

Sept. 1, 1931.

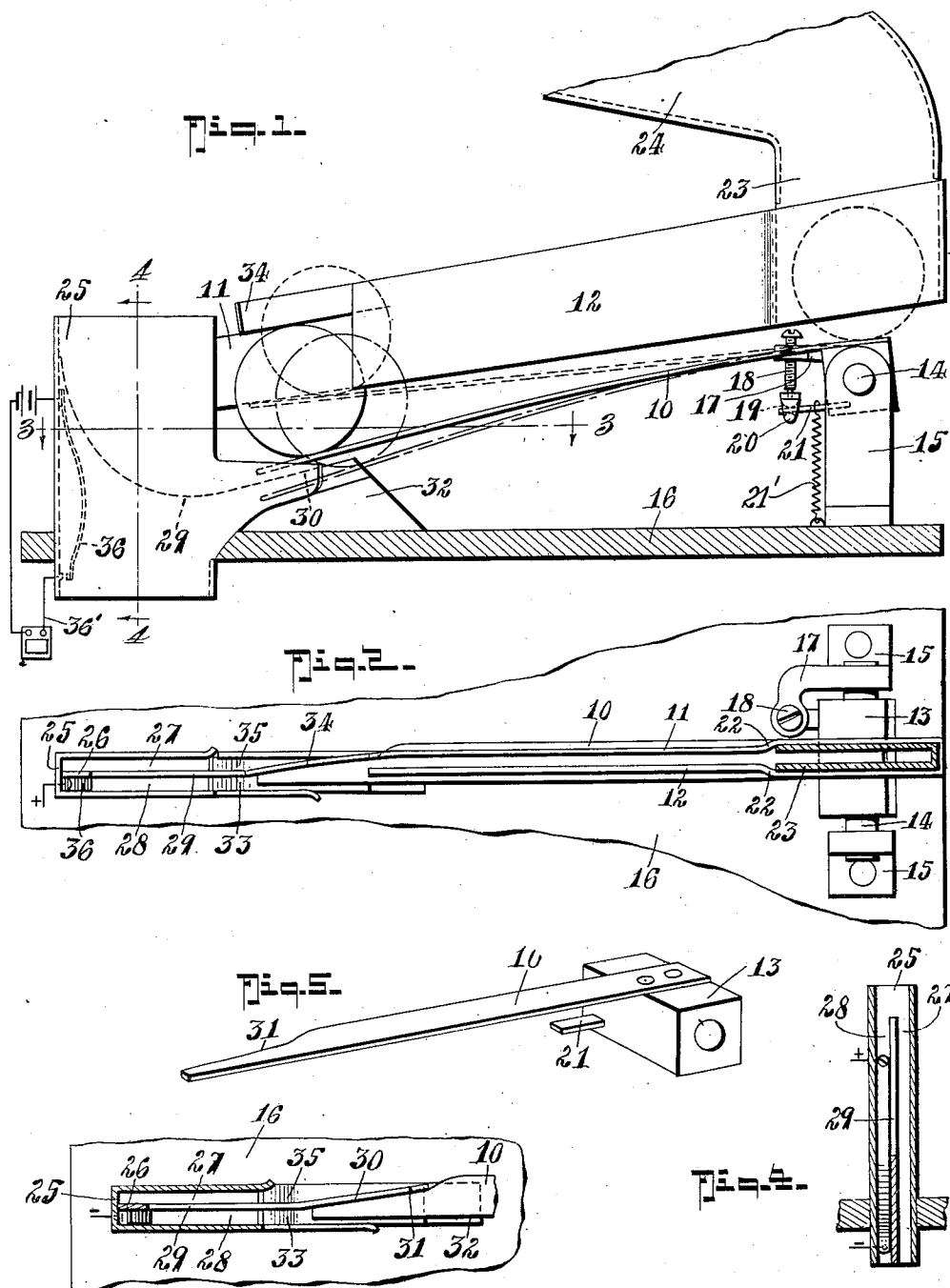
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1,821,357

