June 10, 1952 W. J. SUMMERS 2,599,953

COIN-ACTUATED CONTROL SWITCH

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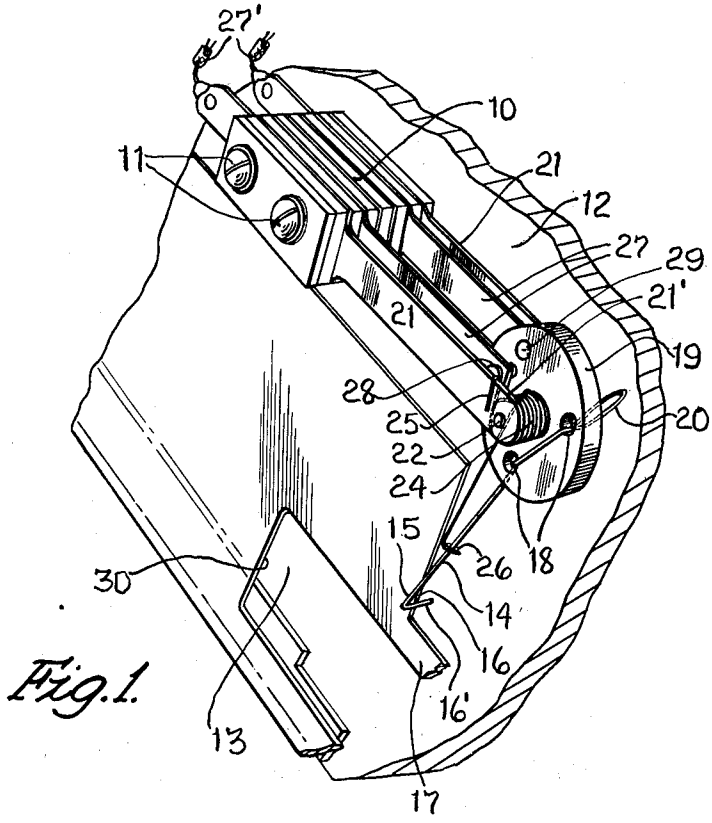


Fig. 1.

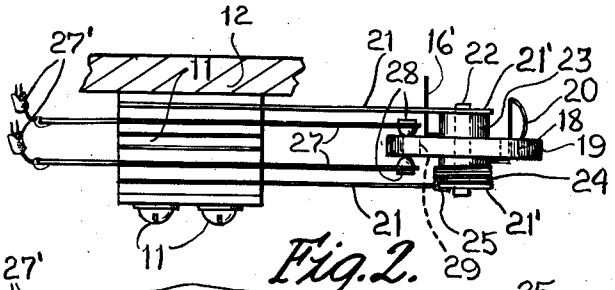


Fig. 2.

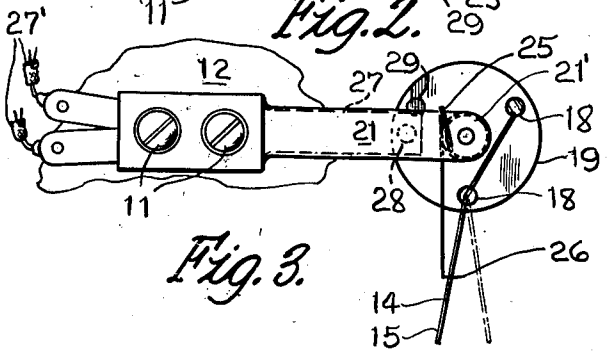


Fig. 3.

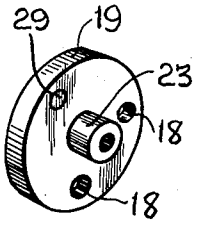


Fig. 4.

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UNITED STATES PATENT OFFICE

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COIN-ACTUATED CONTROL SWITCH

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Application July 23, 1949, Serial No. 106,354

1 Claim. (Cl. 200—52)

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This invention relates to certain new and useful improvements in coin-actuated control switches for electrically operated apparatuses such as, for example, vending machines and coin-controlled amusement devices.

The invention has for its object the provision of an actuating switch of this character which comprises relatively few parts and in which the parts are nicely balanced so as to obtain the best and most efficient operating results.

A further and equally important object of the invention is the provision of a switch of this character and for the purposes herein set forth, which cannot be operated by vibration or shaking of the machine or apparatus with which it is associated. Many switches now used in connection with vending machines or coin-controlled amusement game apparatuses may be actuated by violent shaking or vibration of the apparatus with which the switch is associated, with the result that the machine or apparatus is thereby fraudulently operated without deposit of a proper and required coin.

Another and equally important object of the invention is to provide a switch of this character which embodies contacts having slidable or wiping engagement with respect to each other for circuit completing operation, thereby eliminating or reducing to a minimum arcing between the contacts, the wiping action also serving to maintain the contacts clean and free from dirt and like deposits.

Still another object of the invention is to provide a switch of this character which not only embodies relatively few parts but one which may also be assembled quickly and in the most expeditious manner.

Other objects will appear hereinafter.

