

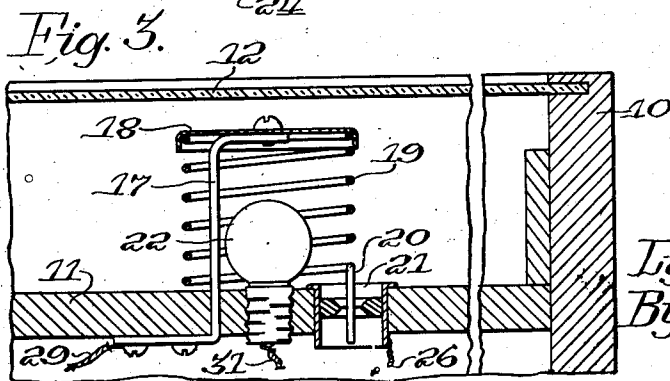
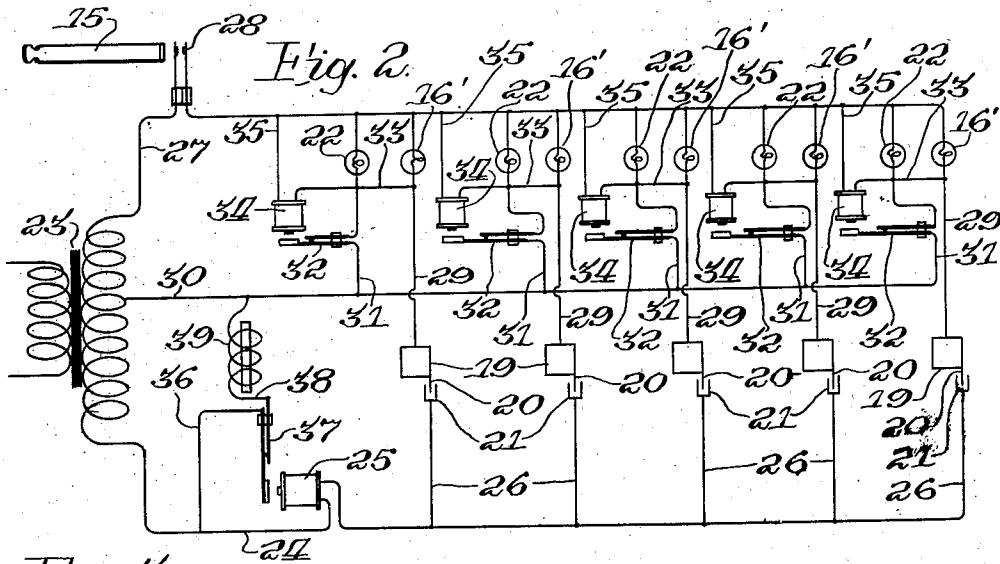
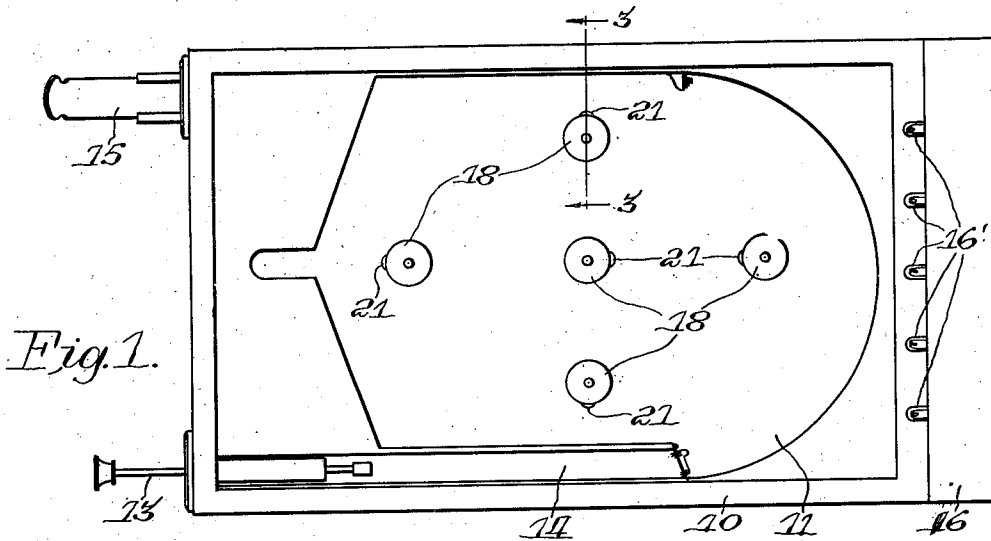
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BALL ROLLING GAME

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BALL ROLLING GAME

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The invention relates to a ball rolling game of the pin ball type, utilizing spring bumper target elements instead of the usual ball receiving pockets or holes formed in the game table.

