Oct. 22, 1940. D. E. HOOKER 2,218,968

BUMPER OBSTACLE FOR BALL ROLLING GAMES

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Fig. 1.

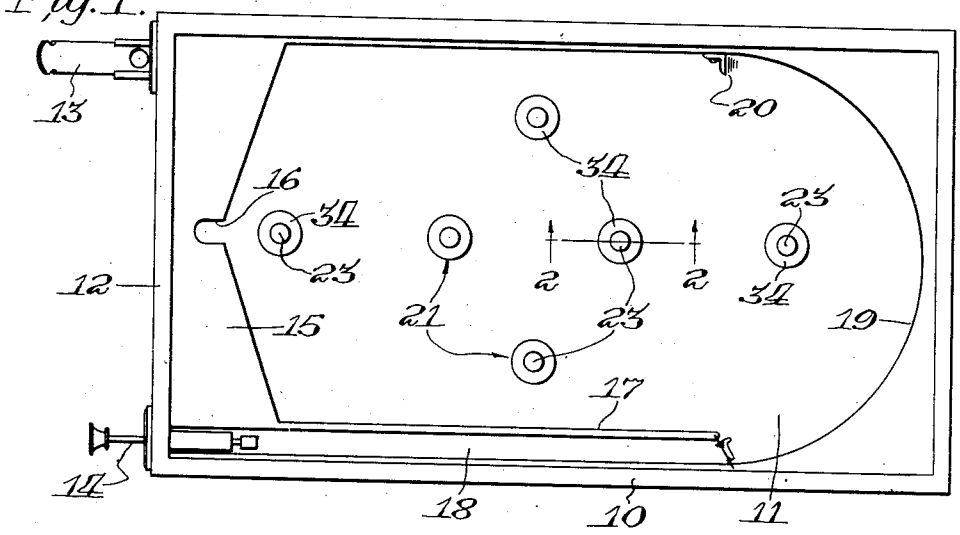


Fig. 2.

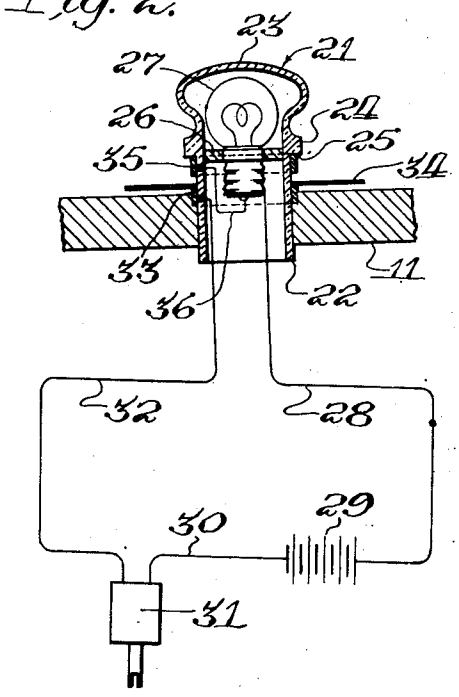
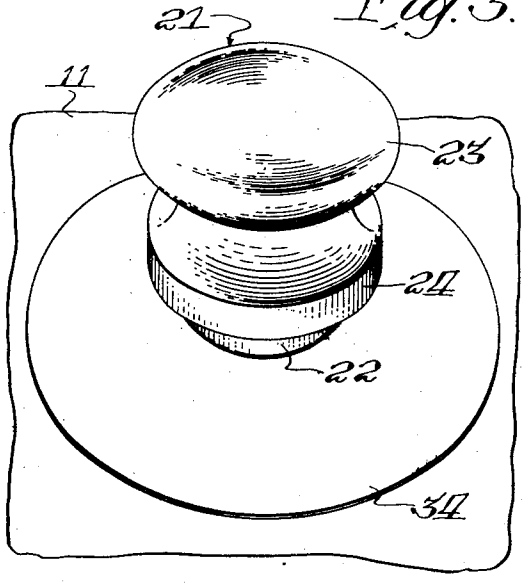


Fig. 3.



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BUMPER OBSTACLE FOR BALL ROLLING GAMES

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6 Claims. (Cl. 200—52)

The invention relates to an improved bumper contact switch obstacle for use with ball rolling games.