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

The invention will be best understood by reference to the accompanying drawings showing the preferred form of construction, and in which:

Fig. 1 is a fragmentary perspective view of a coin selecting apparatus showing my improved control switch associated therewith;

Fig. 2 is a plan view of the control switch;

Fig. 3 is a side elevational view of the same;

Fig. 4 is a perspective view of the contact carrying disk.

It is contemplated that the several objects of my invention be accomplished by the preferred form of construction illustrated in the accompanying drawing.

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In this connection my improved control switch includes a mounting block 10 which is adapted to be secured by means of screws 11 to a mounting panel or wall 12 of a coin selecting apparatus. This coin selecting apparatus is more fully disclosed in an application filed by me on even date hereof, Serial No. 106,353, now Patent No. 2,532,205, November 28, 1950. Such coin selecting apparatus comprises a coin acceptance pathway 13 down which acceptable coins are adapted to gravitate and within which pathway and in the path of the coins, is adapted to be yieldably positioned a finger 14 of the control switch. This finger 14 is formed from a length of wire with its end portion 15 angled to provide an extension 16' extending into the coin pathway 13 and also engaging an edge 16 of the wall 17 of the coin pathway 13 to limit pivotal movement of the finger 14 in one direction.

This finger 14 has its opposite end portions woven through openings 18 of a disk 19. The end of this woven portion of the finger 14 provides a loop 20 to prevent retraction of the woven portion through the opening 18.

The disk 19 is arranged between opposite corresponding end portions 21' of arms 21. These arms 21 are secured to the mounting block 10 by the screws 11.

The disk 19 is rotatably supported between these arms 21 upon a shaft 22 projected through the hub 23 of the disk 19 and the ends of which shaft are journalled in the coresponding end portions 21' of the arms 21.

The disk 19 is rotated in a direction to bear the finger extension 16' against the edge 16 of the wall 17 by means of a coil spring 24 embracing the hub 23 on one side of the disk 19, with one end 25 of the spring hooked to the adjacent arm of the arms 21 and with the opposite end of the coil extending downwardly and hooked as at 26 to the finger 14.

Carried by the mounting block 10 in parallel spaced relation with respect to each other and between the arms 21 are conductor fingers 27. The end of these conductor fingers 27 carry contact heads 28 which are adapted, when the disk 19 is moved to a predetermined position, to engage a contact pin 29 carried by the disk 19 and extending therethrough. In the normal or inoperative position of the disk 19, the conductor pin 29 is disengaged from the contact heads 28.

A coin gravitating down the coin pathway 13 and engaging the angled finger 16' imparts rotation in an anti-clockwise direction to the disk

19 as viewed in Fig. 1. The disk 19 thus being caused to rotate upon the shaft 22, will move the conductor pin 29 into wiping engagement with the contact heads 28, thereby to complete a circuit between the fingers 27.

In this wiping action of the conductor pin 29 with respect to the contact heads 28, arcing is reduced to a minimum. This wiping action serves also to maintain the contact heads 28 clean and free from deposits. It is intended that this conductor pin 29 be formed of such material as will best perform the functions ascribed thereto. It will be apparent that in order for the circuit to be completed by the fingers 27, it is necessary that the conductor pin 29 be in contact with the contact heads 28. Consequently it is impossible for one to fraudulently actuate the switch by means of attaching a proper coin to a string with the intent of feeding the coin down the pathway 13 to a position to rotate the disk 19 to bring the conductor pin into engagement with the contact heads 28. This results from the fact that there is no way for such person to determine how far down the coin must travel in the pathway 13 to cause completion of contact between the conductor pin 29 and the contact heads 28. As pointed out in my copending application, when such an attempt is made to actuate the switch, such coin will be deflected outwardly through an outlet opening 30 formed in the wall 17—this by reason of the fact that the pathway 13 is tilted a predetermined distance with respect to a horizontal line through the mounting panel 12.

As the disk 19 is nicely balanced between its supporting fingers 21, the same will be rotated upon the slightest engagement of the finger extension 16' with a proper coin gravitating down the pathway. This assures a proper operation of the switch to complete the circuit between the fingers 27, to which fingers 27 conductor wires 27' are connected.

The many advantages of my improved control switch are readily apparent from the foregoing description.

While I have illustrated and described the preferred form of construction for carrying my invention into effect, this is capable of variation and modification without departing from the spirit of the invention. I, therefore, do not wish

to be limited 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 claim.

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

A switch of the class described comprising a non-conductive mounting block, a pair of arms carried by and extending from said block in parallel relationship, a shaft carried by the outer ends of and extending between the arms, a non-conductive disc rotatably mounted on said shaft between said arms, a conductor pin carried by and extending transversely through said disc eccentrically with respect to the long axis of the shaft, conductor fingers carried by and extending in parallel relation from said block and between said arms and having their outer end portions disposed on opposite sides of the disc, contact heads on said outer ends of said fingers in confronting relation with the opposite sides of said disc and in the path of travel of said conductor pin, spring means for biasing the disc to a position with the conductor fingers from engagement with the conductor pin, and an actuating member carried by the disc and extending therefrom for rotating said disc against the action of said spring means to bring the conductor pin into engagement with said contact heads when said actuating member is engaged by a moving object.

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