COIN TESTING DEVICE

Filed Feb. 10, 1928

2 Sheets-Sheet 1



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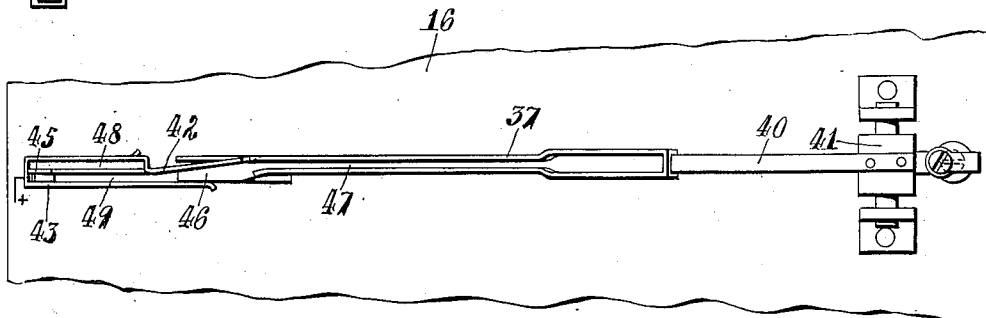
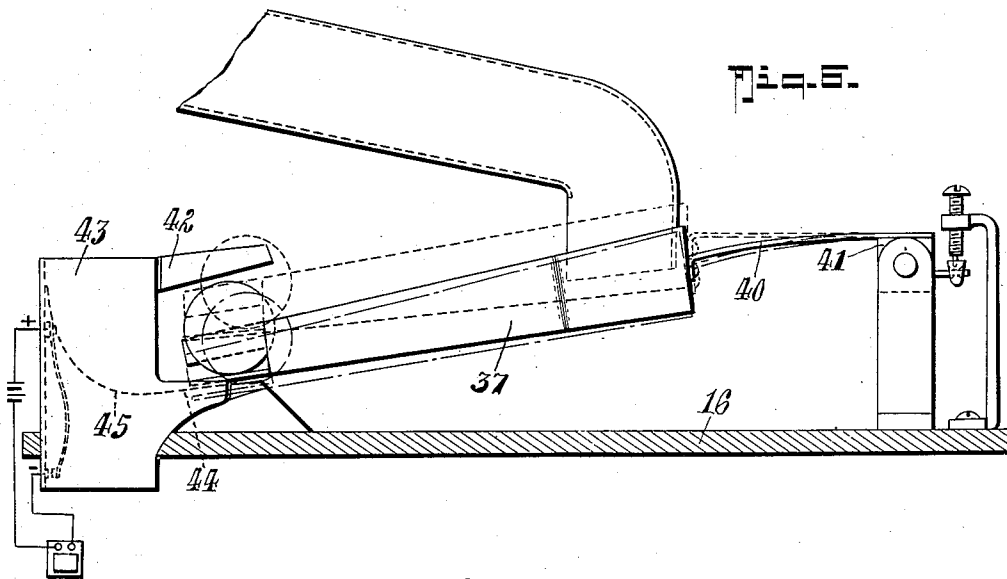


Fig. 7.

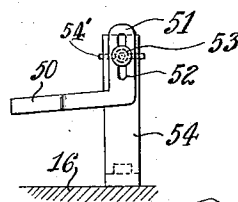
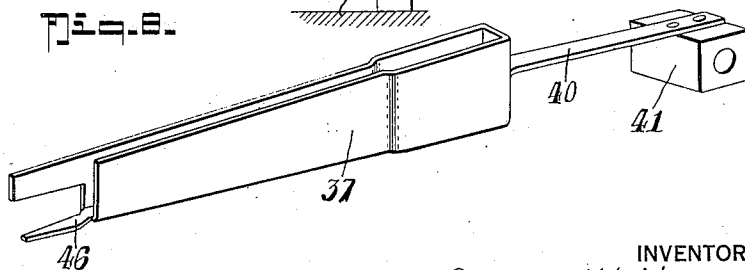


Fig. 9.

Fig. 8.



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UNITED STATES PATENT OFFICE

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COIN TESTING DEVICE

Application filed February 10, 1928, Serial No. 253,410, and in Great Britain July 14, 1927.

This invention relates to coin testing devices particularly applicable for use in connection with coin-controlled machines such as, for example, vending and change making machines of the kind in which the customer or operator is required to deposit a prescribed coin before the machine can be operated.

The main object of the invention is the provision of a simple coin testing device which will prevent unscrupulous persons from defeating the coin-controlled machine and obtaining merchandise or change through the employment of spurious or unauthorized coins.

Another object of the invention is the provision of a coin testing device, so constructed and arranged that it will operate automatically to discard all coins which are either too heavy or too light.

Another object of the invention is the provision of a coin testing device which is automatically operated to cause the delivery of all genuine coins into one conduit and all spurious coins into another conduit.

