

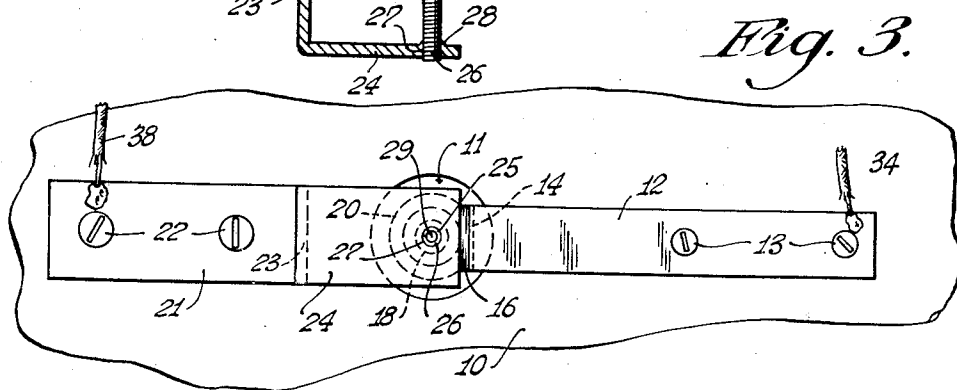
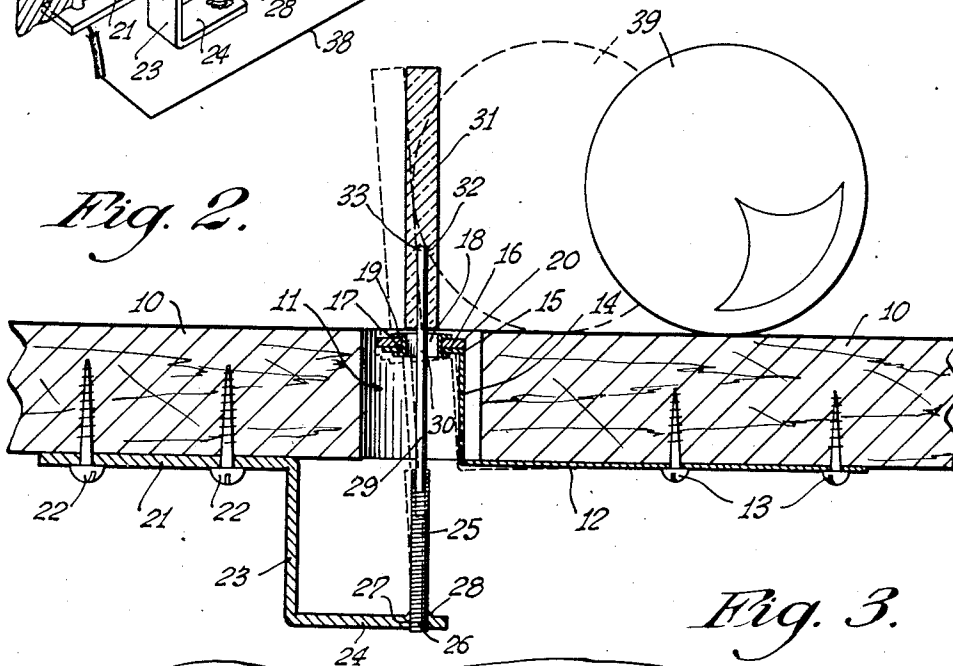
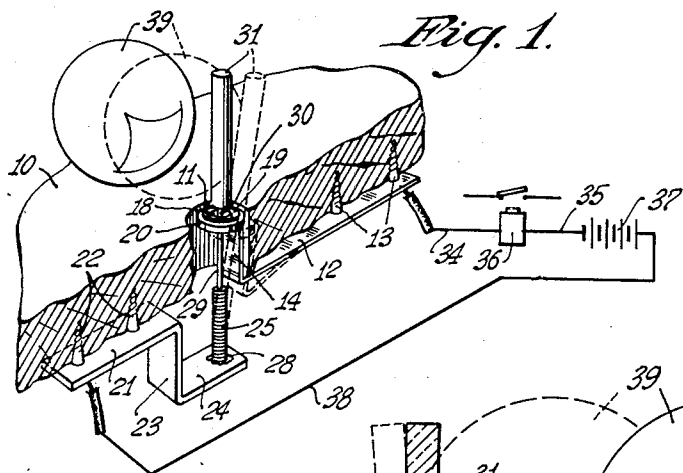
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CONTACT SWITCH FOR BALL ROLLING GAME

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CONTACT SWITCH FOR BALL ROLLING GAMES

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2 Claims. (Cl. 200—52)

This invention relates to certain novel improvements in a combined target and contact switch for ball rolling games and has for its principal object the provision of an improved construction of this character which will be highly efficient in use and economical in manufacture.

One of the several objects of the invention is to provide a combined target and switch such that the target may be approached by a ball from any angular direction with respect thereto to effectuate closing of the switch.

A still further object of the invention is the provision of a combined target and switch which will require the least effort upon the part of a rolling ball to close the switch, thereby reducing the interference with the momentum of the rolling ball to a minimum, as well as protecting the ball from pitching or the like.

A still further object of the invention is the provision of a combined target and switch for ball rolling games in which the switch has the maximum degree of flexibility.

