May 6, 1952 D. W. PRICE 2,595,811

ELECTRIC SWITCH FOR GAMES

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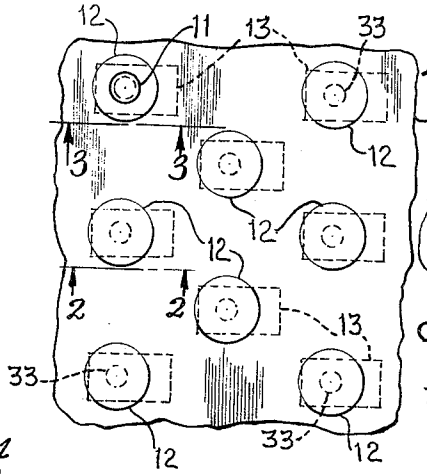


Fig. 1.

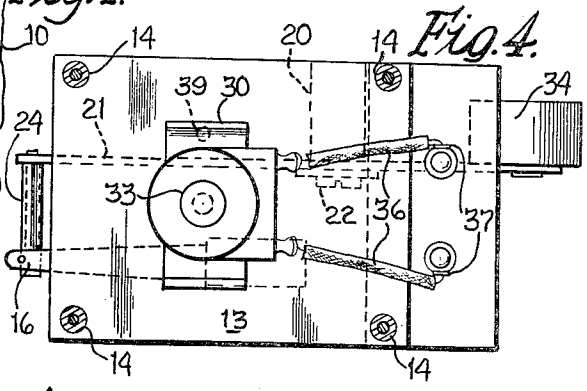


Fig. 4.

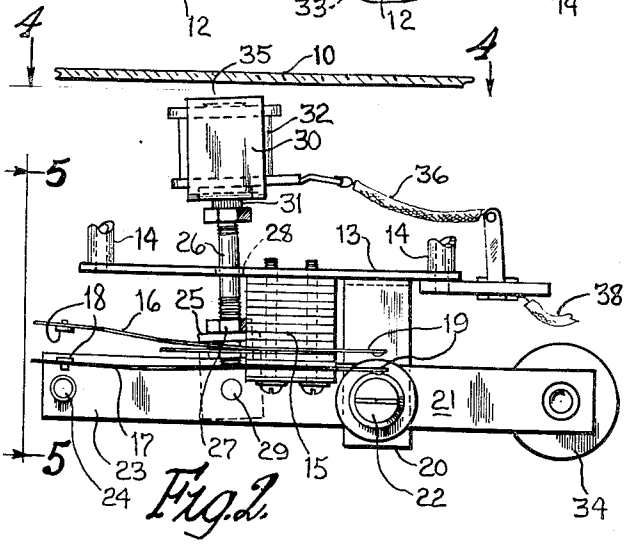


Fig. 2.

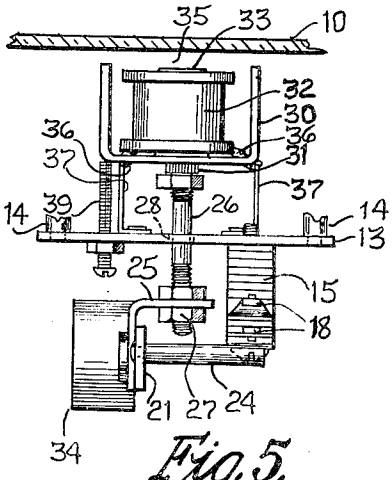


Fig. 5.

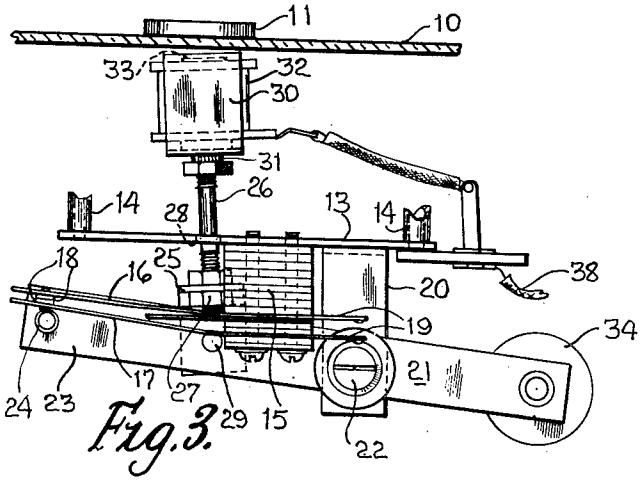


Fig. 3.

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ELECTRIC SWITCH FOR GAMES

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2 Claims. (Cl. 200—52)

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This invention relates to certain new and useful improvements in an electric switch for games especially designed and adapted for use in amusement game apparatuses, such for example, shuffleboards and amusement apparatuses commonly referred to as marble pin ball games.

An object of this invention is to effectuate the closing of a switch whenever the player of the game is successful in striking or engaging a target, of which there may be one or more.

Ancillary to the foregoing is the object of the invention of utilizing the game piece or ball by which the game is played, for effecting the closing of the switch controlling the circuit of the score registering device or mechanism.

Another and equally important object of the invention is the provision of a device of the character hereinafter shown and described, in which there are employed the minimum number of parts, related to one another in a combination such as will permit their operation over long periods of time without mechanical defect or difficulties.

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 plan view of a playboard with which my invention is associated and over which a game playing piece is adapted to be moved;

Fig. 2 is a fragmentary sectional detail view taken substantially on line 2—2 of Fig. 1, showing the parts therein illustrated in their normal inoperative position;

Fig. 3 is a fragmentary sectional detail view similar to Fig. 2, but taken on line 3—3 of Fig. 1, to illustrate the parts therein shown in switch closing position;

Fig. 4 is a plan view taken substantially on line 4—4 of Fig. 2;

Fig. 5 is an end view taken substantially on line 5—5 of Fig. 2.

