

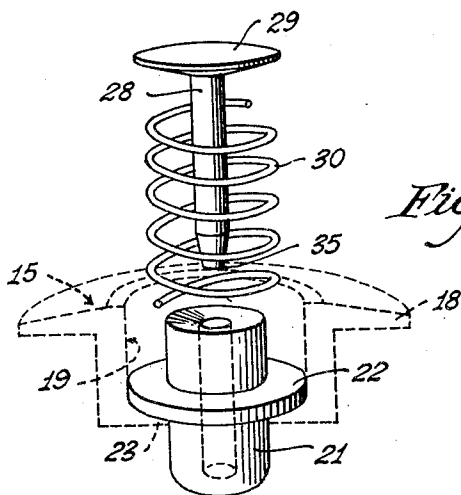
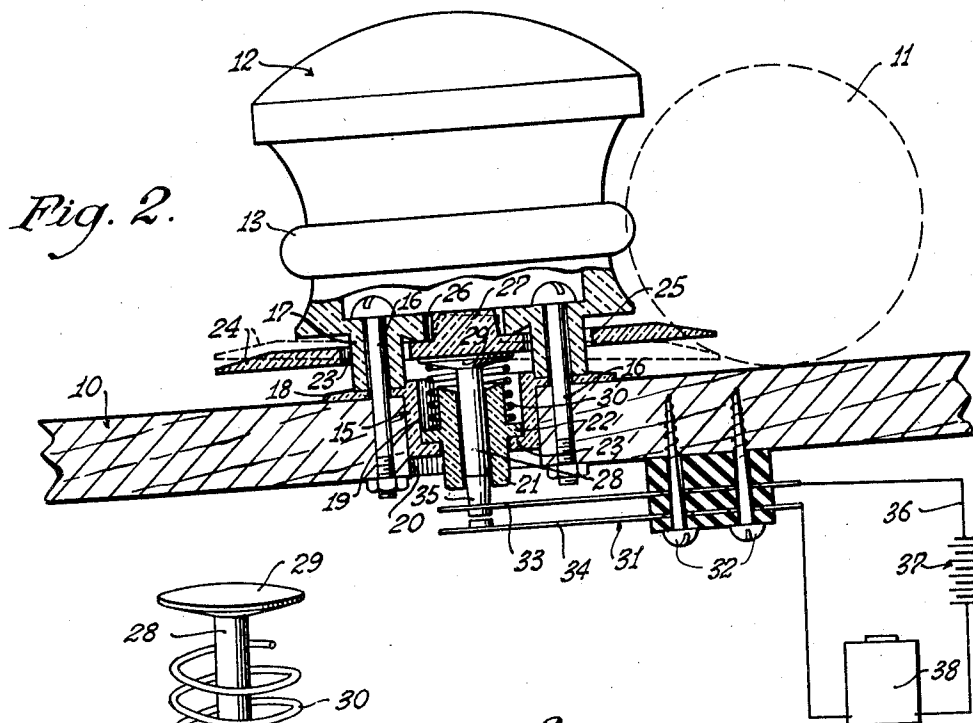
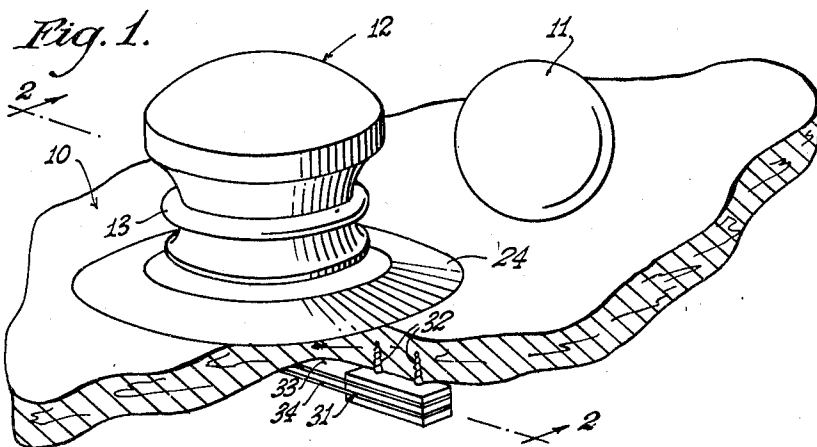
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SWITCH MEANS FOR BALL ROLLING GAMES

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SWITCH MEANS FOR BALL ROLLING GAMES

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2 Claims. (Cl. 200—52)

This invention relates to certain improvements in switch means for ball rolling games and has for its principal object the provision of an improved structure which will be highly efficient in use and economical as well as simple in construction.

Another object of this invention is the provision of a ball obstruction adapted to be affected when engaged by a ball to establish a circuit which will record such engagement.

A further object of this invention is to provide in a bumper for ball rolling games a novel switch operating means which will effect closing of a switch by engagement of a ball against the bumper from any angular direction.