In the pocket type of game the played ball when seated in a pocket served to designate to the player the particular pocket or target that has been scored. When the bumper is used a momentary electric circuit is closed to operate a score register device, but without careful observance the player has difficulty in keeping in mind which bumper has been hit or bumped by a ball.

It is therefore desirable to provide illuminated, or light up types of bumper spring targets so that a player may more readily follow the play. Still more important is the need for a light associated with such a bumper, which will remain lighted, so that the same designated course of play effect may result as in the pocket types of games. It is also desirable to provide a score or bump counter, for after a light is once lit and remains so a ball may bump the bumper a second time and it is desirable to score or register such additional bumps.

More particularly, therefore, the invention relates to a light up bumper type of ball rolling game in which a light associated with a bumper remains lighted when the bumper is bumped by a ball.

The main object of the invention is to provide an improved bumper type of ball rolling game;

Another object is to provide an improved light up effect operatively associated with the bumper elements;

Still another object is to provide an electromagnetic relay coil in the novel light up bumper circuit to operate each time a bumper element is ball bumped.

Further, it is an object to provide an improved electrical circuit for the new game structure.

Other important objects of the invention will be apparent to those skilled in this art as the disclosure is more fully made.

Briefly, these desirable objects may be achieved in a game having a substantially horizontal table over which balls are rollable, said table carrying one or more spring bumper target elements to be bumped or hit by the rolling balls. When a bumper target is so hit, the bumper target which comprises one side of a contact in an electrical circuit, closes the circuit to light an electric lamp associated with the bumper target. This bumper contact is only momentarily closed but it has sufficed to energize an electromagnetic device which positively closes and holds closed, a branch

circuit to keep the light turned on. Another relay coil may be simultaneously energized to operate a step up mechanism or the like for a score counter to register the number of bumps. Any number of branch circuits may be included in series for additional bumpers used in a game, all of which function in the same manner.

A practicable form of the invention is shown, by way of example, in the accompanying sheet of drawings, wherein:

Figure 1 is a general plan view of the improved ball rolling game;

Figure 2 is a wiring diagram; and,

Figure 3 is an enlarged sectional view through a bumper target and light assembly, taken along the line 3—3 of Figure 1, looking in the indicated direction.

The game may comprise a conventional cabinet 10, carrying the usual table 11, sloped slightly from the horizontal so that balls may roll gravitationally thereover. A glass panel 12 closes the top of the cabinet. A ball shooting plunger 13 provides operator controlled means to propel balls one at a time, in the well known manner, through a passageway 14, onto the table. A coin release slide 15 frees the game for play in a manner well understood in this art. The rear end of the cabinet carries an upright backboard extension 16, mounting a number of score indicating electric lamps 16'. Five are herein shown for the sake of illustration.

Mounted on the table are a number of spring bumper target contact elements. Five of these also are shown all of which as appears in Figure 3 comprising a support 17, mounting a cap 18, from which is pendantly hung a coil spring 19, having a depending leg 20. The leg is passed into a complementary contact embedded in the table 11, said contact comprising a conductor ferrule 21. Located on the table, within each spring 19 is an electric lamp bulb 22.

The improved circuit includes a transformer 23, as shown in Figure 2, from one side of which leads a wire 24, including an electromagnet coil 25, and in series relation with each contact 21 from wire 24, are tap wires 26. From the opposite side of the transformer 23 is led a wire 27 including a master, spring blade switch 28, and from the wire 27 are lead tap wires 29 leading respectively to each spring bumper contact element 19. The lamps 16' are respectively included in the wires 29.

Out of the transformer is led another main wire 30, and from said wire 30 are respective leads 31 going to the wire 27, each lead 31 includ-

ing a lamp 22 and a spring blade switch 32. From each lead 29 is led a wire 33 connected to adjacent wire 31 and to an electromagnet 34, each magnet 34 being connected by a tap 35 to the wire 27, as shown. There is thus set up a series circuit for each of the five target bumpers 19.

A wire 36 leads from wire 24 to one side of a spring blade switch 37, the other side of the switch being connected to a wire 38 including an electromagnetic coil such as the solenoid 39, with the wire 38 being connected to the wire 30, as shown.

