Nov. 11, 1941. T. F. KOLTS 2,262,241

GAME APPARATUS

Filed Jan. 11, 1940

Fig. 1.

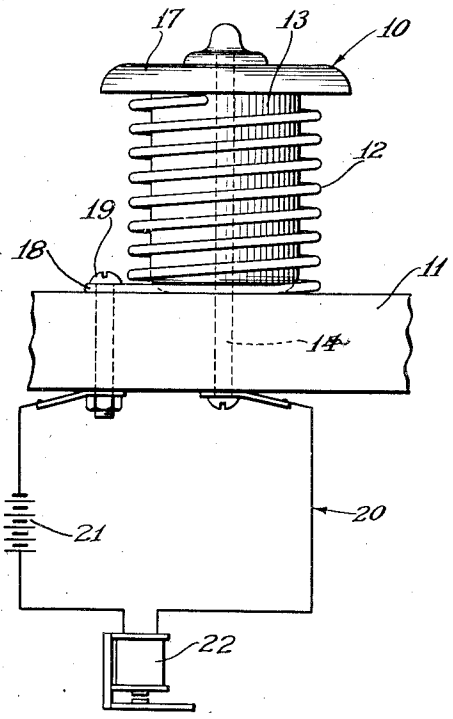


Fig. 2.

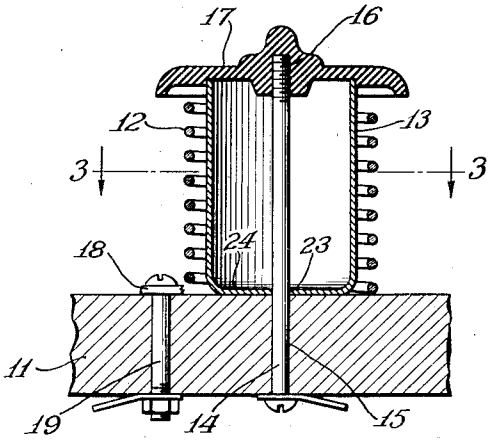


Fig. 3.

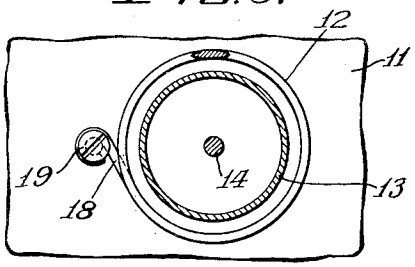


Fig. 4.

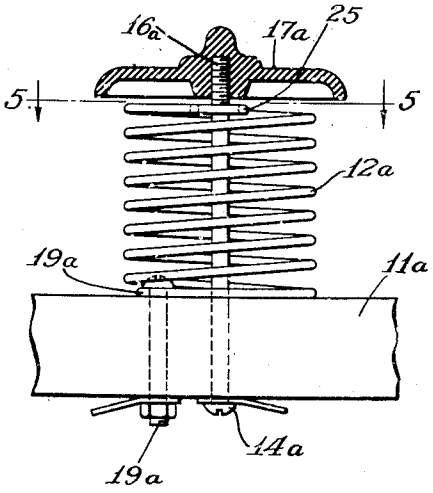
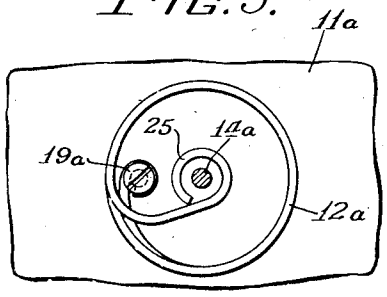


Fig. 5.



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UNITED STATES PATENT OFFICE

2,262,241

GAME APPARATUS

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Application January 11, 1940, Serial No. 313,365

2 Claims. (Cl. 200—52)

This invention relates to game apparatus and particularly to game apparatus of the so-called pin and marble game type.

In game apparatus of the character referred to above, it is quite common, at the present time, to employ a number of so-called spring bumpers which are swingingly or pendantly mounted at preselected points upon the ball-playing or upper surface of the inclined playing board of the game apparatus so that a ball traveling thereover may engage one or more of these so-called spring bumpers which, in turn, by its movement may engage a second member or contact so as to energize circuit to a relay or relays for the purpose of operating a score-registering device or other game instrumentality which may be associated with or embodied in the game apparatus.