These games usually comprise a cabinet containing a table sloped slightly from the horizontal so that a ball propelled to the high end thereof may gravitationally roll over the surface of the table to the low end thereof. In scattered relation, as desired, said surface is provided with obstacles to be engaged by the rolling ball, for scoring purposes. Sometimes these obstacles comprise normally open contact switches disposed in an electrical circuit with an electromagnetic device to operate a score counter or indicator when a ball engages and closes the switch. It is to the latter type of switch obstacle that the present invention particularly appertains.

The primary object of the invention is to provide an improved obstacle for ball rolling games.

Another object is to provide an improved obstacle of the bumper contact switch type.

Still another object is to provide an obstacle of the kind stated, embodying improved circuit closing means.

It is also an object to provide such an obstacle which can be illuminated.

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

These desirable objects may be attained in a ball rolling game of the pin ball type by providing obstacles on the game table, each of hollow, ornamental form and preferably made of translucent, non-conductor material so that an electric lamp may be carried inside the same in an effective manner. The obstacle includes a sleeve part fitted into a hole in the table and has an upper ornamental top portion in an exposed position above the table. Said sleeve part carries, at a level slightly above the table, a lower conductor ring in circuit with a source of electrical energy. Above said ring and spaced therefrom, is a similar upper conductor ring also in said circuit. A lamp is in the same circuit and is suitably supported within the obstacle member. Lying loosely on the lower conductor ring by gravity is a relatively large disk made of conductor material and so positioned over the table that when a rolling ball engages and rolls onto the edge of the said disk, it is caused to be tipped so that a portion thereof will engage the upper ring. Thus the disk ring acts as a conductor connector between the lower and upper rings momentarily to close the circuit, whereby to illuminate the lamp within the obstacle and also to energize an electromagnetic device disposed in said circuit for operating a scoring means.

In the accompanying sheet of drawings illustrating a practicable example of the invention:

Figure 1 is a general plan view of a ball rolling game, showing the improved obstacle members positioned thereon;

Figure 2 is a general, central sectional view on an enlarged scale, through one of the obstacle members, taken along line 2—2 of Figure 1 and looking in the indicated direction, said view also including a typical wiring diagram; and,

Figure 3 is a general, enlarged, perspective view to illustrate the general structure and ornamental appearance of the improved obstacle.

For the sake of illustration, a pin ball type of game is shown in Figure 1, having a cabinet 10, carrying a table 11 which is sloped slightly from the horizontal with its lower end adjacent the front wall 12 of the cabinet. Said front wall carries the usual coin release slide 13 and a ball projector 14. The low end of the table 11 carries a plate 15 having slanting edges to cause a spent ball rolling down the table to come to rest in the usual "out" pocket 16. The piece 15 includes an elongated extension wall 17 providing a ball projection passageway 18 and the upper end of the table 11 carries an arch plate presenting a ball guide edge 19 so that a ball sent by the projector 14 through the passageway 18 will roll along the edge 19 and engage a rebound stop member 20. From the member 20 the ball rebounds and then gravitationally rolls down the table to the low end thereof and finally into the pocket 16, all in a manner well known in this art.

As the ball rolls down the table it should, if skillfully projected, engage one or more scoring obstacles placed in scattered relation over the surface of the table. Such obstacles which form the subject matter of this invention are generally shown at 21 in Figure 1 and since they are all alike, one thereof is shown specifically in Figures 2 and 3 and will now be described in detail.

Each obstacle comprises preferably an integral member having a tubular sleeve portion 22 and a head portion 23 of enlarged size with an annular flange 24 separating these portions to provide an annular shoulder 25. The member described is hollow and preferably made of a non-conductor, molded plastic material having the characteristic of translucence. This member has its sleeve portion 22 fitted down into an opening formed in the table 11 to mount same in a generally up-

right position as shown in Figure 2. The reason for using translucent material is that the member has fitted thereinto a support 26 for mounting an electric lamp 27 connected by a wire 28 with a source of electrical energy 29.

