April 20, 1943. W. P. McDONALD 2,317,289

TABLE TYPE BOWLING APPARATUS

Filed April 16, 1941

FIG. 1.

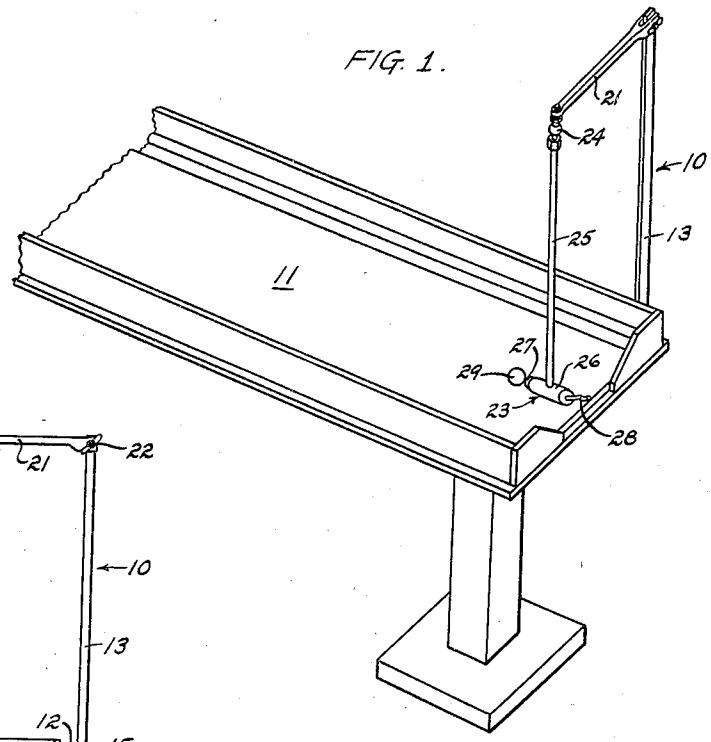


FIG. 2.

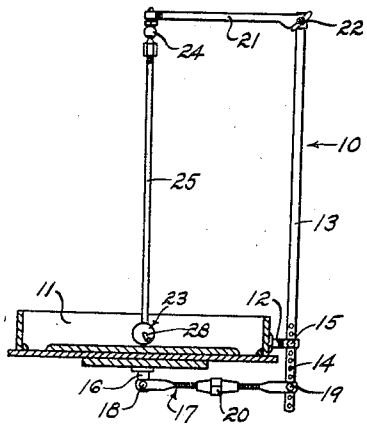


FIG. 3.

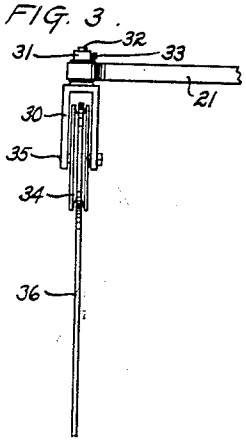


FIG. 4.

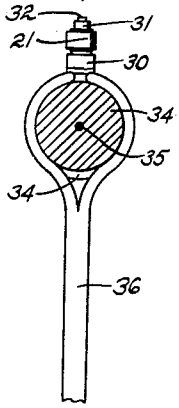
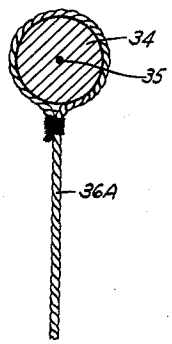


FIG. 5.



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TABLE TYPE BOWLING APPARATUS

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3 Claims. (Cl. 273—129)

This invention relates generally to portable bowling apparatus. In such apparatus it has been found impracticable to roll the ball by hand, so some other means of propelling the ball is necessary. My invention, therefore, relates more particularly to a means of driving or propelling the ball from one end of the table or alley toward the pins set up at the other end, and it is the chief object of the invention to provide a ball driving means the operation of which requires approximately the same degree of skill and muscular co-ordination as is required to bowl on a full size bowling alley.

Another object of the invention is to provide a ball driving mechanism which permits a player to aim at any desired off-center point on the alley with the same degree of hitting accuracy of which that player is capable when aiming down the center of the alley.

Still another object of the invention is to provide a ball driving mechanism which is adjustable laterally with relation to the longitudinal center line of the alley, and which is also adjustable in height to permit the use of bowling balls of various diameters.

The details in the construction of a preferred form of the invention, together with other objects attending its production, will be better understood when read in connection with the accompanying drawing, which is chosen for illustrative purposes only, and in which

Figure 1 is a fragmentary perspective view of a bowling table or alley embodying one form of the invention;

Fig. 2 is a front elevation of the Fig. 1 embodiment, showing details of construction, the extreme end of the table or alley being shown in section for clarity;

Fig. 3 is an end view of a slightly different form of one part of the invention, the means for suspending a ball striker;

Fig. 4 is a side view of the Fig. 3 means for suspending the ball striker, with parts cut away and parts in section for the sake of clarity; and

Fig. 5 is a view similar to Fig. 4, but shows a flexible rather than a rigid suspending member.

Referring particularly to Figs. 1 and 2, it will be seen that the invention includes an upright standard, designated as a whole by the numeral 10, adapted to be adjustably attached to a bowling table or alley 11. The standard is made up of a bracket 12, preferably bifurcated at its outer end, and adapted to be attached rigidly to the table; an elongated bar 13, of suitable dimensions, provided with a plurality of spaced perforations 14 near its lower end, and a single perforation at its upper end. The bracket 12 is adapted to receive the bar 13 snugly, and the bar is held in position in this bracket 12 by means of a suitable pin 15 passing thru the bracket and bar, and allowing limited pivotal movement of the bar within the bracket.

