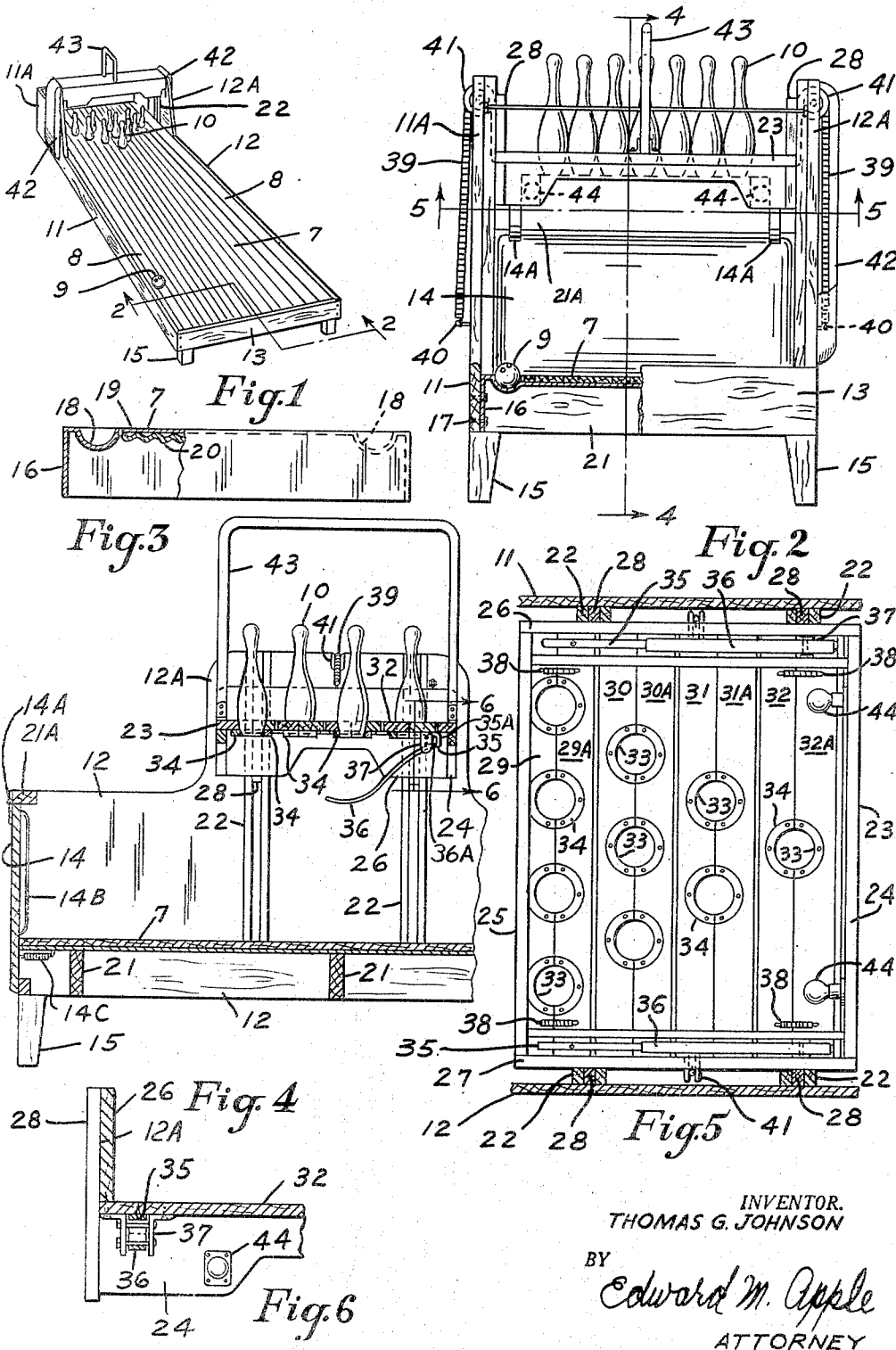


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BOWLING ALLEY PIN SETTER

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BOWLING ALLEY PIN SETTER

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This invention relates to the game of bowling and has particular reference to a miniature bowling alley suitable for use in the recreation room of a home, club, hospital, school, or the like.

