E. L. AYERS.

BOWLING ALLEY.

APPLICATION FILED APR. 15, 1913.

1,106,859. Patented Aug. 11, 1914.

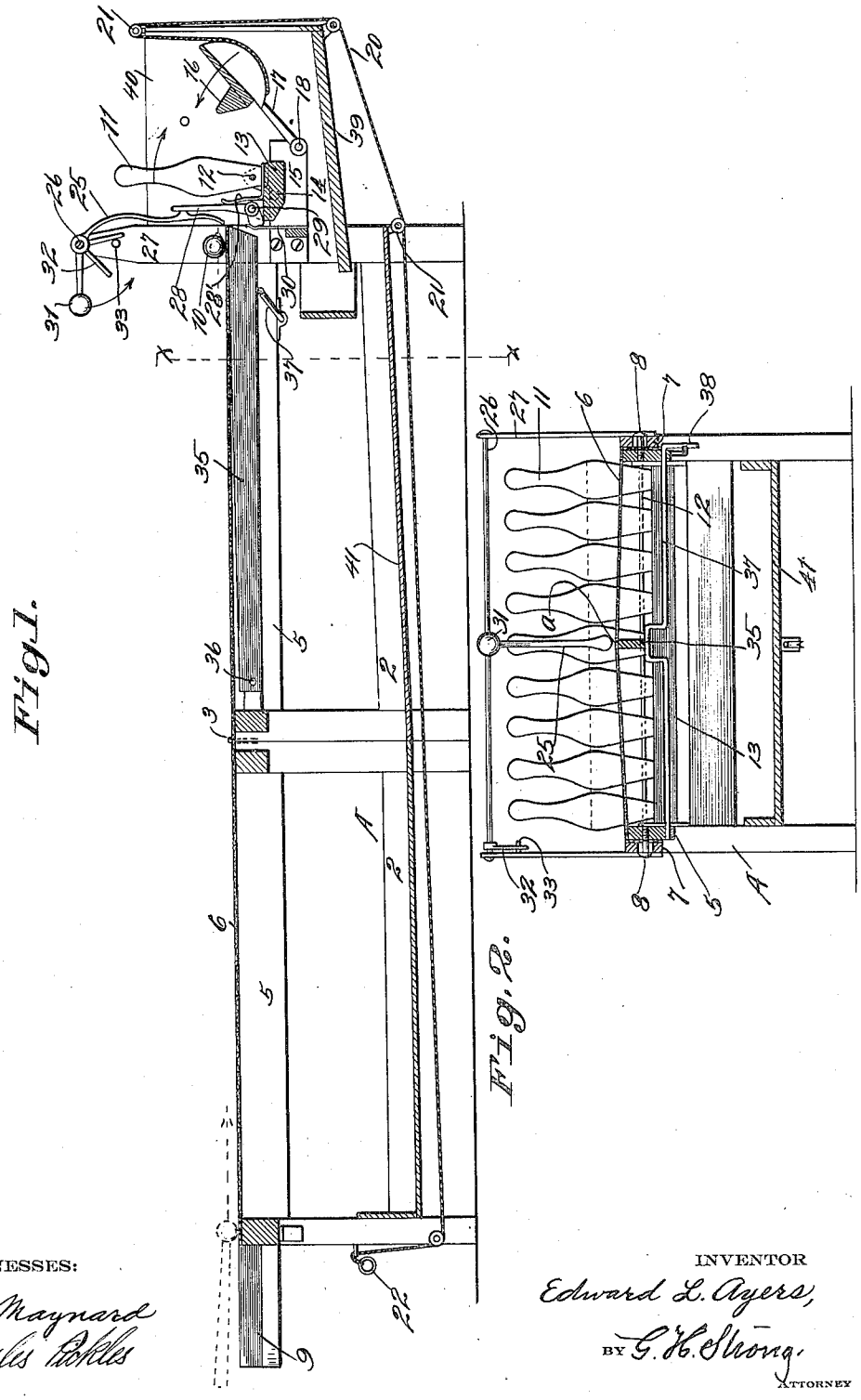


Fig. 1.

Fig. 2.

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BOWLING-ALLEY.

1,106,859. Specification of Letters Patent. Patented Aug. 11, 1914.

Application filed April 15, 1913. Serial No. 761,148.

