Dec. 4, 1945. W. HATTON 2,390,147

DEVICE FOR TESTING COINS

Filed Aug. 13, 1941

FIG. 1.

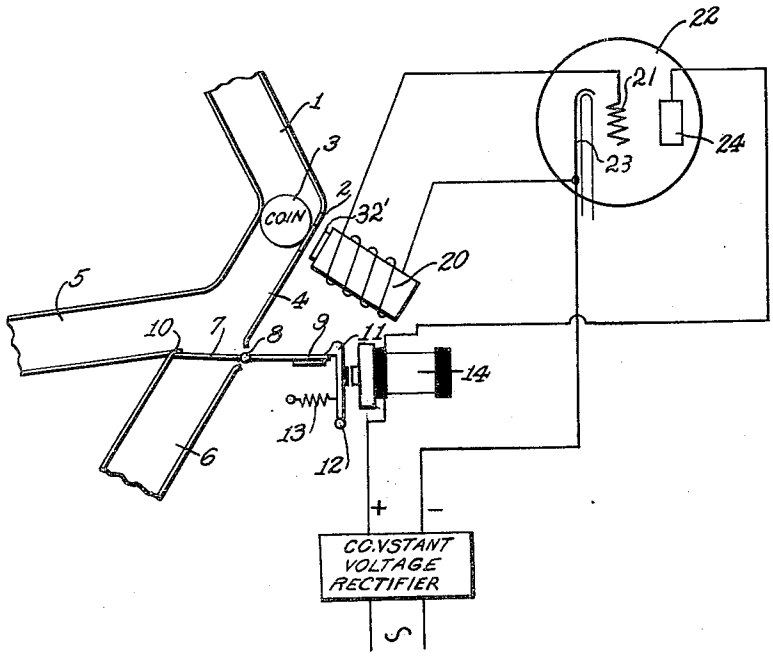
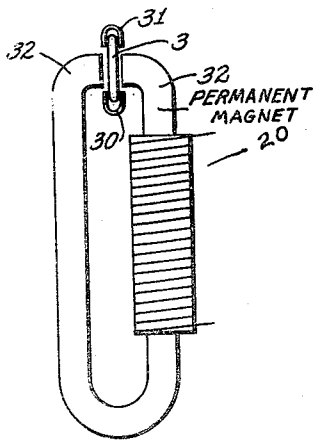


FIG. 2.



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DEVICE FOR TESTING COINS

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2 Claims. (Cl. 194—101)

This invention relates to an arrangement for rejecting coins for use in telephone coin boxes and other coin operated devices.

An object of the invention is the provision of a novel circuit by means of which the sensitivity of magnetic coin rejecting devices is increased.

Magnetic coin rejection devices are known which accept or reject coins in accordance with their magnetic properties. This has been done by means of magnets which either move the coins or are themselves moved by the coin. In the present invention the testing is done indirectly by converting a magnetic effect into an electrical effect and detecting the latter by means of a vacuum tube.

The present invention may be used as part of a coin rejection system in conjunction with one or more of the known arrangements referred to above, and by this means coins may be selected having a range of magnetism within predetermined limits.

Other objects will appear in the following description given with the aid of the accompanying drawing of which—

Fig. 1 is a schematic drawing of the circuits of the invention.

Fig. 2 shows a coin slot and a modified magnetic pick-up device.

Referring to Figure 1, a coin slot 1 is bent at 2 so that coin 3 will be delayed momentarily before dropping with predetermined velocity down chute section 4, which is divided into chutes 5 and 6, the latter being closed by an unbalanced member 7 pivoted at 8 and having an arm 9 somewhat heavier than 7 which tends to hold 7 against stop 10. A latch 11 pivoted at 12 is held by spring 13 in latching position over arm 9. A slow to release magnet 14, when energized is arranged to release arm 9 from the latch. A search coil of a pickup device 20 wound on a permanent magnet 32' located alongside chute 4 has one terminal of its winding connected to grid 21 of tube 22, and its opposite terminal connected to cathode 23 thereof. Anode 24 is connected through the windings of magnet 14 in known manner to the positive terminal of a constant voltage rectifier. The cathode is also connected to a terminal of the constant voltage rectifier. The heating element for the cathode is shown conventionally.

The invention operates as follows: Assume a coin having no magnetic properties is dropped down the chute. The circuit characteristics are such that the passing of the coin through the field of pickup device 20 produces no change in the flux through the windings thereof sufficient to affect grid 21 and thus cause magnet 14 to be operated so the coin will strike member 7 which is held by latch 11 and the coin will pass out chute 5.

If, however, a coin having magnetic properties passes through the field of pickup device 20, a change in the magnet flux would occur, and assuming that the circuit characteristics are such that this change in flux will cause a positive kick to be applied to the grid sufficiently strong to cause a current to flow in the anode circuit, then magnet 14 which is a slow to release magnet will be energized attracting its armature unlatching arm 9 so that when the coin strikes member 7, the latter will turn on its pivot and the coin will drop into chute 6, and thereafter the heavier arm 9 will rotate 7 back against stop 10 and latch itself under latch 11.

Various modifications of the present invention will suggest themselves to those skilled in the art, for example, as shown in Fig. 2, the coin slot may include a section having guides 30 and 31, between which on opposite sides thereof are located the poles 32 of a horseshoe shaped permanent magnet of a pickup device 20 so that the coin passes through a very strong magnetic flux.

By using suitable circuit values, this arrangement may be used to reject non-magnetic coins, the magnetic flux being changed in accordance with the relative conductive qualities of different coins which is used to control the vacuum tube in a manner similar to that described above.

It will be understood that the invention is shown herein in schematic form and details, such as timing the operation of various parts will be carried out according to known practice.

What is claimed is:

1. A coin testing and rejecting device including in combination, a descending coin chute for a coin, said chute having two substantially rectilinear portions joining one another at an angle so that a coin acted on by gravity will be brought to a predetermined velocity at the juncture of said two chute portions, means for establishing a magnetic field directly at said juncture, through which field a coin will pass with said predetermined velocity, irrespective of the weight of said coin, an electrical pickup winding also located within said magnetic field and excited by a change thereof, electronic relay means actuated by said pickup winding, a rejecting valve movable from a coin rejecting to a coin accepting position located in the lower portion of said chute

beyond said juncture point, electromagnetic means controlling said valve and actuated by said electronic relay, and delay means operative to maintain said valve in a coin rejecting position while the coin passes from said magnetic field to said valve by releasing the valve when a coin to be accepted reaches said valve, whereby coins of any peripheral shape are tested under substantially identical velocities.

2. A device according to claim 1, in which said means for establishing a magnetic field comprises a permanent magnet having a magnetic circuit closed except for a relatively narrow slit, slightly wider than the thickness of said chute, said pickup winding being wound over a portion of said magnet, and said chute passed through said narrow slit, whereby the magnetic field and the coin interact with relatively great efficiency.

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