An object of the invention is to provide a pin setter for a knockdown portable bowling alley which is simple in construction, economical to manufacture, and efficient in operation.

The foregoing and other objects and advantages of the invention will become more apparent as the description proceeds, reference being made from time to time to the accompanying drawings forming part of the within disclosure, in which drawings:

Fig. 1 is a perspective view of my miniature bowling alley set up and ready for use.

Fig. 2 is a front elevational view, with parts broken away and partly in section, taken on the line 2-2 of Fig. 1, but showing the pin-setting mechanism and pins in elevated position.

Fig. 3 is an enlarged detail of the end of the alley with the legs removed and parts broken away to illustrate the construction of the corrugated metal stamping comprising one of the structural features of the device.

Fig. 4 is an enlarged fragmentary sectional detail of the rear end of the alley taken substantially on the line 4-4 of Fig. 2.

Fig. 5 is a section taken on the line 5-5 of Fig. 2.

Fig. 6 is a section taken on the line 6-6 of Fig. 4.

Referring now more particularly to the drawings, it will be understood that in the embodiment herein disclosed, my improved device consists of a playing surface 7, which is preferably made of hard wood and which is secured in position as hereinafter described.

On either side of the playing surface 7 is a gutter 8 for the return of the ball 9 which is used to knock down the pins 10 which are arranged in conventional manner on the playing surface 7. The playing surface 7 is enclosed by side rails 11 and 12 and an end rail 13, and a hinged back stop 14 which is more particularly described hereinafter.

The whole assembly is supported on suitable legs 15 which are of sufficient height to position the playing surface 7 a predetermined distance above the floor, on which the legs 15 rest, so that a player standing on the floor and utilizing the front end member 13 as the foul line, may take the same steps and go through the same motions in moving the ball onto the playing surface 7 as

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he is accustomed to doing in the playing of a conventional bowling game.

In utilizing the miniature ball 9 and miniature pins 10, which are also proportioned for the size of the playing surface 7 and the other elements of the miniature alley, the player is able to make a conventional strike and perform the other feats of the game in the same manner as he would do on a regularly proportioned bowling alley.

One of the features of my construction resides in a metallic stamping (Figs. 2 and 3) which may be utilized as the principal structural element of my miniature alley. This stamping has side members 16 which are adapted to be attached to the side rails 11 and 12 by bolts or other suitable means as at 17 (Fig. 2).

The body portion of the stamping is formed with gutters 3 and longitudinal corrugations 19 which serve to reinforce the structure and provide depressions 20 (Fig. 3) adapted to carry a cement or other adhesive material suitable for retaining in position the hard wood member 7.

It will be noted that the corrugations 19 are of sufficient height to permit the wooden member 7 to be installed so that its upper surface is flush with the highest point of the stamping.

The side rails 11 and 12 are preferably reinforced with cross members 21 and 21A (Figs. 2 and 4) which are secured thereto by any suitable means. These side rails 11 and 12 are provided with integral upwardly extending portions 11A and 12A which serve as supports for the pin-setting mechanism hereinafter described.

The back stop member 14 is hinged to the cross member 21A as at 14A and is padded as at 14B, and is normally held in close relation to the end of the playing surface 7 by means of a coil spring 14C.

Mounted on the inside of the side rails 11 and 12 and extending upwardly along the inside of the portions 11A and 12A are pairs of spaced strips 22 which serve as guides for the pin-setting mechanism hereinafter described.

The pin-setting mechanism in general consists of an elevator platform 23 (Fig. 5) which is formed of front and back members 24 and 25 and side members 26 and 27. The side members 26 and 27 carry strips 28 which are adapted to slide inside of the guide members 22 to guide the platform 23 in up and down vertical movement as hereinafter described.

The elevator platform 23 has a floor comprising a plurality of fixed slats 29, 30, 31, and 32 which are secured to the framework of the platform by any suitable means. Each fixed slat 29,

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30, 31, and 32 has an oppositely disposed, laterally movable slat 29A, 30A, 31A, and 32A. Each of the slats has one or more semi-circular cut-out portions 33 adapted to cooperate with a corresponding cut-out on the mating slat so that a sufficient number of circular openings is formed in the floor of the elevator platform 23 to accommodate the 10 pins used in playing the game.