To all whom it may concern:

Be it known that I, EDWARD L. AYERS, a citizen of the United States, residing at North Vancouver, in the Province of British Columbia, Canada, have invented new and useful Improvements in Bowling-Alleys, of which the following is a specification.

This invention relates to games and particularly to a portable, folding game structure of the bowling or ten-pin type.

The object of the present invention is to provide an amusement bowling device with novel means for mechanically setting up the pins from the bowler's position.

A further object of the invention is to provide a bowling game in which the bowling surface may be subjected to varying tensions and which is preferably flexible and pliable so that its surface may be variously formed or arranged, means being provided for so varying the contour of the surface.

A further object is to provide a bowling structure or game with a pliable, flexible bowling surface so mounted on, and having a supporting frame capable of folding, that the structure can be readily packed for shipment, or for storage, so as to occupy minimum space.

The invention further provides means by which all the pins may be knocked down when a certain king-pin is struck.

The invention consists of the parts and the construction and combination of parts as hereinafter more fully described and claimed, having reference to the accompanying drawings, in which—

Figure 1 is a vertical longitudinal section through the improved game. Fig. 2 is a cross section on line *x*—*x* of Fig 1.

In the drawing is shown in the present instance a substantial frame A consisting of a plurality of frame sections 2—2 arranged with their ends in alinement and hingedly connected at their upper corners, as at 3, so that the sections 2—2 can be longitudinally folded upon one another for shipment or for the conservation of space when the game is not in use.

Stretched over the upper longitudinal, horizontal members 5—5 of the frame is a fabric or other pliable, flexible bowling surface, which may be of cloth, extending from end to end and from side to side of the frame A; the transverse tension of the pliable surface or table top 6 being variable to suit by means of adjustable devices, shown as cleats 7—7, to which the longitudinal edges of the table sheet 6 may be attached. The cleats 7 are fastened in their several adjusted positions to the top rails 5—5 of the frame by screws or other fastening devices 8.

At the head end of the frame is provided a hand rest or steady device 9, upon which a player may rest his hand or arm while preparing to strike a ball 10. The ball 10 is of suitable size and proportions and of such material as will have the necessary momentum and inertia to knock down or effect the knocking down of one or more vertically arranged tenpins 11. After the ball has been struck by a cue in the hands of a player, it will roll down the bowling surface or table sheet 6 and in its movement may squarely strike one of the pins 11 or engage one or more, causing these to swing backwardly about a transversely extending rod or pivot member 12 supported upon a tiltable carrier or rocking shelf 13. The shelf 13 is in turn supported upon pivots, indicated at 14, of rearwardly projecting brackets or arms 15 attached at the foot-end of the frame A. Those pins 11 which are struck with sufficient force to be knocked over fall back against a transversely extending set-up bar 16 attached to levers 17 pivoted at 18 on the brackets 15. The set-up bar 16 has attached to it a segmental pulley 19, to which is secured a cord or wire 20 passing over suitable guide pulleys 21 and through the lower portion of the frame forwardly to the players' end of the structure where it is provided with any convenient device 22 whereby a pull on the cord 20 will swing the set-up device 16 upwardly to return the tilted pins or pin 11 to their vertical positions in which they will be maintained on the rocking plate 13 by respective springs 23.

To increase the interest and amusement of the game, a simple mechanism is provided whereby a skilful operator can accomplish the feat of knocking over all of the pins 11 at one stroke, thus scoring a "strike". This mechanism consists in the present instance of a trip lever 25 secured on a rocker-shaft 26 journaled in upwardly projecting bearings 27 at the foot-end of the frame A; the lower end of the lever 25 en-

gaging and tripping a trigger or locking device 28, against which reacts a supporting spring 28'. The locking device 28 is pivoted at 29 adjacent to the front edge of the rocking pin carrier 13. The trigger or locking device 28 has the function of temporarily holding the pin carrier 13 and its superimposed pins 11 collectively in a horizontal and perpendicular position respectively. The front edge or arm of the trigger 28 is frictionally engaged by a spring 30 with sufficient pressure to hold the trigger upright and the carriage 13 horizontally until the lower end of the tripping device 25 is struck by the moving ball 10, whereupon the trigger 28 is released and the carriage 13 allowed to rock about its pivots 14 and permit the pins 11 to collectively fall, thus scoring the "strike." The tripping device 25 is preferably provided with an unbalanced weight 31, the force of which is imparted to the trigger 28 to insure the throwing of the latter and the tilting of the pins; the lever 25 being provided with suitable stop arms 32 engageable with a stop pin 33 to prevent overthrow.

