April 10, 1962 A. P. FRIGO 3,029,078

GAMING TABLE

Filed Dec. 27, 1960 2 Sheets-Sheet 1

FIG. 1

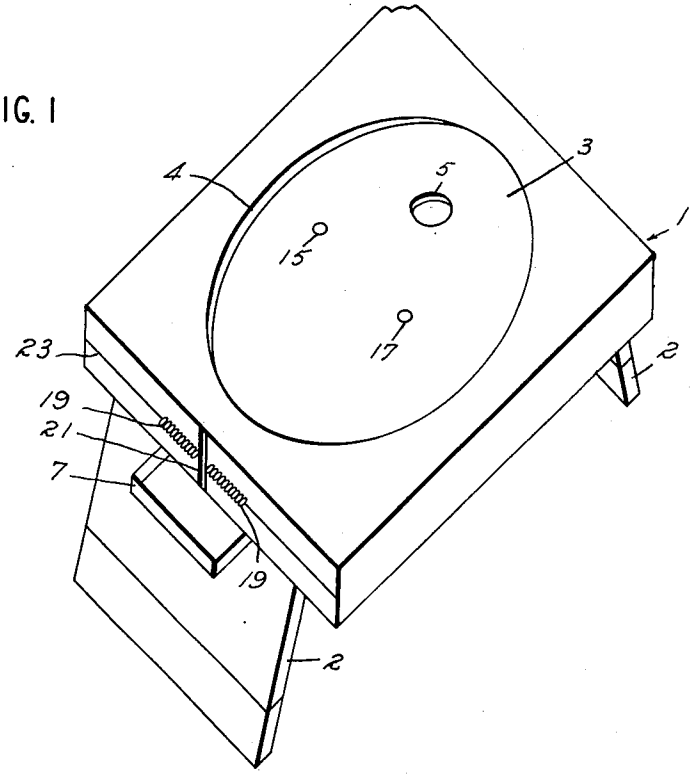


FIG. 2

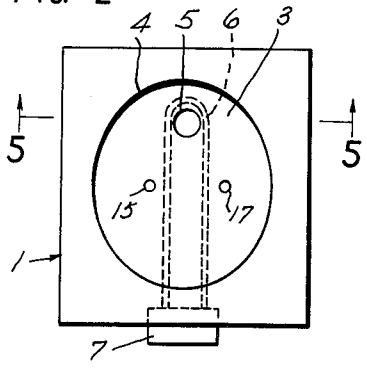


FIG. 3

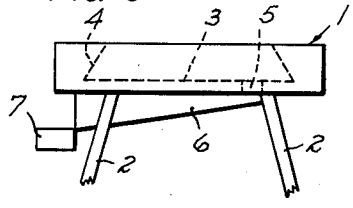


FIG. 5

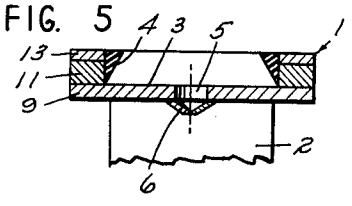
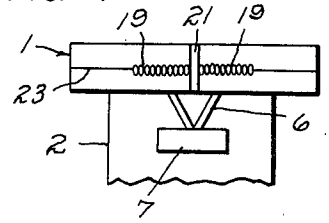


FIG. 4



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April 10, 1962 A. P. FRIGO 3,029,078

GAMING TABLE

Filed Dec. 27, 1960 2 Sheets-Sheet 2

FIG. 6

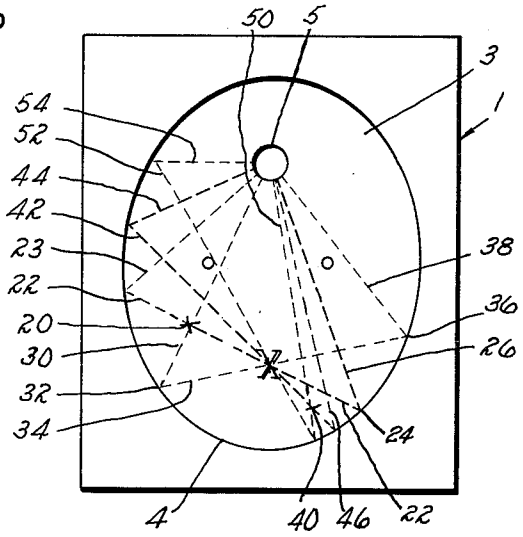
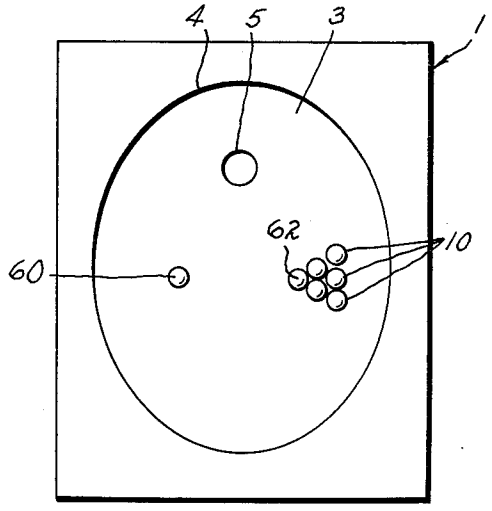