These openings are positioned in triangular arrangement as shown in Fig. 5. The openings 33 may be reinforced on the bottom by split flanges 34 (Figs. 4 and 5). The flanges 34 also serve to give depth to the floor of the platform so that the pins 10 will remain upright in the openings 33 when the platform is in elevated position as shown in Figs. 2 and 4.

The slidable slats 29A, 30A, 31A, and 32A are tied together at either end by means of tie rods 35, the ends 35—A of which are turned downwardly and are arranged to contact the upturned ends 36—A of the levers 36 (Figs. 4, 5, and 6). The levers 36 are mounted in brackets 37 (Figs. 5 and 6) and are downwardly curved as shown in Fig. 4 and are adapted to strike the gutters 8 when the pin-setting platform is moved downwardly. Upon the downward movement of the pin-setting platform 23, the levers 36 strike the gutters 8 and are actuated to move the slidable slats 29A, 30A, 31A, and 32A, through the tie rods 35 whereby the diameters of the openings 33 are enlarged to permit the removal of the platform 23 from the pins 10. It will be noted that the curved portions of the levers 36 remain in contact with the gutters 8 during a considerable portion of the up and down movement of the pin setter, whereby the closing action of the springs 38 is overcome until the slats have cleared the pins on the upward movement.

Coil springs 38 (Fig. 5) are secured between the pairs of fixed slats and movable slats and function to return the movable slats to the position of rest shown in Fig. 5.

The fixed slats remain in contact with the relatively narrow base portions of the pins, and when the setter moves upwardly the fixed slats tend to engage the widest portions of the pins moving them from their originally spotted positions. Inasmuch as this lateral movement of the pins is only a quarter of an inch or less, and inasmuch as the pins are shifted in unison, their finally spotted positions are still uniform and the pins remain equally spaced as they should be.

The platform 23 is normally urged to its elevated position shown in Figs. 2 and 4 by means of coil springs 39, which are secured at one end to the outside of the members 11A and 12A as at 40, and at the other end to the platform 23 by any suitable means. The springs 39 travel over pulleys 41 which are mounted for rotation on the upper edges of the side rail extension members 11A and 12A. The springs 39 are preferably provided with cover plates 42 (Figs. 1 and 2).

A handle 43 is secured to the platform 23 by any suitable means and is adapted to permit the operator to lower the platform 23 to the playing surface 7 by pressing down on the handle 43 to overcome the tension of the springs 39.

Electric light elements 44 may be secured to

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the under side of the platform 23 (Figs. 5 and 6) so that the pins 10 are illuminated when the game is played. The lights 44 may be connected to any suitable electrical outlet, not shown.

Having described my invention, what I claim and desire to secure by Letters Patent is:

1. A vertically movable pin setter for a portable bowling alley, comprising a plurality of pairs of slats, each pair having one or more cutouts therebetween, and each pair having one fixed and one movable slat, all of said movable slats being connected by tie rods, spring means for holding the slats of said pairs in close relation, levers pivoted beneath the setter, each lever having a curved portion arranged to contact the bowling alley and each lever having an end portion arranged to engage an element carried on one of said tie rods, whereby to move said rod longitudinally.

2. In combination with a portable bowling alley a pin setter comprising a rectangular framework, pairs of slats mounted in said framework, each pair of slats having one or more cutouts therebetween, each of said cutouts being reinforced with a split flange which serves to give depth to the slats at said cutouts, each pair of slats having one fixed slat and one movable slat, said movable slats being secured to common tie rods having downturned ends, upwardly curved levers pivoted beneath said setter and arranged to be actuated upon contacting the said alley, said levers having upturned ends adapted to engage the downturned ends of said tie rods to move said tie rods, and compression spring means connected between the fixed and movable slats of the outside pairs of said slats.

3. The combination defined in claim 2, in which the sides of said rectangular framework are arranged to cooperate with upwardly directed side extension members on said bowling alley for guiding said framework in a vertical direction there being compression springs secured to and extending over the upper edges of said side extension members and secured to said framework and arranged to move said framework upwardly with respect to said side extension members.

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