 and 28 and be discharged into the rejector-channel.

In Fig. 6 is illustrated the operation of the device when a token is deposited which is of sufficient weight to tilt the lever slightly to move the lever and the token away from stop 32 but of proper form and size to be held by the lever. Such a token may partially tilt the lever, and be held suspended on the lever as shown in the drawing. By jarring the machine which is usually done by the depositor when the machine is not operated in response to a deposited token, the vibration will be sufficient to release the token from abutment 28 so that it will ride over said abutment and be deposited in the rejector-channel. If, perchance, the machine is left in position shown in Fig. 6, without removal of the token from the lever, and a genuine token is thereafter deposited, the latter will be arrested by guard 35 until the slug has been released. As soon as the slug is discharged from the lever the device will be restored to its normal position, whereupon

the genuine token temporarily arrested by guard 35 will pass onto the lever and be properly disposed thereby.

It will thus be seen that the coin-lever or support serves also as a shifter for tokens having a circumferential bead of proper size and that abutment 28 engages the periphery of a truly formed token only, while abutment 30 engages a face of the token immediately inside of the bead, and that only a token of proper shape and size will be shifted by the lever in one direction and differently disposed from improperly formed tokens.

Manifestly the invention provides a simple coin detecting device which disposes of genuine coins or checks in one direction and rejects or differently disposes of tokens deficient in size or having a rim of improper form.

The invention is not to be understood as restricted to the precise details described since these can be modified within the limits of the claims, without departing from the spirit and scope of the invention.

Having thus described the invention, what I claim as new and desire to secure by Letters Patent, is:

1. In a coin detector, the combination of a movable gravity-operated coin-support, and means thereon for retaining and discharging a genuine coin or token at substantially the limit of movement of said coin-support, and for discharging a spurious token at a point intermediate the limit of movement of said coin support.

2. In a coin-detector, the combination of a gravity-operated coin-support, means for causing said support to be tilted when a token falls thereon, and means for causing said support to hold a truly formed coin or token with a circumferential bead to discharge it in one direction, and to permit the premature discharge of a token without a bead in another direction.

3. In a coin-detector, the combination of a movable gravity-operated coin-support, means for causing said support to be shifted by the weight of a token, and means for holding a truly formed coin or token so that it will operate the support to retain and discharge the token in one direction and over which a differently formed token will pass and be discharged in another direction.

4. In a coin-detector, the combination of a gravity-operated movable coin-support which is sustained so that it can be shifted by the weight of a token, and an abutment for holding a truly formed coin or token so that it will shift the support and discharge the token in one direction and over which a differently formed token will pass to be discharged in another direction.

5. In a coin-detector, the combination of a gravity-operated pivotal coin-support, means for causing said support to be shifted

by the weight of a token, and means for holding a truly formed coin or token so that it will tilt the support to discharge the token in one direction and over which a differently formed token will pass to be prematurely discharged in another direction.

6. In a coin-detector, the combination of a gravity-operated pivotally sustained coin-support, means for shifting the same by the weight of a token, and an abutment for holding a truly formed coin or token so that it will shift the support to discharge the token in one direction and over which a differently formed token will pass to be discharged in another direction.

7. In a coin-detector, the combination of a movable gravity-operated normally inclined coin-support, means for shifting the same by the weight of a token, and means for holding a truly formed coin or token on said support so that the weight of the coin will cause shift of the support to discharge such token in one direction and over which a differently formed token will pass to be prematurely discharged in another direction.

8. In a coin-detector, the combination of a movable normally inclined gravity-operated coin-support, means for shifting the same by the weight of a token, and an abutment on said support for holding a truly formed coin or token so that the weight of the token will cause shift of the support to discharge such token in one direction and over which a differently formed token will pass to be discharged in another direction.

9. In a coin-detector, the combination of a pivotally sustained normally inclined gravity-operated coin-support, means for shifting the same by the weight of a token, and means for holding a truly formed coin or token on said support so that the weight of the coin will tilt the support to discharge such token in one direction and over which a differently formed token will pass to be prematurely discharged in another direction.

10. In a coin-detector, the combination of a pivotally sustained normally inclined gravity-operated coin-support, means for shifting the same by the weight of the token, and an abutment on said support for holding a truly formed coin or token so that the weight of the token will cause the support to be tilted to discharge such token in one direction and over which a differently formed token will pass to be discharged in another direction.

11. In a coin-detector, the combination of a movable gravity-operated support, means for shifting the same by the weight of a token, and means for holding a coin or token of a given diameter so that it will operate the support to discharge the token in one direction and over which a token of less diame-

ter will pass and be discharged in another direction during the shift of said support.

12. In a coin-detector, the combination of a gravity-operated pivotally sustained coin-support, means for shifting the same by weight of a token and means for holding a coin or token of a given diameter on the support so that it operates the support to discharge the token in one direction and which will operate the support to discharge the token of less diameter in another direction during the shift of said support.

13. In a coin-detector, the combination of a movable gravity-operated coin-support, means for shifting the same by the weight of a token, means for holding a truly formed coin or token so that it will shift the support to discharge the token in one direction and which will cause a differently formed token to be discharged in another direction, and a fixed stop cooperating with said means to position a truly formed token on the support so that it will be held by said means.

14. In a coin-detector, a token-shifter having an abutment for engaging the periphery of a token and an abutment for engaging one face thereof adjacent the circumferential bead and spaced to allow only a bead of the proper size to pass therebetween, so that only a token having such bead will be held by the periphery-abutment.