FIG. 7



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GAMING TABLE

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This invention relates to gaming tables and more particularly to a table for a game using conventional billiard balls and cue stick and having some playing features in common with both billiards and pocket billiards or pool.

The table generally used in playing billiards is of rectangular shape and when used for playing pocket billiards is provided with six pockets located at the corners and sides of the table. Generally the goal in pool is to drive certain balls into the pockets, whereas the goal in billiards is to drive or engage certain balls against each other or against the table side rail or cushion in a prescribed order.

It is an aim of the present invention to provide a gaming table of the type used in billiards or pool for an improved game utilizing the principles and competitive natures of both pool and billiards.

Another object of the present invention is to provide a gaming table for a game utilizing conventional billiard balls and cue stick which is exceedingly stimulating and challenging. This game may be played by a single person for increasing his ability to manipulate a pool ball, or may be played by two or more players in demanding competition.

Another object of this invention is to provide an improved pool table that is simple in construction and is capable of being made in a size that is light in weight and convenient for storage.

Other objects will be in part obvious and in part pointed out more in detail hereinafter.

The invention accordingly consists in the features of construction, combination of elements and arrangement of parts which will be exemplified in the construction hereafter set forth and the scope of the application which will be indicated in the appended claims.

In the drawings:

FIG. 1 is a perspective view of a pool table embodying the invention;

FIG. 2 is a top plan view of the pool table shown in FIG. 1;

FIG. 3 is a fragmentary side elevation view of the pool table shown in FIG. 1;

FIG. 4 is a fragmentary front end elevation view of the table of FIG. 1;

FIG. 5 is a partial cross-sectional view along line 5—5 of FIG. 2;

FIG. 6 is a diagrammatic top plan view of the pool table of FIG. 1 showing in dotted lines some of the possible movements of a pool ball; and

FIG. 7 is a diagrammatic view similar to FIG. 6 showing pool balls in an initial position prior to commencement of a pool game.

The embodiment of the invention shown in the drawings includes a table top 1 and a plurality of legs 2 supporting the top on a horizontal plane. If desired, the legs 2 may be hinged to permit them to be folded for storage. A recessed playing surface 3 is provided on the top face of the table, and conventional billiard balls 10 are confined on the playing surface by a curved rail 4. An aperture 5 located as described more fully hereinafter, forms a billiard ball pocket extending through the table top 1 from the playing surface 3 to a trough 6. The trough is downwardly inclined to carry billiard balls 10 passing through the pocket to a tray 7.

As seen in FIG. 5, the table top 1 includes a horizontal planar base member 9 forming the playing surface 3. The member 9 may be covered with felt or the

like as conventionally done on a pool table to provide a slightly frictional yet smooth surface on which the playing balls will roll. A spacer 11 and a top plate or board 13 having the same outside dimensions as the base member 9 are mounted on the base member 9 to form a box-like structure and are apertured centrally to expose the playing surface 3 on which the game is played as hereinafter described. The top plate 13 may be embellished to give the top surface of the table an appealing appearance. A rail 4 of generally triangular cross section is secured to the inner edge of the spacer 11 and plate 13 entirely around the recess 3, and is made of a resilient material such as rubber, that will cushion and give a rebound to the balls when they engage the rail. The board 9, or felt if such is used to cover the base, may be marked at points 15 and 17 to indicate to the player two possible initial positions for either a cue ball or the number one billiard ball in the billiard stack. A plurality of scoring rings 19 (FIG. 1) are strung on opposite sides of the center 21 for movement along a wire or rod 23 to assist the players in scoring.

Of principal importance in this invention is the particular configuration of the playing surface 3 and the position of the pocket 5. The boundary of the surface 3 is of non-circular, curvilinear shape with a major and minor axis of different lengths and with two foci. As shown in the drawings, the preferred configuration of the playing surface 3 is elliptical and the pocket 5 is centered over one of the foci. As shown in FIG. 6, the other focus is located near the other end of the playing surface at X. It should be noted, however, that the point X is not to be necessarily marked on the surface of the felt, as one of the challenging problems in a game using this table, as will be hereinafter seen, is for the player to approximate the position of the focus at X.