A spring bumper of the character referred to above is disclosed in the Nelson patent, No. 2,109,678, dated March 1, 1938, and to which reference may be had for a more detailed disclosure of the function and purpose of a so-called spring bumper of the character referred to above.

An object of the present invention is to provide a so-called spring bumper which, while accomplishing the same general objects and purposes of the spring bumper which forms the subject matter of the aforesaid Nelson patent, No. 2,109,678, embodies a different construction for so doing and does so in a somewhat different manner.

Other and further objects of the present invention will be apparent from the following description and claims and are illustrated in the accompanying drawing which, by way of illustration, shows a preferred embodiment and the principle thereof and what I now consider to be the best mode in which I have contemplated applying that principle. Other embodiments of the invention embodying the same or equivalent principle may be used and structural changes may be made as desired by those skilled in the art without departing from the present invention and the purview of the appended claims.

In the drawing,

Fig. 1 is an elevational view of a so-called spring bumper embodying the present invention, this view also illustrating diagrammatically a typical circuit in which the spring bumper may be incorporated;

Fig. 2 is a central vertical sectional view of the spring bumper construction which is illustrated in Fig. 1;

Fig. 3 is a transverse sectional view thereof on line 3—3 in Fig. 2;

Fig. 4 is a view, partly in section and partly in side elevation, illustrating a modified form of construction of the present invention; and

Fig. 5 is a view on line 5—5 in Fig. 4, partly in section and partly in top plan.

A preferred form of the new so-called spring bumper construction is illustrated in Figs. 1 to 3, inclusive, of the drawing, wherein it is generally indicated at 10, and is shown as being mounted upon the upper or ball-playing surface of the inclined playing board 11 of a so-called pin and marble game apparatus, only part of which is illustrated in the drawing.

The new spring bumper construction 10 includes a coil spring 12 which is arranged around, but is normally spaced from, a small metallic cylinder 13 which is mounted in upright position on the board 11; the cylinder 13 being made of any suitable metal and being preferably coated on the outer surface thereof with silver to prevent arcing, as will be referred to again hereinafter.

The metal cylinder 13 is secured in position of use upon the board 11 by means of an electrically conductive fastening element in the form of a metal bolt or binding post 14 which extends upwardly through an opening 15 which is formed in the board 11. The bolt 14 extends centrally upwardly through an opening 23 which is formed in the bottom wall 24 of the cylinder 13 and this bolt 14 has a threaded upper end portion 16 on which an ornamental member or cap 17 is mounted. The member is preferably formed of a brightly colored resinous material so as to form an ornamental cover or cap for the metal cylinder 13 and the coil spring 12, as shown.

The lowermost or bottom convolution 18 of the coil spring 12 is secured to the upper end portion of a binding post or screw 19 which is mounted in the board 11, and the binding post or bolt 14 and the binding post 19, together with the coil spring 12 and the metal cylinder 13, are all arranged in an electrical circuit 20 which includes a source of energy 21 and a relay or other analogous device 22 which may operate a score-registering device or other game instrumentality which may be associated with or embodied in the game apparatus which includes the inclined playing board 11 but which is not shown. It is to be noted, in this connection, that the bolt 14 is in electrical contact with the metal cylinder 13 where it passes through the aperture 23 in the bottom wall 24 of the metal cylinder 13.

In the use of the new spring bumper construction which is illustrated in Figs. 1 to 3, inclusive,

if a ball traveling over the upper or ball-playing surface of the inclined playing board 11 engages the coil spring 12 it will cause the latter to flex, from the lower end portion 18 thereof, inwardly, that is, radially inwardly, and engage the wall of the metal cylinder 13, thereby completing the circuit 20 so as to energize the relay or other device 22 and thus actuate the score-registering device or other game instrumentality associated therewith or controlled thereby. It will be noted, in this connection, that arcing at the point of contact between the coil spring 12 and the metal cylinder 13 may be prevented by silvering the outer surface of the metal cylinder 13.

It will be noted, in this connection, that the coil spring 12 is fastened, that is to say, is mounted in position of use at, and flexes from, its lower end, rather than being pendantly mounted from the ornamental cap 17, as in the Nelson patent, referred to above, and that in the present invention the cap 17 is purely ornamental and in no way pendantly or otherwise supports or suspends the coil spring 12 as in the construction which forms the subject matter of the Nelson patent referred to.