15. In a coin-detector, a token-shifter having an abutment for engaging the periphery of a token, an abutment for engaging one face thereof adjacent the circumferential bead and spaced to allow only a bead of the proper size to pass therebetween, so that only a token having such bead will be held by the periphery-abutment, and means for differentially holding tokens of different diameters so that only the bead of a token of proper diameter will be disposed to be held by said abutments.

16. In a coin-detector, a token-shifter having an abutment for engaging the periphery of a token, an abutment for engaging one face thereof adjacent the circumferential bead and spaced to allow only a bead of the proper size to pass therebetween, so that only a token having such bead will be held by the periphery-abutment, and means for disposing of deficient tokens in a different direction from the proper tokens.

17. In a coin-detector, a token-shifter having an abutment for engaging the periphery of a token, an abutment for engaging one face thereof adjacent the circumferential bead and spaced to allow only a bead of the proper size to pass therebetween, so that only a token having such bead will be held by the periphery-abutment, means for differentially holding tokens of different diameters so that only the bead of a token of

proper diameter will be disposed to be held by said abutments, and means for disposing of deficient tokens in a different direction from the proper tokens.

18. In a coin-detector, a token-shifter having an abutment for engaging the periphery of a token and an abutment for engaging one face thereof adjacent the circumferential bead, and spaced to allow only a bead of the proper size to pass therebetween, so that only a token having such bead will be held by the periphery-abutment, and a fixed stop for the tokens to cause the bead of a proper token to pass between said abutments.

19. In a coin-detector, a token-shifter having an abutment for engaging the periphery of a token, an abutment for engaging one face thereof adjacent the circumferential bead and spaced to allow only a bead of the proper size to pass therebetween, so that only a token having such bead will be held by the periphery abutment, means for differentially holding tokens of different diameters so that only the bead of a token of proper diameter will be disposed to be held by said abutments, and a fixed stop for the tokens to cause the bead of a proper token to pass between said abutments.

20. In a coin-detector, the combination of a movable gravity-operated coin-support, means for shifting the same by the weight of a token, an abutment on the support for holding a truly formed coin or token so that it will shift the support and be discharged in one direction thereby, and over which a differently formed token will pass to be discharged in another direction, and a relatively fixed stop cooperating with said abutment to position a genuine token on the support so that it will be held by said abutment.

21. In a coin-detector, the combination of a pivotally sustained gravity-operated coin-support, means for shifting the same by the weight of a token, means for holding a truly formed coin or token so that it will tilt the support to discharge the token in one direction and which will cause an improperly formed token to be discharged in another direction, and a relatively fixed stop cooperating with said means to position a truly formed token on the pivoted support so that it will be held by said means.

22. In a coin-detector, the combination of a pivotally sustained gravity-operated coin-support, means for shifting the same by the weight of a token, an abutment on the support for holding a truly formed coin or token so that it will tilt the support and be discharged in one direction thereby and over which a differently formed token will be discharged in another direction, and a relatively fixed stop cooperating with said means

to position a truly formed token on the support so that it will be held by said means.

23. In a coin-detector, the combination of a movable gravity-operated coin-support mounted so as to be shifted by the weight of a token, and a pair of abutments on said support between which the circumferential bead can pass so that a truly formed coin or token will be held therebetween to be discharged in one direction and over which a differently formed token will pass to be discharged in a different direction.

24. In a coin-detector, the combination of a tiltable coin-lever mounted to be shifted by the weight of a token, and a pair of abutments on said lever between which the circumferential bead of a token can pass so that a truly formed coin or token will be discharged in one direction, and over which a differently formed token will pass and be discharged in a different direction.

25. In a coin-detector, the combination of a pivoted coin-lever, means for shifting the same by the weight of a token, an abutment on the lever for holding a coin or token of a given diameter so that it will be discharged in one direction as the lever is shifted by the token, and over which a differently formed token will pass to be discharged in another direction by the lever, and means for causing a token of smaller diameter to be disposed so that it will not be held by said abutment and discharged in another direction.

26. In a coin-detector, the combination of a pivoted coin-lever, means for shifting the same by the weight of a token, an abutment on the lever for holding a coin or token of a given diameter so that it will be discharged in one direction by the lever as the lever is shifted by the token and over which a differently formed token will pass, to be discharged in another direction by the lever, and a rest oppositely arranged with respect to the abutment and on which said token will be held and formed so that a token of smaller diameter will be disposed at a different angle with respect to the abutment to cause it to pass thereover.

27. In a coin-detector, the combination of a movable gravity-operated coin-support, means for shifting the same by the weight of a token, means for holding a truly formed coin or token so that it will be held by the support and discharged therefrom in one direction, and by which a differently formed token will be discharged in another direction, and a guard operated by said support to block the passage of a token to the support when the support is out of normal position.

28. In a coin-detector, the combination of a pivoted gravity-operated coin-support, means for shifting the same by the weight of a token, means for holding a truly formed

coin or token so that it will be held by the support and discharged therefrom in one direction and over which a differently formed coin or token will pass to be discharged in
5 another direction, and a guard on the inner end of said support for blocking the passage of a token and holding the token on the support when it is tilted out of normal position.
29. In a coin-detector, the combination of
10 a coin-channel or guide, a pivoted gravity-

operated coin-lever, means for causing said lever to hold a truly formed token and to discharge it in one direction, and to discharge a differently formed token in another direction, and a counter-weight pivotally suspended 15 from said lever.

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