In operation the coin slide 15 is pushed into the cabinet 10 to release the game for play and close the master switch 28 which will, of course, be suitably held closed until the termination of play. When a ball projected onto the board or table 11 now gravitates thereover it may, if skillfully projected, hit or bump a bumper contact spring 13, whereupon the contacts 20, 21 engage and close the circuit 24, 26, 29, and 27. This turns on the corresponding light 16' on the back-board 16. At the same time, the electromagnet 25 is energized to close switch 37, thereby energizing the solenoid 39 to cause it to operate a step up device not shown to register scores, or for an analogous purpose. Also by means of wires 33, 35 the electromagnet 34 is energized to close the switch 32 and consequently a circuit 30, 21, 27 is closed to light lamp 22.

This auxiliary circuit for lamp 22 and by means of wire 33 and 29 for lamp 16' remains closed even after the bumper contacts 20, 21 open, and as a result the lamps 22, 16' remain lighted. The instant the bumper contacts 20, 21 open, the circuit to the magnet 25 is dead and the step up solenoid 39 is deenergized. Obviously, all of the series circuits for the lamps from the respective bumpers operate alike, and any bumper causes the step up device circuit to be operative. When the master switch 28 is finally opened all circuits for the lamps are opened, as will be obvious.

There has thus been provided a simple, effective well balanced circuit arrangement for keeping a bumper designating light turned on and simultaneously operating an auxiliary relay for scoring or other purposes, the latter relay being capable of repeat operations even when a bumper circuit is holding the corresponding light turned on, all as stated in the objects heretofore recited.

It is the intention to cover all changes and modifications not departing from the spirit and scope of the invention, as hereinafter claimed.

What is claimed is:

1. In a game comprising a table over which balls are rollable, a switch including a cylindrically coiled, spring bumper member vertically disposed on the table and closable when the member is ball bumped to establish an electric circuit included in the game, a lamp in the circuit lighted when the switch is so closed, means to keep the lamp lighted throughout the playing of the game even after the switch is opened, and an electromagnetic device included in the circuit and energized every time the switch is closed.

2. In a game comprising a table over which balls are rollable, a switch including a cylindrically coiled, spring bumper member vertically disposed on the table and closable when the member is ball bumped to establish an electric circuit included in the game, a lamp in the circuit lighted

when the switch is so closed and positioned on the vertical axis of the bumper switch, and means to keep the lamp lighted throughout the playing of the game even after the switch has opened.

3. In a ball rolling game, a table over which balls are rollable, said table carrying a plurality of vertically disposed coil spring bumper members serving to contact stationary contacts on the table when bumped by a ball to close an electric circuit included in the game, said members and contacts respectively forming normally open switches disposed in circuit with lamps respectively associated with the members, said lamps being lighted when their respective associated member is ball bumped, means included in the circuit to keep the corresponding lamp lighted after the switch therefor opens throughout the playing of the game, and an auxiliary circuit including an electromagnetic coil operable each time a bumper member is bumped and the corresponding switch is closed.

4. In a ball rolling game, a table over which a ball is rollable, a circuit included in the game, bumper contacts in the circuit and located on the table to be closed by a ball bumping same, lamps in the circuit included in the game respectively to designate the contacts and to light when a corresponding bumper contact is bumped, an electromagnetic device in the circuit operable every time a bumper contact is closed, and holding means respectively provided in the circuit for each lamp to keep same lighted when once lighted by a bumper contact throughout the playing of the game even after the bumper contacts which served to light the lamps are subsequently open.

5. For a ball rolling game comprising a substantially horizontally disposed table over which balls are rollable, said table including an electric circuit in which is disposed a plurality of normally open switches embodying a cylindrically coiled spring bumper member positioned on and above the table about an axis normal to the table, said switches being momentarily closable to establish the circuit when a ball rolling on the table bumps any of the bumper members thereof, electric lamps supported respectively in a manner to be protected from a rolling ball by the coiled spring bumper members, each lamp corresponding with a switch and located in the circuit in such manner that when a switch is closed the corresponding lamp will light; an auxiliary circuit including means to keep a lighted lamp burning throughout the playing of the game even after the switches therefor open, and a relay coil included in the first circuit energizable every time a switch is closed.

6. For a game having a substantially horizontal table over which a ball is rollable, an upright back board extension for the table carrying an electric lamp, an electric circuit including the lamp, a switch embodying a cylindrically coiled spring bumper member carried by and over the table, a second lamp in the circuit with the first lamp and located proximate the bumper member to illuminate and so designate same, said switch closing momentarily when the member is ball bumped to light both lamps; an auxiliary circuit including means to keep the lamps lighted throughout the playing of the game even after the first circuit is opened by the switch.

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