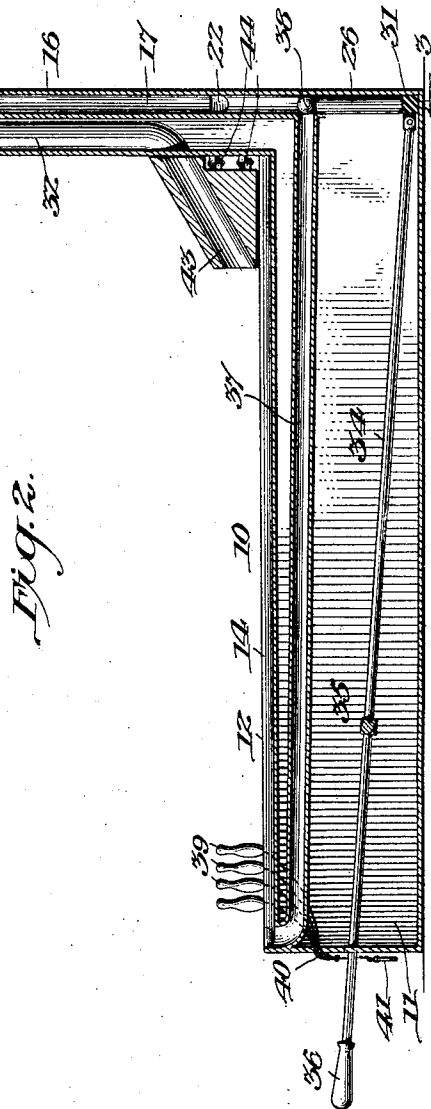
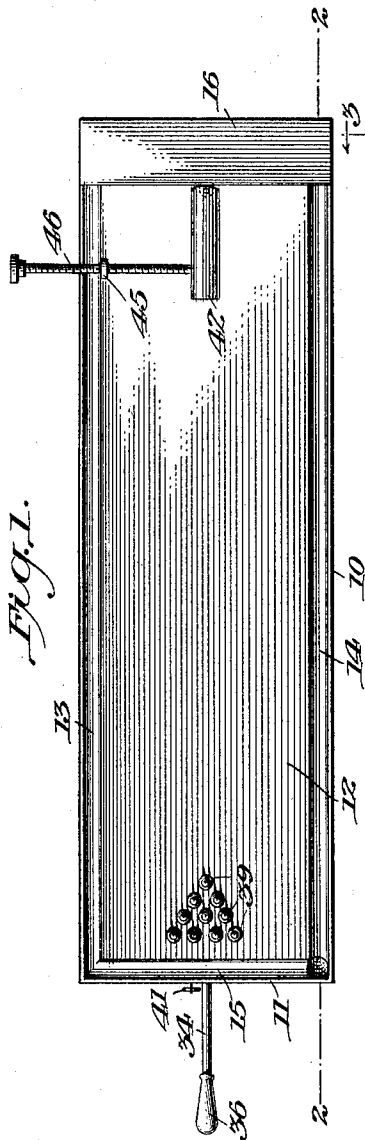


J. F. SUMMERS.
 AUTOMATIC BOWLING MACHINE.
 APPLICATION FILED JUNE 12, 1911.

1,058,490.

Patented Apr. 8, 1913.

2 SHEETS—SHEET 1.



Witnesses:
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 Norman B. Mellor

Inventor:
 James F. Summers

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Fig. 3.