Another object is the provision of a device of this character which is highly sensitive and involves means whereby to be minutely adjusted, and one which may be provided with suitable means whereby to give warning when a spurious coin has been deposited.

Other objects will appear hereinafter.

The invention consists in the arrangement and combination of parts hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawings forming a part of this specification, and in which:

Fig. 1 represents a side elevational view of the coin testing device;

Fig. 2 represents a top plan view thereof;

Fig. 3 represents a horizontal section taken on the line 3—3 of Fig. 1;

Fig. 4 represents a vertical section taken on the line 4—4 of Fig. 1;

Fig. 5 is a perspective view of the movable block and runway spring;

Fig. 6 represents a side elevational view

of a modified form of the coin testing device;

Fig. 7 is a plan view of the parts shown in Fig. 6;

Fig. 8 is a perspective view of parts of the modified device, such parts comprising the coin channel with the spring and movable block for supporting the same; and

Fig. 9 is a fragmentary elevation, showing how a switch finger may be mounted for independent adjustment.

The preferred form of construction, as illustrated in Figs. 1 to 5, comprises a coin runway consisting of an elongated spring 10 of considerable resiliency, capable of yielding or responding readily to the force of weight exerted by a rolling coin, and two vertically disposed guides 11 and 12 arranged to form a channel for keeping the coin in upright position as it rolls on its rim upon the spring 10. Preferably and as shown, spring 10 is supported at one end upon a block 13 movably mounted upon a stud 14 which may be supported in any suitable manner, as for example by brackets 15 arranged upon a base 16. For securing the block 13 in the adjusted position desired, one of the brackets 15 carries an arm 17 through which is threaded an adjusting screw 18 having an enlarged end 19 swiveled in a connector 20 which is applied to an arm 21 projecting from said block. By turning the adjusting screw 18, the projecting spring 10 may be given the precise downward slope or adjustment desired. To facilitate the adjustment of the block 13 through the turning of adjusting screw 18, said block may be subjected to spring tension as by a pull spring 21' connecting the block arm 21 with the base 16.

The guides 11 and 12 are arranged above the projecting spring 10 lengthwise thereof and with a downward slope as shown, said guides being suitably spread at 22 where they receive the downturned delivery end 23 of the coin deposit chute 24 by which they are conveniently supported. The coins are introduced into the runway through said chute 24 arranged so that the impact of the introduced coins will occur upon the spring

10 immediately over the block 13 and thereby avoid undesirable oscillation of said spring.

Arranged in front of the delivery end of
 5 the coin runway is a chute 25, suitably supported in the base 16 and interiorly divided by a partition 26 into a conduit 27 for receiving good coins and a conduit 28 for receiving spurious coins. Said partition 26,
 10 deeply cut away as at 29, is formed with a projecting switch finger 30 which slopes laterally across the coin path leading to the conduit 27 at a position where it will be engaged by the rolling coin when the spring
 15 10 is depressed to its low or its approximately low position; and it will be observed in this connection that the free end of the spring 10 is cut away at 31 to clear the switch finger 30 by which the rolling coin,
 20 upon depressing the spring, to its low or its approximately low position, will be diverted into the conduit 28. A block 32, arranged on the base 16, has a declivity 33 on which the coin, when diverted by the switch
 25 finger 30, may roll from the spring into the conduit 28.

As best shown in Fig. 2, the partition 26 lies in the same vertical plane as guide 12, and the opposite guide 11 is provided with
 30 an upper portion comprising a switch finger 34 which slopes laterally toward and terminates in the vertical plane of the partition 26 and guide 12 so as to engage a rolling coin and swerve it into conduit 28 when
 35 the spring is in its high or approximately high position. Now this arrangement is such that, in operation, when properly adjusted, the force of the weight of a genuine coin will depress the spring merely enough
 40 to permit the coin to pass between the switch fingers 34 and 30 and into the conduit 27, there being on the block 32 a declivity 35 on which the coin may roll into said conduit 27. Where the coin is too light
 45 in weight, it will be diverted into conduit 28, since such light weight coin will not depress the spring sufficiently to escape engagement with switch finger 34. Where the coin is too heavy in weight, it will also be
 50 diverted into conduit 28, since such heavy weight coin will depress the spring to such an extent that it will be engaged by switch finger 30. Provision is thus made for testing each coin and for automatically passing
 55 it into conduit 27 where it is of proper weight, and for passing it into conduit 28 where it is either too light or too heavy. The conduit 27 may suitably lead to the coin-controlled mechanism of the machine
 60 containing the coin testing device, while the conduit 28 may be extended to return the spurious coins to the party using them.