The several objects of my invention are accomplished by the preferred form of construction shown in the accompanying drawings.

My improved and simplified score actuating device may be employed in games of various types. To illustrate the invention, I have shown the device associated with a playing board 10 of a game apparatus such as is commonly known as a "shuffleboard." Over this playing board 10 are

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adapted to be projected the several pucks used in the playing of the game, one of which pucks being indicated at 11. This playing board 10 may be formed of any suitable material and may be translucent or transparent and have arranged thereon a plurality of markings 12 designating target areas. It is beneath each of these areas that my score actuating device is located. This device will now be briefly described.

This score actuating device comprises a mounting plate 13 adapted to be suspended beneath and in spaced relation with respect to the playing board 10 by suspension bolts 14. Connected to and arranged beneath the plate 13 is a switch block 15 including a pair of flexible switch leaves 16 and 17. These leaves 16 and 17 are provided with contact heads 18 which are adapted to be brought into engagement with each other in a manner presently to be described. Suitable extensions 19 are provided by the switch leaves and to these extensions are connected by solder or the like the conductor wires of the score registering circuit.

An arm 20 is connected to the mounting plate 13 in any suitable manner, such for example by spot welding or the like. This arm 20 extends downwardly from the mounting plate 13 and has pivotally connected thereto an actuating arm 21. This connection is provided through the medium of a pintle 22.

The end 23 of the arm 21 carries an elongated roller 24 of non-conductive material. This roller extends transversely beneath the switch leaf 17 and is adapted to engage the same to flex it to bring the contact head thereof into engagement with the contact head of the switch leaf 16.

The arm 21 provides a lateral extension 25. This extension 25 carries an upstanding stud shaft 26 secured to the extension by a nut assembly 27. This shaft 26 extends upwardly through an opening 28 of a diameter larger than the diameter of the stud shaft 26 so as not to interfere with lateral movement of the stud shaft 26. The extension 25 is pivotally connected to the arm 21 as at 29. The outer end portion of this stud shaft 26 carries a U-shaped bracket 30 and mounted on this bracket 30 in any suitable manner and insulated therefrom, as by means of an insulating sleeve 31, is an electromagnetic coil 32. The core 33 of this coil 32 is mounted beneath and in registration with the target area 12.

The arm 21 is balanced by a weight 34 so as normally to maintain an air gap 35 between the core 33 and the playboard 10.

Flexible conductors 36 connect the ends of the coil 32 to conductor strips 37 by means of which the coil 32 is connected to a power circuit by conductor wires 38. This circuit may be of any approved type, its principal function being to energize the coil 32 when the game is in the progress of being played.

Anticlockwise pivotal movement of the arm 21 as viewed in Figs. 2 and 3 is predetermined by an adjustment screw 39 carried by the mounting plate 13.

I have not illustrated the score registering circuit for the reason that any approved type of circuit now conventional in use may be employed.

When the power circuit to the coil 32 is effective to energize such coil and a puck 11 comes to a stop in a position in the target area, the puck, being formed of magnetically attractable material, such as steel, will, by reason of magnetic attraction between the puck and the core 32, initiate pivotal movement of the arm 21 in a clockwise direction as viewed in Fig. 2. The movement of the arm 21 in this direction will move the non-conductive roller 24 into engagement with the spring leaf 17, flex the same to bear the contact 18 thereof into engagement with the contact head 18 of the leaf 16, whereby to complete the circuit to the score registering mechanism.

By this simple and improved arrangement, I have provided a switch for controlling the score registering circuit of an amusement device by the joint action of a metal playing piece and an electromagnetic coil.

The puck 11 may be a metal ball which, when rolling over the target area 12, will, like the puck, coact with the coil 32 to close the switch of the score registering circuit. Devices constructed in accordance with the foregoing description may be used, as before stated, in game apparatuses of various types and I do not want to be limited to its employment solely in a shuffleboard game.

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 claims.

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

1. A structure of the class described comprising a mounting plate, a supporting arm carried by the plate and extending downwardly therefrom, a switch structure carried by the mounting plate and comprising normally spaced apart switch leaves, an actuating arm pivotally connected to the supporting arm and adapted for clockwise movement about the supporting arm, a member carried at one end of said actuating arm beneath the outer end portion of the switch leaves and adapted to engage one of said leaves to flex the same into contact with the other of the switch leaves upon clockwise movement of said actuating arm, an electromagnetic coil above the mounting plate, and means providing a supporting connection between the coil and the actuating arm, said coil adapted to be moved by attraction of a paramagnetic object in a direction to pivot said arm into switch closing position.

2. A structure of the class described comprising a mounting plate, a supporting arm carried by the plate and extending downwardly therefrom, a switch structure carried by the mounting plate and comprising normally spaced apart switch leaves, an actuating arm pivotally connected to the supporting arm and adapted for clockwise movement about the supporting arm, a member carried at one end of said actuating arm beneath the outer end portion of the switch leaves and adapted to engage one of said leaves to flex the same into contact with the other of the switch leaves upon clockwise movement of said actuating arm, an electromagnetic coil above the mounting plate, means providing a supporting connection between the coil and the actuating arm, said coil adapted to be moved by attraction of a paramagnetic object in a direction to pivot said arm into switch closing position, and a counterweight carried by said actuating arm at its opposite end portion for pivoting said actuating arm in an opposite direction to effect opening of said switch when said coil is unaffected by said paramagnetic object.

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