In using an elliptical boundary, the major axis is defined as the maximum diameter of the ellipse and the minor axis is the minimum diameter. The two axes are perpendicular bisectors of each other. By independently changing the lengths of the major and minor axes, an infinite number of elliptical boundaries may be obtained. The ratio of the lengths of the two axes will determine the boundary of the elliptical playing surface and the relative positions of the foci on that surface. It has been found that a desirable playing surface is obtained by placing the foci between two and three feet apart and with the foci between nine and twelve inches from the nearest edge of the ellipse. Of course, many variations are possible and it is not intended to limit this invention to a particular size or boundary shape for the table.

Other playing surfaces having boundaries with curvatures with one or more foci could be used as a substitute for the elliptical shape shown in the preferred embodiment of this invention. For example, a playing surface with ends having a parabolic boundary would have two foci, one for each parabola and therefor, the pocket could be located at one of these foci and the point X would be at the other foci.

The property of an elliptical playing surface which is used in the preferred embodiment of this invention is the relationship between the foci and the angles of incidence and rebound of a ball rebounding off the rail or cushion 4. Lines extending from both foci to any point on the edge of the ellipse will form equal angles to the tangent to the ellipse at that point. Consequently, an element or ball moving along a linear path from one of the foci of the ellipse to engage the edge of the ellipse will reflect or rebound from that edge into a second linear path that intersects the other foci. In bringing this principle into use in a pool table, it can be seen that if a ball lying on the playing surface 3 is projected along a line that passes

through the point X, it will after rebound, travel along a line to the pocket 5.

Referring now to FIG. 6, if a ball is positioned at point 20, and is caused to move along the path 22 which extends through the point X, the ball will engage the rail at point 24 and will rebound along the path 26 to the pocket 5. The ball at the position 20 may also be moved in the opposite direction along the line 22 and yet still rebound against the rail toward the pocket 5 along the path 23. A ball in position 20 may additionally be moved along a path 30 either directly toward the pocket 5 or against the rail at point 32 where it will rebound to pass along the path 34 through the point X to the point 36 where it will rebound along the path 38 to the pocket 5. Similarly, a ball located in a position 40 may be moved along the paths 42 and 44 to the pocket 5 or be projected along the paths 42 and 46 to the pocket 5. Additionally, a ball located at the point 40 may be struck along the path 50 directly to the pocket 5 or struck along the paths 50, 52 and 54 to the pocket 5. It can be seen therefore, that a ball lying on the table may be caused to move to the pocket 5 by being struck in any one of four directions; one of which being a direction straight towards the pocket; two of the paths passing through the focus X, one directly and one after rebound; and the fourth path having an initial direction opposite the direction toward the focus X.

It should, of course, be realized that the above description of the paths by which a ball moves to the pocket 5 refers only to a ball having a pure rebound off the cushion or rail of the table, and not a ball which has been given a spin commonly referred to as English. Spin will not only change the path to a nonlinear one, but will also change the relationship between the angles of incidence and rebound for the ball engaging the table rail. Of course, the experienced player will be able to use English in conjunction with his knowledge of the particular rebound features discussed above. It should also be realized that the paths discussed above are the only possible paths by which a ball without English may be caused to move into the pocket, notwithstanding the number of times the ball is caused to rebound off the rail 4.

The pool game using the pool table of this invention

may take on various forms. As shown in FIG. 7, the initial positions for a cue ball 60 and the number one ball 62 are at the points 15 and 17 which are located on the minor axis of the ellipse at equal distances from the major axis. The ball "stack" including the number one ball and five additional balls 10 are shown prior to the initiating "break" for the game. After the "break," the players may alternate plays or have special requirements for the order of driving the balls into the pocket 5 as is done in the conventional pool game.

Special pool rules could be made to take advantage of the peculiar characteristics of the pool table of this invention. For example, it could be required that only balls driven off at least one cushion into the pocket count for points, or two cushion shots could be required. Because of the curvature of the periphery of the playing surface or rail, it can be seen that a pool game using this table will present to one or more players a challenging and competitive course of action.

As will be apparent to persons skilled in the art, various modifications and adaptations of the structure above described will become readily apparent without departure from the spirit and scope of the invention, the scope of which is defined in the appended claims.

I claim:

1. A gaming table for use with pool balls and a cue stick, comprising a horizontal flat playing surface, a rail extending about the playing surface of curvilinear shape, said curvilinear shape having two foci, and a ball pocket located at one of the two foci.

2. A pool table comprising a horizontal flat playing surface, a rail forming an upstanding cushion around the perimeter of the playing surface, said cushion and perimeter being in the form of an ellipse, and a ball pocket in the playing surface located at one of the foci of the ellipse.

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