For the purpose of giving warning or sounding an alarm when a spurious coin has
 65 been employed, a movable contact spring 26,

constituting part of an electrical circuit, may be situated in the conduit 28 and arranged to close a suitable electrical circuit 36' when impinged by a coin passing through this conduit.

In Figs. 6 to 8, there is illustrated a modified form of the coin testing device in which the runway comprises a channel shaped conduit 37 supported at one end by a spring 40
 70 which in turn is supported at one end upon an adjustably mounted block 41. In this form, where the entire conduit 37 is depressible in response to the weight of the coin, the top switch finger 42 is provided on the receiving chute 43, while with the lower
 75 switch finger 44, comprising as before an extension of the partition 45, the free end 46 of the bottom of the conduit 37 is arranged to cooperate. In operation, this form of construction does not differ in principle from that of the first form—a genuine
 80 coin depressing the conduit 37 merely enough to pass between the switch fingers 42 and 44 so as to roll into the conduit 48, while a coin that is too light will be diverted by switch finger 42 into conduit 49 and a
 85 coin that is too heavy will be diverted by switch finger 44 into conduit 49.

In place of the top switch finger 34 produced in connection with guide 11 as shown
 90 in Figs. 1 and 2, or in place of the top switch finger 42 produced in connection with the chute 43 as shown in Figs. 6 and 7, I may provide an independently adjustable switch finger. Thus in Fig. 9, I illustrate by way
 95 of example a top switch finger 50 of angular formation, the same being provided in arm 51 with an elongated slot 52 for adjustment upon a pin 53 on bracket 54 arranged upon
 100 the base 16. A wing nut 54' or similar device, applied to the pin 53, provides means for securing this switch finger in the adjusted position desired. By this arrangement, the top switch finger may be minutely
 105 adjusted, either angularly or vertically with respect to the coin runway.

It is pointed out that the devices of this invention may be used to test metallic tokens and other authoritative pieces which may be
 110 used in place of coins.

It will be obvious that the invention is capable of embodiment in many different constructions. It has been sought herein to illustrate such embodiments as will suffice
 115 to exhibit the character of the invention.

While I have illustrated and described the preferred forms of construction for carrying my invention into effect, these are capable of variation and modification without departing from the spirit of the invention. I, therefore, do not wish to be limited
 120 to the precise details of construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claims.

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Having thus described my invention, what I claim is:

1. A coin testing device comprising a longitudinally projecting downwardly sloping runway down which a coin will travel, the runway being depressible by force of the weight of a coin traveling thereon, and a switch finger arranged in transversely oblique relation to the runway for switching a traveling coin laterally from the runway at a predetermined degree of depression of the runway.

2. A coin testing device comprising a downwardly sloping coin runway down which a coin will travel, said runway being depressible to different degrees according to the weight of the coin traveling thereon; a support supporting the runway and provided with a fine adjustment arranged to accurately adjust the angle of downward slope at which the runway is set; and a switch finger disposed in relation to the runway for switching laterally therefrom a traveling coin that depresses the runway to a predetermined degree.

3. A coin testing device comprising a downwardly sloping coin runway down which a coin will travel, said runway being depressible to different degrees according to the weight of the coin traveling thereon; guides for maintaining the traveling coin on the runway; a support supporting the runway and provided with a fine adjustment arranged to accurately adjust the angle of downward slope at which the runway is set; and a switch finger disposed in relation to the runway for switching laterally therefrom a traveling coin that depresses the runway to a predetermined degree.

4. A coin testing device comprising a depressible runway whose depressible movement is effected by force of the weight of a coin traveling thereon, guides and a switch finger associated with the runway, the guides being arranged to direct the coin to the switch finger, and the switch finger being arranged in transversely oblique relation to the runway to divert laterally therefrom a traveling coin that depresses the runway to a predetermined degree.

5. A coin testing device comprising a runway depressible to different degrees according to the weight of the coin traveling thereon; switch fingers associated with said runway and arranged to divert laterally coins of too light weight and of too heavy weight; said switch fingers being arranged in transversely oblique relation to the runway and being spaced apart vertically sufficiently to permit the passage therebetween of coins of proper weight.