A modified form of the present invention is illustrated in Figs. 4 and 5 of the drawing and in this form of construction parts which correspond, in general, to similar parts in the form of the invention which is illustrated in Figs. 1 to 3, inclusive, are given the same reference numerals followed by the letter *a*.

The modified form of construction which is illustrated in Figs. 4 and 5 is, in general, similar to the form of construction which is illustrated in Figs. 1 to 3, inclusive, but differs therefrom by omitting the metal cylinder 13 and forming the uppermost convolution of the coil spring 12*a* in a relatively small loop 25 which is adapted to engage or contact the central binding post or bolt 14*a* so as to complete a circuit, such as 21, when a ball traveling over the upper or ball-playing surface of the inclined playing board 11*a* engages the coil spring 12*a*, causing the latter to flex from the lower end 19*a* thereof, into contact with the fastening element or binding post 14*a*.

It will be noted, in this connection, that in order to facilitate flexing of the coil spring 12*a* and contact of the latter with the binding post 14*a*, the lowermost convolution 19*a* of the latter is mounted radially within the periphery of the coil spring (Fig. 4) rather than radially outwardly thereof as in the form of the invention which is illustrated in Figs. 1 to 3, inclusive, although the two methods illustrated for mounting the coil spring may be used alternatively.

Among the other advantages of the novel bumper structure are the fact that no special insulating bushings are required about the central post 14 or 14*a*, nor about the other post 19 or 19*a*; and moreover the fact that the large shell 13 affords a very rigid mounting for the entire post and cap structure and the cylindrical contact member. A further advantage resides in the fact that in those instances where an electric lamp is to be mounted to illuminate the bumper when struck by a ball, said lamp being in a control circuit energized by the ball striking the bumper, the lamp may be housed within the shell 13, and the cap 17 may be of a translucent plastic for illumination by said lamp. Further, the assembly of the structure is simplified by virtue of the fact that insulating bushings are not required and inexpensive parts are used—particularly with respect to the posts 14 and 19, which may be ordinary bolts. Moreover, electrical connection is at once established between the shell and the central post in the assembling operation and the location of the central shell is accurately effected automatically upon the mounting of the cap member and the rigidity of the structure will retain the cylinder and post in its original position. Also the spring 12 may be conveniently adjusted in spaced relation to the large metal shell when mounted on the board.

While I have illustrated and described selected embodiments of my invention it is to be understood that these are capable of variation and modification and I therefore do not wish to be limited to the precise details set forth but desire to avail myself of such changes and alterations as fall within the scope of the following claims.

I claim:

1. A spring bumper switch adapted for mounting on a ball-rolling surface and comprising: a conductive post seated at its lower end in said surface and projecting above the latter, a metallic shell of greater internal diameter than said post and mounted concentrically of the latter upon said surface, and a cap member engaged by the upper end of said post and clamped against the upper end of said shell to hold the latter securely against said surface, means providing a conductive electrical connection between said post and shell, and a bumper spring of greater diameter than said shell and mounted concentrically of the latter with its convolutions normally in spaced electrical relationship to said shell, said spring having a lower-end portion secured on said surface and adapted for connection in a circuit in which said post is connected, said spring being adapted to be engaged by a ball on said surface and moved into electrical contact with said shell to close said circuit.

2. A spring bumper adapted for mounting on a ball-rolling surface and including a conductive post mounted at its lower end on said surface to extend above the latter, a cylindrical metallic shell mounted at its lower end on said surface concentrically of said post and of considerably larger diameter than the latter, the lower end of said shell having integral metallic portions extending into electroconductive engagement with said post, the upper end of said post being screw threaded, and a cap member clamped against the upper end of said shell by screw threaded engagement with said upper end of the post whereby to urge the shell firmly against said surface, and a helical metallic spring of greater diameter than said shell mounted concentrically of the latter with its lower end secured at said surface and its upper end extending to a point adjacent said cap with said convolutions in spaced electrical relationship with respect to the shell and adapted to be urged into conductive relationship with the shell upon contact of a ball with said spring, said lower end of the spring and said post being adapted for connection in a circuit to be closed by engagement of the spring with the shell as aforesaid.

TENNIES F. KOLTS.