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 drawing showing the preferred form of construction, and in which:

Fig. 1 is a sectional perspective view of the invention;

Fig. 2 is a vertical sectional detail view of the same; and

Fig. 3 is a fragmentary bottom plan view of the same.

Referring more particularly to the drawing in which the preferred form of construction of our invention is illustrated, the game apparatus with which our combined target and switch is adapted to be associated includes the usual inclined board 10 toward the upper end of which balls are projected in a well-known manner for gravitation thereover.

This board 10 includes an opening 11. Secured to the board 10, preferably on the underside thereof, is an elongated supporting strip 12. This strip is secured to the board 10 by means of screws 13 or the like and is preferably formed of leaf spring. The end of the strip 12 opposite the end secured to the board 10 is bent upwardly as at 14 into the opening 11. The extremity of this upwardly bent portion 14 of the strip 12 is then bent horizontally as at 15 to provide an arm 16. This arm 16 has formed therein an opening 17 and positioned through this opening is

a grommet 18. Positioned circumferentially about the grommet 18 and between the top flange 19 thereof and the arm 16, is a washer 20, preferably formed of resilient material so as to be compressed about the grommet 18 as shown.

Secured to the board 10, preferably opposite the strip 12, is a bracket 21. This bracket 21 is secured to the board 10 by means of screws 22 or the like. The bracket 21 has a depending portion 23 terminating into a horizontal portion 24 disposed beneath and in spaced relation to the board 10 in substantial alignment with the opening 11. Carried by this portion 24 is a coil spring 25 secured thereto by projecting an end 26 of the spring through an opening 27 formed in the portion 24 and then soldering the spring 25 to the portion 24 as at 28. Positioned in the upper end portion of this spring 25 is a contact pin 29, the upper end 30 of which projects through the grommet 18. The extremity of this contact pin 30 extends substantially above the board 10 and such extremity has positioned therein in fixed relation with respect to the pin 29 a target 31. This target 31 is provided with a socket 32 receiving the extremity 33 of the pin 29 and is preferably formed of material which will best serve the purpose.

The strip 12 is connected to one side 34 of an electric circuit 35 in which is incorporated an electromagnetic device 36 and a source of electric energy 37. The bracket 21 is connected to the opposite side 38 of the circuit 35.

In operation a ball rolling down the board 10 may engage the target 31. Upon such engagement the spring 25 is caused to flex, bringing the contact pin 30 into engagement with the grommet 18, and as this pin 30 contacts the grommet 18, due to the resiliency of the strip 12 the upstanding portion 14 of the strip 12 will be caused likewise to flex. Upon flexing of this portion 14, it will with cooperation of the spring 25 cause the pin 30 and target 31 to resume their normal vertical position, and at the same time cause the target to rebound the ball, indicated at 39, upon the board 10.

By the construction described, it is manifest that the closing of the contact requires the least effort upon the part of the ball 39 during its gravitation down the board 10; that due to the relationship of the several parts the position between the contact pin 29 and the grommet 18 is readily determined and fixed, thus assuring at all times a perfect contact between the pin 29 and the grommet 18.

In addition, it will be manifest that the above

structure is simple, thereby affording expeditious assembly of the parts during manufacture. It will also be noted that due to the exposure of the grommet 18, should the same become pitted or otherwise corroded so as to interfere with a perfect contact, the same may be readily cleaned. This is also true with respect to the contact pin 29, as it will be noted that this pin, like the grommet, is freely accessible to the attendant.

While we have illustrated and described the preferred form of construction for carrying our invention into effect, this is capable of variation and modification without departing from the spirit of the invention. We, therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail ourselves of such variations and modifications as come within the scope of the appended claims.

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

1. In a ball rolling game having an inclined playboard over which balls are rollable, the combination of a target and switch comprising a flexible supporting strip secured to the underside of the playboard and having a resilient portion extending upwardly into an opening formed in said playboard, said resilient portion of said strip having a horizontally disposed free end portion with an annular contact opening formed therein, a supporting bracket secured to the underside of said playboard and having an offset ledge disposed in axial alignment with the annular contact opening in said strip, a contact element extending vertically through the annular contact

opening, a helical spring means arranged on the lower end of said contact element in axial alignment therewith and connecting the latter to said offset ledge, and ball engaging means at the upper end of said contact element to receive a thrust from a rolling ball, from any angular direction, to flex the helical spring means and urge said contact element into engagement with the horizontally disposed portion of said strip and flex the resilient portion of the latter, prolonging the electrical contact between the contact element and flexible strip.

2. In a target and switch means for a ball rolling game having a horizontal table over which balls are adapted to roll, said target and switch means comprising in combination, an opening formed in said table, an offset bracket suspended from said table, a contact element extending upwardly from said offset bracket through said opening formed in the table, a helical spring means supporting said contact element on said offset bracket for flexing action with respect thereto, and a companion contact member comprising a resilient strip arranged on the underside of the table and having an offset portion disposed in said opening formed in the table, said offset portion having an annular opening formed therein and surrounding said contact element whereby when a ball engages the latter to flex the contact element into contact with said offset portion the offset portion of said resilient strip will yield to prolong the electrical contact between the contact element and the companion contact member.

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