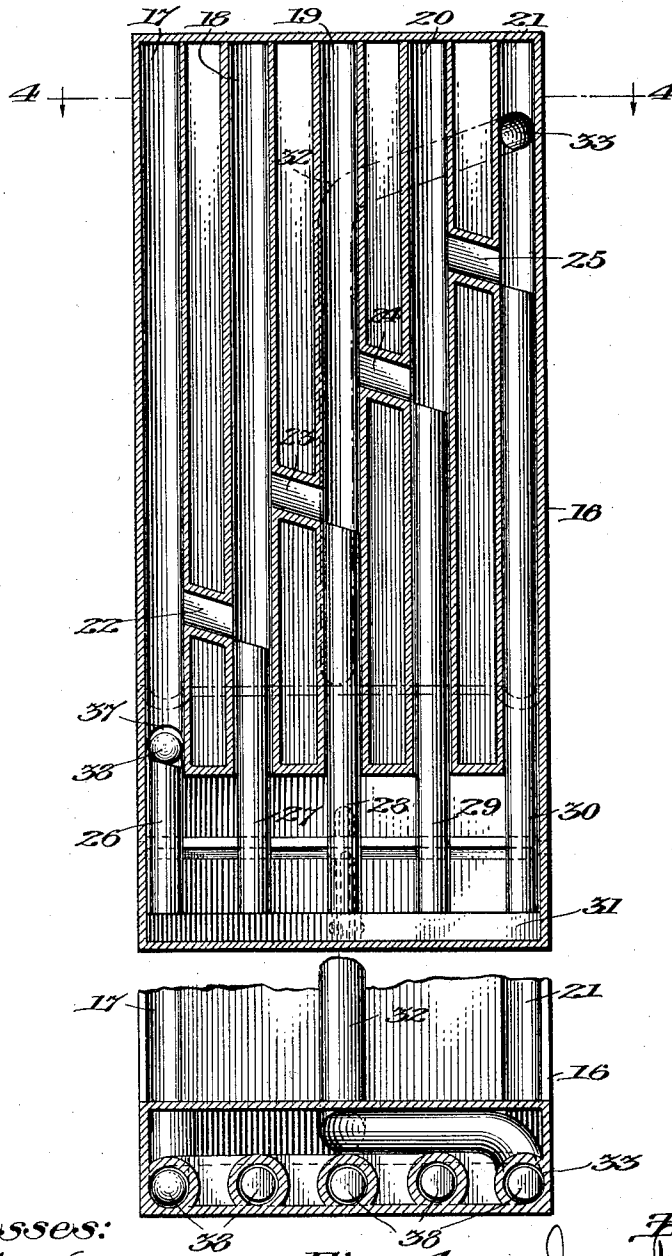


Fig. 4.

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UNITED STATES PATENT OFFICE.

JAMES F. SUMMERS, OF NEW YORK, N. Y.

AUTOMATIC BOWLING-MACHINE.

1,058,490.

Specification of Letters Patent.

Patented Apr. 8, 1913.

Application filed June 12, 1911. Serial No. 632,807.

To all whom it may concern:

Be it known that I, JAMES F. SUMMERS, a citizen of the United States, and a resident of New York, county and State of New York, have invented a certain new and useful Improvement in Automatic Bowling-Machines, of which the following is a full, clear, and exact specification.

This invention relates to a class of amusement devices whereby the game of bowling may be played conveniently at home.

My invention has for its object primarily to provide a form of automatic bowling machine designed especially to be made in portable sizes so that the machine may be supported and positioned to permit the game to be conveniently played by one or more persons at home, or at other suitable places, for amusement purposes and which will require considerable skill and practice in order to become proficient in playing the game. These advantages are attained mainly by providing a bowling platform having a magazine or frame member in which are contained a plurality of vertically disposed tubes and a barrel or chute. In each of the tubes is slidably mounted a carrier or plunger said plungers being adapted to be simultaneously operated by a plunger for consecutively charging each tube with a ball, and then by operating the lever the balls are moved one at a time in succession to the barrel or chute so as to roll over the platform for knocking over one or more bowling pins suitably arranged thereupon.

Another object of the invention is to provide a raceway whereby each ball after being played will automatically return to the pathway of the lever so that the lever when operated to make the succeeding play in the game will also recharge the tubes of the magazines and in this manner the game may be played without cessation.

A further object of the invention is to provide an element or pointer which is adapted to be manually adjusted for guiding each ball in a direction so as to knock down one or more of the pins at each play.

With these and other objects in view, the invention will be hereinafter more particularly described with reference to the accompanying drawings, which form a part of this specification, and will then be pointed out in the claim at the end of the description.

In the drawings, Figure 1 is a top plan

of one form of automatic bowling machine embodying my invention. Fig. 2 is a horizontal vertical section taken on the line 2—2 of Fig. 1. Fig. 3 is a transverse section of the rear end of the device taken on the line 3—3 of Fig. 2, and Fig. 4 is a fragmentary view showing a transverse section taken on the line 4—4 of Fig. 3.

The device or automatic bowling machine 10 has a hollow base or casing 11 which is preferably rectangular in shape and horizontally disposed so as to permit the machine to be supported in any suitable manner and at a convenient height. Mounted upon the hollow base 11 is a bowling platform 12. At each side of the platform 12 and at the front end thereof are grooves 13, 14, 15 for reception of the balls after rolling from the platform following each play in the game.