Attached rigidly to the underside of the table is a second bracket 16. A turn-buckle 17 has one of its ends pivotally connected to the bracket 16 by means of a pin 18, while its opposite end is pivotally connected to the lower end of the bar 13 by means of removable pin 19. When the threaded sleeve 20 of the turn-buckle is turned, the bar 13 is forcibly pivoted about its axis 15 in a desired direction, depending on the direction in which the sleeve is rotated.

An arm 21 has one of its ends pivotally attached to the upper end of the bar 13 by means of a bolt and wing nut 22. Naturally when the bar 13 is pivoted in either direction, the arm 21 is moved laterally with relation to the center line of the table.

As one means of suspending a ball striker, designated as a whole by the numeral 23, for rotary and swinging movement just above the top surface of the table or alley, I employ an ordinary ball joint 24, one end of which is adapted to screw into the free end of the arm 21, and the other end of which is adapted to be suitably attached to a striker supporting member 25, which may be either rigid or flexible, as desired. The prime purpose of the ball joint is to permit a desired degree of rotation of the striker about the member 25 as an axis, and also to permit accurate swinging travel of the striker throughout its swinging arc, regardless of the direction of travel during the swing.

The striker proper may be in any desired form. I have found by practice, however, that a slightly elongated striker, as shown, gives the best results, but I do not wish to be limited to a striker so constructed. The striker illustrated is made of a short length of tubing 26, the ball striking end of which is fitted with a resilient bumper 27, and the opposite end of which is provided with a leather thong or any other type of handle 28 for pulling the striker back with the thumb and fore-finger. The striker is preferably weighted, as by filling the interior of the tube 26 with sand or lead, or any other relatively heavy and compact substance.

In bowling with the apparatus described, a ball 29 is placed in position on a marked spot on the alley, which spot is preferably in the form of

a slight circular depression located just ahead of the striker bumper, when the striker is hanging motionless from its supporting standard. The player then grasps the handle **28** and pulls the striker back holding it in such a position that the center of the object of his aim, the center of the ball joint **24**, and the center of the striker all lie in the same vertical plane. The striker is then released to the force of gravity without any impelling force being added by the player. The bumper strikes the ball and drives it down the alley toward the object, provided the player's aim has been accurate. The rules of the game and the manner of scoring are not a part of this invention. Suffice it to say, however, that if the scoring is made according to bowling practice, the scores made on a table constructed as described will average practically the same as scores made on a full size alley. That is, players who are capable of making good scores on a full size alley, will make approximately the same size scores on this device. Poor bowlers will likewise make poor scores on this table. This similarity is due, of course, to the similarity in the degree of skill required to play the two games, which in turn is due to the details in the construction of the device described.

In Figs. 3 and 4 I have illustrated a substitute for the ball joint means of suspending the ball striker. In this latter form of suspension I employ a fork or forked pulley bracket **30**, the upper end of which is snugly journaled in the free end of the arm **21**, and is held in a freely rotatable position therein by means of a thrust collar **31** secured on the spindle **32** of the fork by means of a set screw **33**. This bracket carries a pulley **34**, freely rotatable on a spindle **35**. A different type of striker supporting member **36** is used. This member **36** may be made of rope **36A** (Fig. 5) or other flexible material, but when made of metal, as in Figs. 3 and 4, I prefer to use a piece of strap iron or similar material, split at one end and bent, as shown, to snugly ride the grooved rim of the pulley, the other end being rigidly secured to the striker **23**. Both the Fig. 4 and 5 arrangements afford the striker practically the same range of movement as is afforded by the ball joint type of suspension, that is, rotary movement about the axis of suspension, as well as swinging movement in any desired direction. It is considered the mechanical equivalent of the ball joint so far as this invention is concerned.

Since it has not previously been explained, I call attention to the fact that in order to raise or lower the striker with relation to the surface of the table, the pin **15** may be removed, the bar **13** raised or lowered, and the pin re-inserted in a different one of the holes **14**. The pin **19** may then be likewise removed, and the turn-buckle re-attached to the bar **13** through a correspondingly different hole. The wing nut **22** may then be loosened, the arm **21** levelled, and the nut tightened. The turn-buckle sleeve **20** may then be adjusted to center the axis of suspension laterally, and the readjustment is complete.

While I have described and illustrated only one specific embodiment of the invention, and only two optional means of suspending the ball striker, I am aware that changes may be made in both without transcending the inventive principle, and I do not wish to be limited except by the prior art and by the scope of the appended claims.

I claim:

1. A ball driving mechanism for table type bowling comprising: an upright standard adapted to be attached to a table near one of its ends for suspending a ball striker in a position substantially over the longitudinal center line of the table; a ball striker; a fork having its upper end journaled in said standard to afford rotational movement about a substantially vertical axis; a wheel journaled between the tines of said fork; and an elongated suspension member suspending said striker from said wheel for swinging movement in any direction.

2. A ball driving mechanism for propelling a ball along the surface of a gaming table, including: an upright standard adapted to be attached to a table; a substantially horizontal arm carried by the standard and extending over the table; a fork having its upper end journaled in the free end of said arm for rotation upon a vertical axis; a member pivotally carried by the tines of the fork and rotatable upon a horizontal axis; a ball striker; and an elongated suspension means supporting said striker from said member for swinging movement in various directions.

3. A ball driving mechanism for propelling a ball along the surface of a gaming table, including: an upright standard; a substantially horizontal arm carried by the standard and extending over the table; a depending element having its upper end journaled in the free end of said arm for rotation upon a vertical axis; a member journaled in the free end of said element for rotation upon a horizontal axis; a ball striker; and an elongated suspension means supporting said striker from said member for swinging movement in various directions.

WALTER P. McDONALD.