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2,032,454

COIN COLLECTOR

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FIG. 1

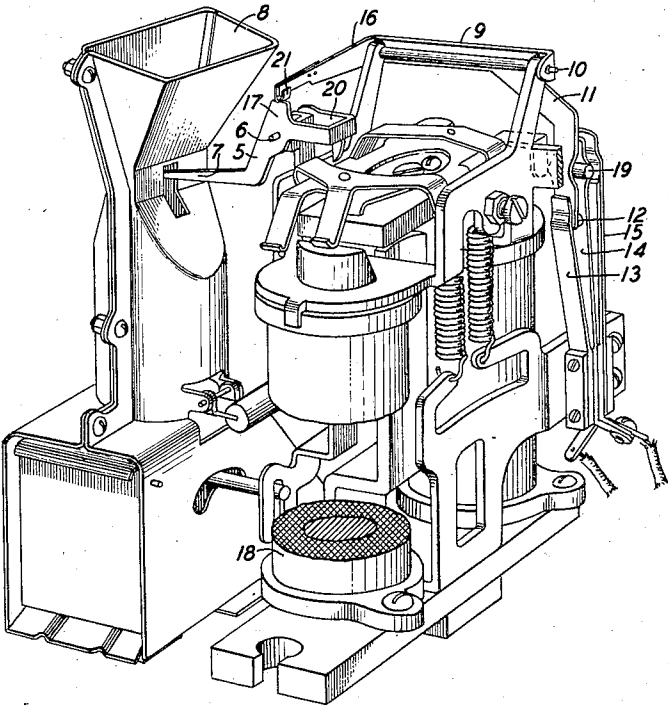


FIG. 2

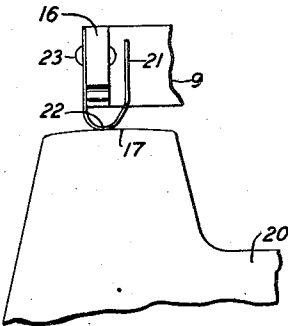
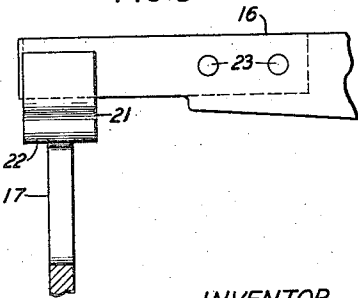


FIG. 3



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COIN COLLECTOR

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4 Claims. (Cl. 194—16)

This invention relates to coin controlled apparatus in which a deposited coin is employed to actuate switching mechanism.

The present invention is particularly adapted for that type of coin collector apparatus employed in telephone pay stations wherein the calling party deposits a coin to actuate switching mechanism for signaling the operator in a manual system or to render the subscriber's equipment operative in a dial system.

An object of the present invention is to increase the sensitiveness of such switching mechanism to actuation by deposited coins, particularly by coins which are under-weight but otherwise standard.

In the preferred embodiment of the invention the switching mechanism is controlled by a spring pressed lever having an arm resting on a shoulder of a pivoted coin trigger which has an extension projecting into a coin chute. The deposit of a coin causes the trigger to be actuated to remove the trip or shoulder supporting the spring pressed lever allowing the lever to close the desired switching contacts. Such an arrangement requires that the force of the falling coin be sufficient to overcome the frictional contact between said shoulder and the lever arm. This invention proposes to reduce the force required to obtain the desired release of the spring pressed lever arm by having the lever arm resiliently supported by the shoulder on the coin trigger in such a manner as to permit a limited movement of the coin trigger before the normal contact of the lever arm on the coin trigger shoulder is shifted. This may be preferably accomplished by terminating the lever arm in a spring member having a bowed portion resting on the shoulder or trip of the coin trigger, for example, by having the bottom portion of a U-shaped spring resting on the shoulder. The resiliency of the spring member will enable the coin trigger to be moved to a limited extent before the contacting area between the trigger and spring is shifted to produce a certain amount of frictional resistance to the coin trigger movement. Such an arrangement reduces the possibility that an under-weight coin such as a thin dime in striking the coin trigger would be unable to move the trigger sufficiently to release the lever arm controlling the switching mechanism.

This invention will be better understood by reference to the following detailed description taken in connection with the accompanying drawing in which:

Fig. 1 discloses one form of the coin trigger

lever of this invention embodied in a telephone coin collector of which only the related parts are shown;

Fig. 2 is an enlarged end view of the coin trigger lever of Fig. 1; and

Fig. 3 is an enlarged side view of the coin trigger lever.