For further increasing the uncertainty and requiring greater skill in playing the game, the flexible bowling table or surface 6 may be subjected to the pressure of a center lever or ridge member 35 extending centrally longitudinally below and in close proximity to the foot-end of the bowling surface 6. The lever 35 is pivotally supported at 36 and adapted for vertical adjustment by any suitable device, here shown as a crank-shaft 37, journaled on the sides of the frame and provided with a handle 38 for its manipulation. By slightly raising the swinging end of the arm or member 35, it is raised into engagement with the flexible surface 6 and this will thereupon be slightly centrally hipped or ridged, as at *a*, Fig. 2, producing slight inclines pitching from the center of the foot-end of the bowling surface 6, from which it will be seen that in order to make a "strike" the player must acquire great skill in striking and directing the ball. After the ball passes from over the foot-end of the bowling surface 6 it drops to an inclined floor 39 of a basket or guard 40, mounted on the foot-end of the structure, and rolls from the floor 39 onto a return alley 41 to the players' end of the table.

It is manifest that this apparatus can be of any suitable size, shape and material, and I do not wish to be understood as limiting myself to any of the specific details, either as to form or construction, herein set forth.

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

1. In a bowling game, a bowling surface, a series of tiltable pins arranged at one end of the bowling surface in the path of, engageable and operable by, a playing ball, a tiltable king pin not engageable by the ball, and means, with a part operable by the ball in front of the king pin, for tilting all of the pins whereby a strike is made.

2. In a bowling game, a bowling surface, a series of pins at one end, a rocking support for the pins, said pins hinged on the rocking support, and means acting on the support to hold the pins upright.

3. In a bowling game, a bowling surface, a series of pins at one end, a rocking support for the pins, said pins hinged on the rocking support, means acting on the support to hold the pins upright, and trip means acted on by a ball to release the support and allow all the pins to fall.

4. In a bowling game, a bowling surface, a series of pins at one end, a rocking support for the pins, said pins hinged on the rocking support, means acting on the support to hold the pins upright, and a set-up means operated from the opposite end of the bowling surface from the pins to set up the pins.

5. A bowling game comprising a foldable table structure with hingedly connected sections, a flexible, pliable bowling surface with means for stretching it across the top of the table, and a series of separately mounted tiltable pins disposed transversely across one end of the bowling surface adapted to be tilted by a ball moving along said surface.

6. A bowling game comprising a foldable table structure with hingedly connected sections, a flexible, pliable bowling surface with means for stretching it across the top of the table, a series of separately mounted tiltable pins disposed transversely across one end of the bowling surface adapted to be tilted by a ball moving along said surface, and means for varying the contour of the flexible surface adjacent to its foot-end.

7. In a bowling game, a sectional table structure, hinges connecting the sections, a flexible, pliable folding surface with means for stretching the same with variable tension over the top of the table structure, a device for varying the contour of said surface at its foot-end, a plurality of separately tiltable pivoted pins, a rocking carrier upon which the pins are mounted transversely of the bowling surface, means for maintaining the rocking carrier in a position to hold the pins vertical, and a trip device operable by a rolling ball to release said retaining means so that the carrier will rock to tilt all of the pins.

8. In a bowling game, a sectional table structure, hinges connecting the sections, a

flexible, pliable folding surface with means for stretching the same with variable tension over the top of the table structure, a device for varying the contour of said surface at its foot-end, a plurality of separately tiltable pivoted pins, a rocking carrier upon which the pins are mounted transversely of the bowling surface, means for maintaining the rocking carrier in a position to hold the pins vertical, a trip device operable by a rolling ball to release said retaining means so that the carrier will rock to tilt all of the pins, and a set-up device consisting of a transverse bar against which tilted pins may rest and a connection to said bar extending forwardly to the players' end of the table for actuating the set-up device to return the several pins individually or collectively to the perpendicular.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

EDWARD L. AYERS.

Witnesses:
JAMES D. MCFARLAND, Jr.,
RAY D. SMITH.