6. A coin testing device comprising a spring depressible to different degrees according to differences in the weights of coins supported thereby; guides for the

coins; lateral switch fingers capable of diverting laterally coins of too light weight and of too heavy weight associated with said guides in transversely oblique relation and spaced apart vertically sufficiently to permit the passage therebetween of coins of proper weight.

7. A coin testing device comprising a spring depressible to different degrees according to differences in the weights of coins supported thereby; guides for the coins; lateral switch fingers capable of diverting laterally coins of too light weight and of too heavy weight associated with said guides and spaced apart sufficiently to permit the passage therebetween of coins of proper weight; and a support supporting said spring and provided with a fine adjustment arranged to accurately adjust the angle at which said spring is set.

8. A coin testing device comprising a support arranged for adjustment on a horizontal axis; a resilient runway mounted to said support and comprising a downwardly sloping device down which a coin will travel, said device being freely depressible to have declination to different positions in response to differences in weights of coins traveling thereon; means for adjusting said support on its axis to accurately adjust the angle of downward slope at which the device is set; and a switch finger disposed in relation to the device for switching laterally therefrom a traveling coin that depresses the device to a predetermined degree.

9. A coin testing device comprising a resilient runway arranged to be freely depressible from set position to have declination to different positions in response to differences in weights of coins traveling thereon; guides for the coins associated with said runway; a switch finger associated with the guides in transverse relation to the runway for engaging and diverting the coins from said runway, and supporting means, other than said runway, for the switch finger.

10. In combination, two coin receiving chutes; a resilient runway for coins arranged in relation to said chutes and adapted to be depressed to different positions in response to differences in weights of coins traveling thereon; and switch fingers arranged to permit coins to pass from said runway into one of said chutes and to divert coins from said runway into the other of said chutes, depending upon the relative position of said runway.

11. In combination, a coin receiving conduit; a resilient runway for coins arranged to discharge into said conduit and adapted to be depressed to different positions in response to differences in weights of coins traveling thereon; a second conduit; and a switch finger arranged to engage and divert coins from said runway into said second

conduit at a predetermined position of said runway.

12. In combination, two coin receiving conduits; a resilient runway for coins arranged to discharge into one of said conduits and adapted to be depressed to different positions in response to differences in weights of coins traveling thereon; switch fingers arranged at different elevations to engage and divert coins from said runway into the second of said conduits; the gap between said switch fingers being sufficient to permit the passage of coins therebetween.

13. A coin testing device comprising an adjustable support; a resilient runway supported by and projecting from said support and freely depressible to different positions in response to differences in weights of coins traveling thereon; guides for the coins associated with said runway; a chute for delivery coins between said guides upon said runway in relation to said support; and a switch finger disposed in relation to the runway for switching laterally therefrom a traveling coin that depresses the runway to a predetermined degree.

14. A coin testing device comprising a depressible runway whose depressible movement is effected by force of the weight of a coin traveling thereon, in combination with a chute, and a switch finger forming a coin guide to said chute arranged to divert a traveling coin laterally from said runway into said chute on the movement of said runway to a predetermined degree of depression.

15. A coin testing device comprising a depressible runway whose depressible movement is effected by force of the weight of a coin traveling thereon; a pair of switch fingers disposed in relation to the runway for switching laterally therefrom traveling coins differing from a predetermined weight that depress the runway to different predetermined degrees of depression, one of the switch fingers being at a location with respect to the runway to switch off coins lighter than a given weight while the other of the switch fingers is at a location with respect to the runway to switch off coins heavier than a given weight.

16. A coin testing device comprising in combination a depressible runway whose depressible movement is effected by force of the weight of a coin traveling thereon; a chute arranged to receive coins from the runway; and two switch fingers at different heights extending in transverse relation to the runway for the purpose of diverting coins to the chute, one of the switch fingers being at a height to divert coins lighter than a given weight while the other is at a height to divert coins heavier than a given weight, with a gap between the switch fingers suf-

ficient to permit the passage therebetween of coins of a given weight.

17. A coin testing device comprising a support, a runway attached to and projecting from said support and having a free end, said runway being depressible by force of the weight of a coin traveling thereon in a direction towards the free end, the length of the runway from the point of its support to the free end being relatively long to provide a relatively long course of travel for the coin to enable the depression of the runway to accurately predetermined degrees of depression by virtue of the weight of different coins differing but little in weight, and means in relation to the free end for switching laterally off the runway a traveling coin that depresses the runway to one of the accurately predetermined degrees of depression.

In testimony whereof, I have signed my name to this specification.

CLIFTON W. NIXON.