For convenience this invention has been disclosed as embodied in coin collecting apparatus of the type disclosed in the O. F. Forsberg U. S. Patent 1,043,219, patented November 5, 1912. Only the parts of the coin collector related to this invention are shown in Fig. 1 herein and reference may be made to the said Forsberg patent for a more detailed disclosure and description of the complete telephone coin collector.

As disclosed in the Forsberg patent a coin trigger 5 pivoted at the point 6 has an arm 7 extending into a coin chute 8 adapted to be actuated by any deposited coin. Cooperating with trigger 5 is an angular switch operating lever 9 pivoted along axis 10 which has a downwardly extending arm 11 carrying an insulated switch actuating button 12 maintained under tension by a spring 13, said spring tending to cause said button to close contact springs 14, 15 but being normally ineffective to do so since another arm 16 of the same lever is latched by the shoulder 17 of the trigger 5. When a deposited coin strikes trigger arm 7 the movement of the trigger removes shoulder 17 out of the path of lever arm 16 and permits spring 13 to close contacts 14, 15. The closure of these contacts as described in the Forsberg patent may be utilized to signal the central office operator and to place the coin magnet 18 under the control of said operator whereby the deposited coin may be later refunded or collected.

When the operator presses her collect or refund key to energize magnet 18 the actuation of the armature of the magnet causes a pin 19 attached thereto to give a clockwise movement to lever 11 thereby raising arm 16 above shoulder 17 to permit the trigger 5 to resume its normal position under the action of the overbalancing weight of its extension 20. The subsequent deenergization of magnet 18 allows arm 16 to drop on shoulder 17 restoring the apparatus to its original condition as it existed prior to the assumed coin deposit.

It will be evident from the above description that it is quite important that a deposited coin should actuate trigger 5 to a sufficient extent that arm 16 will slide off shoulder 17 and permit the other arm 11 to close contacts 14, 15 to signal the

operator and to render the telephone subscriber's equipment operative. It will be apparent that trigger 5 has a certain frictional resistance against movement particularly because arm 16 is bearing down on shoulder 17 under pressure exerted by spring 13.

In accordance with this invention it is proposed to reduce the force required to obtain the desired release of the spring pressed arm 16 by having arm 16 resiliently supported by shoulder 17 of the coin trigger in such a manner as to permit a limited movement of the coin trigger 5 before the normal contact of the lever arm 16 on shoulder 17 is shifted. This may be accomplished by terminating lever arm 16 in a spring member 21 having a bowed portion 22 resting in shoulder 17. This may take the form of a U-shaped spring having one arm suitably fastened at the point 23 to lever 16, with the bottom portion 22 of the spring resting on the shoulder 17 and the other arm free. The end view of such a spring shown in Fig. 2 is supplemented by the side view of Fig. 3. The resiliency or flexibility of this spring member 21 will enable the coin trigger 5 to be moved to a limited and definite extent and hence acquire a certain momentum before the contacting area between shoulder 17 and spring 21 is shifted to produce a certain amount of frictional resistance to the coin trigger movement. That is, the initial movement of the coin trigger under contact with the deposited coin will merely bend the spring member 21 and will not actually start shifting the lower end 22 of the spring 21 along the upper face of shoulder 17 until the coin trigger has acquired a certain momentum which momentum will aid in overcoming the frictional resistance between the contacting portions of the spring 21 and shoulder 17. The use of such a spring 21 has been found to reduce considerably the possibility that an underweight coin such as a thin dime in striking the trigger 5 will be unable to move the trigger sufficiently to release the lever 9 which controls the switch mechanism.

While one particular embodiment has been chosen for illustrative purposes it is to be understood that equivalent arrangements coming within the terms of the appended claims are also contemplated.

What is claimed is:

1. In a coin actuated device comprising a pivoted member having a finger actuated by the weight of a coin, a movably mounted switch actuating member and flexible means connected to said switch member and contacting with said pivoted member, whereby said switch member is normally supported by said pivoted member, said means being flexible in the direction of movement of said pivoted member.

2. A coin actuated device comprising a pivoted member having a finger actuated by the weight of a coin, a movably mounted switch actuating member and flexible means attached to said switch member and contacting with said pivoted member for permitting relative movement between said members before said flexible means shifts its contacting area on said pivoted member.

3. A coin actuated device comprising a pivoted member having a finger actuated by the weight of a coin, a movably mounted switch actuating member, a trip on said first member and means attached to said second member and normally contacting with said trip for permitting said first member to be moved to a limited extent before said means shifts its point of contact on said trip.

4. A coin actuated device comprising a pivoted member having a finger actuated by the weight of a coin, a movably mounted switch actuating member, a shoulder on said first member and a flexible spring mounted on said second member and normally resting on said shoulder, said spring being flexible in the direction of movement of said pivoted member.

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