A wire 30 leads from the source 29 to one side of an electromagnetic device 31 used when energized to operate a suitable scoring means not shown. From the device 31 a wire 32 is led to the inside of the sleeve 22, thence through the sleeve and into metallic contact with a lower conductor ring 33 tightly encircling the sleeve 22 at about the top surface of the table 11, the upper edge of said ring being disposed at a level slightly above said table surface as shown in Figure 2. Resting gravitationally and loosely on said ring 33 is a thin, flexible, enlarged circular conductor disk 34 positioned at such slight level above the table surface that a rolling ball hitting same may roll onto its periphery and bump the head 23, at the same time tipping or upwardly cocking the opposite side of the disk momentarily.

Spaced a suitable distance above the normal position of rest on the ring 33 of the disk 34 is an upper conductor ring 35 held suitably in position against the shoulder 25 and surrounding the sleeve portion 22 of the bumper member 21. A wire 36 is in metallic conductor contact with said upper ring 35 and with the lamp 27 as clearly shown in Figure 2. This completes the description of the details of construction involved.

In use, one or more of the bumper assemblies 21 is positioned on the table. By gravity the conductor disk 34 rests on the lower ring 33 out of contact with the upper ring 35. In such position of the disk 34 the circuit disclosed is open and the lamp and device 31 are deenergized. When a ball rolling on the table 11 engages and rolls onto the edge of the disk 34, the weight of the ball causes said disk 34 to tip or cock so that one point thereof at least will engage the upper ring 35 and metallically, conductorwise, bridge the space or gap between the rings 33 and 35 to cause current momentarily to flow, whereupon the lamp 27 is lighted and the device 31 becomes energized and operative for the desired purposes.

It can now be seen that an improved bumper type of obstacle switch has been provided in accordance with the objects of the invention heretofore recited.

The intention is to cover all changes and modifications not departing from the spirit and scope of the invention as defined in the appended claims.

What is claimed is:

1. For a ball rolling game having a substantially horizontal table, an obstacle positioned thereon including an upright portion of non-conductor material, spaced lower and upper stationary conductor members disposed circumferentially of the said upright portion in proximity to the top surface of the table and disposed in an electrical circuit, and a loosely positioned conductor element disposed between said members and normally resting on the lower one thereof but adapted to cock or tip into contact with the upper member when a ball on the table engages a part thereof whereby to close said circuit.

2. For a ball rolling game having a substantially horizontal table, an obstacle positioned thereon including an upright portion of non-conductor material, spaced lower and upper stationary conductor rings embracing the portion and disposed in an electrical circuit, and a conductor disk having a greater diameter than the rings and positioned between said rings for movement to a position connecting the rings to close the circuit when a rolling ball on the table engages said conductor disk.

3. For a ball rolling game having a substantially horizontal table, an obstacle positioned thereon including an upright sleeve portion of non-conductor material, spaced lower and upper stationary conductor elements positioned in fixed relation to the sleeve portion and about the latter and disposed in an electrical circuit, and a conductor disk positioned between said conductor elements for movement to a position connecting the conductor elements to close the circuit when a rolling ball on the table engages said disk.

4. For a ball rolling game having a substantially horizontal table, an obstacle positioned thereon including an upright sleeve portion of non-conductor material, spaced lower and upper stationary conductor elements positioned in fixed relation about the sleeve portion and disposed in an electrical circuit, and a conductor disk of thin flexible material positioned between said conductor elements for movement to a position connecting the conductor elements to close the circuit when a rolling ball on the table engages said disk, said disk being positionable at such slight level above the table as to enable the ball to roll thereonto.

5. For a ball rolling game having a substantially horizontal table, an obstacle positioned thereon including an upright portion of non-conductor material, spaced lower and upper stationary conductor members positioned around the portion and disposed in an electrical circuit, and a loosely positioned conductor element disposed between said members and normally resting on the lower one thereof but adapted to cock or tip into contact with the upper member when a ball on the table engages a part thereof whereby to close said circuit, said element comprising a disk of thin, flexible metal.

6. For a ball rolling game having a substantially horizontal table providing a surface over which a ball is rollable, a ball operated circuit closer for a normally open electric circuit included in the game, said closer comprising a pair of separate conductor rings positioned in fixed relation over the table and held spaced apart vertically, said rings being connected in the circuit, and a substantially horizontal conductor disk carried between said rings above the table in a position to be engaged by a rolling ball to cause the disk to be tipped and cross connect the rings to close the circuit.

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