A still further object of this invention is to provide in the table of a ball rolling game a novel mounting plate for carrying a tiltable disc and in which there is arranged means for detecting the tilting operation of the disc to effect closing of a switch.

Other objects and novel aspects of the invention reside in certain details of construction, arrangement of parts and mode of operation thereof, all of which will appear more fully in the specification as the description proceeds in view of the drawing, in which:

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

Fig. 2 is a vertical sectional detail view taken substantially along line 2—2 of Fig. 1 and at substantially increased scale with respect thereto; and

Fig. 3 is an exploded perspective view of certain parts embodied in the invention as illustrated in Fig. 2.

Referring to the drawing, 10 indicates a playboard which is preferably, though not necessarily, arranged substantially inclined with respect to the horizontal. This board 10 is adapted to form a table over which a ball 11 is rollable. Various types of ball obstructions have been employed in various positions on the table, and in the present instance there is illustrated what is known as the bumper type obstruction 12. Associated with such bumper is a resilient ring 13 against which the rolling ball 11 is adapted to engage for rebound back upon the table 10.

The bumper structure 12 is arranged on the playboard 10 through the medium of a base 15 and a pair of bolts 16 arranged through spacer sleeves 17 formed integrally on the underside of the bumper 12 and through a flange portion 18 on the base to affix the base and bumper to the board as shown. The base 15 has a cylindrical

central portion 19 adapted to be inserted in an opening 20 formed in the table 10. Arranged in this cylindrical portion 19 is a sleeve formation 21 having an annular flange 22 adapted to seat on a flange formation 23 extending inwardly from the cylindrical portion 19.

A tiltable disc 24 is arranged between the flange 18 of the base 15 and the lower edge of the bumper 12 and has openings 25 formed therein to permit passage of the spacer sleeves 17 of the bumper. There is an opening 26 formed in the lower edge of the bumper 12 concentrically with respect to the cylindrical portion 19 of the base 15. A guide formation 27 of the tiltable disc 24 extends into the opening 26 for guiding the movement of the disc 24.

Arranged in the sleeve formation 21 is a movable pin 28, and this pin 28 is adapted to move along the vertical axis of the sleeve 21 and has a head portion 29 adapted to engage against the underside of the disc 24. A spring means 30 is normally disposed within the cylindrical portion 19 of the base 15 surrounding the upper portion of the sleeve formation 21, and has its lower portion seated on the annular flange 22 and its upper convolution bearing against the head 29 of the movable pin to urge the latter upward toward the disc 24. The spring 30 likewise urges the disc into a raised position, as shown in Fig. 2, a substantial distance above the top surface of the playboard 10.

The switch structure 31 is mounted on the underside of the playboard 10 by any suitable means such as the screws 32 and has a pair of resilient leaf spring contact elements 33 and 34 normally disposed out of engagement with respect to each other. The switch structure 31 is so positioned beneath the playboard 10 as to dispose the free end portions of the contact elements 33—34 in a position beneath the sleeve formation 21, with the uppermost contact element 33 engaging the lower end 35 of the movable pin 28. The switch 31 is adapted to be connected in a circuit, such as the circuit 36, which includes a source of electrical energy 37 and an electromagnet 38, or any like device, adapted to be energized when the switch contact elements 33—34 engage each other to assume closed circuit condition.

As will be observed in Figs. 1 and 2, the peripheral edge of the disc 24 flares outwardly from the base 15 and bumper 12, so that a rolling ball engaging the bumper from any direction will necessarily engage the peripheral edge of the disc 24 to tilt the disc as seen in Fig. 2. Such tilting

operation of the disc 24 causes its centermost portion to bear down upon the head 29 of the movable pin 28 against the action of the spring 30'. The element 28 will be guided in movement downward along the vertical axis of the sleeve formation 21 so that the lower end portion 35 of the pin 28 will flex the upper contact element 33 into engagement with the other contact element 34, thereby completing circuit through the switch 31 to effect operation of a signal or detector through the medium of an electromagnetic device such as the device 38.

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. In combination, a table, a base having a sleeve formation embedded in the table, a switch

structure comprising a pair of contact elements arranged beneath said sleeve formation, a member on said base and free to tilt in various directions, upon engagement with a rolling object, means arranged in said sleeve for vertical movement, a spring normally urging said means toward said member and adapted to permit said means to engage said switch structure when said member is tilted by a rolling object to effect engagement of said contact elements.

2. In combination, a table over which balls are rollable, switch means mounted on the underside of said table, means forming a base arranged on said table, a ball obstruction mounted on said base and adapted to be struck by a ball, a tiltable disc arranged on said base and having a peripheral edge portion extending beyond said ball obstruction and adapted to be tilted when engaged by a ball, means arranged in said base for vertical movement therein and having an upper portion normally engaging said disc and a lower portion engaging said switch whereby to effect operation of said switch when a ball engages the disc as aforesaid.

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