At the rear end of the hollow base 11 and extending for a desired height above the platform 12 is a vertically disposed magazine or frame member 16, and spaced in parallel relation in said magazine are a plurality of vertical tubes 17, 18, 19, 20, 21 which are in communication by means of transverse tubes 22, 23, 24, 25 disposed upon an incline and arranged at different heights within the magazine, as shown in Fig. 3. In each of the tubes 17, 18, 19, 20, 21 is a slidable carrier or plunger 26, 27, 28, 29, 30 all of which are mounted upon a transverse bar 31 movably held in the lower part of the magazine 16. The plungers 26, 27, 28, 29, 30 vary in lengths, and each has a beveled free end so as to be in alinement with the lower part of the peripheral edges of the transverse tubes 22, 23, 24, 25 when normally at rest and to aline with the lower part of the peripheral edge of the transverse tube of next adjacent vertical tube when said plungers are raised to their maximum heights, as will be hereinafter more fully described. Provided in the magazine 16 is a barrel or chute 32 the upper end of which communicates, as at 33, with the vertical tube 21, and the other end of said chute terminates with an opening in the lower part of the front frame of the magazine.

Substantially centrally of the transverse bar 31 is pivoted one end of a lever 34, and said lever is movably held to a pin or rod 35 provided in the forward part of the hollow base 11. The lever 34 is of sufficient

length to extend through a slot, not shown, in the front wall of the hollow base 11, and terminates with a handle 36. By manually forcing the handle 36 downwardly the lever 34 will be swung on its pivot 35 and the opposite end thereof will be moved upwardly for moving the transverse bar 31 so as to simultaneously force the plungers 26, 27, 28, 29, 30 upwardly in the vertical tubes 17, 18, 19, 20, 21. In the hollow base 11 and communicating with the juncture of the grooves 14 and 15 of the bowling platform 12 and with the vertical tube 17 is an inclined raceway or tube 37 which serves to permit each ball after being played to roll from the bowling platform 12 and enter said raceway so as to pass therethrough and rest upon the plunger 26 in the vertical tube 17 of the magazine, as shown in Figs. 2 and 3.

In order to play the game I prefer to employ five balls, as 38 Fig. 4, and ten bowling pins as 39 Figs. 1 and 2. The bowling pins 39 are arranged adjacent to each other in the form of a triangle upon the forward part of the top surface of the platform 12, and the underside of each of the bowling pins may be connected to one end of a wire or thread, as 40. The wires 40 may be guided through openings in the platform 12 and through an opening in the front wall of the hollow base 11 where the opposite ends of said wires are fastened to a ring, as 41, which may be pulled for directing the wires so as to re-position one or all of the bowling pins when knocked down by the bowling balls.

In operating my bowling machine one of the balls 38 is passed in the raceway 37 and rolls there down to the vertical tube 17 so as to rest upon the beveled top of the plunger 26. By moving the handle 36 of the lever downwardly the plunger 26 will carry the ball upwardly of the vertical tube 17 so as to pass through the transverse tube 22 and into the vertical tube 18 where the ball will rest upon the plunger 27 of said tube 18. By repeating this operation the magazine or frame member 16 will be charged with the remaining balls 38. The first play in the game is then made by forcing the handle of the lever 34 downwardly. The opposite end of the lever 34 and the transverse bar 31 will be swung so as to move all of the plungers simultaneously upwardly in the vertical tubes 17, 18, 19, 20, 21. The ball resting upon the plunger 30 will then pass into the chute 32 so as to be delivered upon the platform 12, and the balls upon the plungers 26, 27, 28, 29 will pass through the transverse tubes 22, 23, 24, 25 so as to pass into the vertical tubes 18, 19, 20, 21 and upon the beveled ends of the plungers 27, 28, 29, 30 when lowered in the vertical tubes by raising the handle of the lever 34. The

second and each subsequent play in the game is made in like manner, it being evident that each ball when rolled from the platform 12 after being played will again pass into the raceway 37 and be delivered upon the plunger 26 for automatically re-charging the magazine 16 so that the game may be played without cessation.

To permit each of the balls 38 to be skillfully guided after rolling from the chute 32 so as to knock down the required number of the pins 39, I provide an element or pointer 42. The guiding element 42 consists of a tube 43 which is pivoted, at 44, to the front wall of the magazine 16 adjacent to the top surface of the platform 12. The tube 43 is disposed on an incline, as illustrated, and one of its ends communicates with the lower opening of the chute 32 while its other end is adjacent to the top surface of the platform 12. In order to adjust the guiding element 42 to any desired position for directing the movement of the balls 38, at one edge of the platform 12 is a bracket 45 having a threaded opening therein through which is screwed a threaded rod or key 46 having one of its ends connected to the tube 43 of said guiding element. Obviously by rotating the threaded rod or key 46 the tube 43 may be positioned so that the course of travel of the balls 38 will be accurately guided toward the pins 39.

In the foregoing description I have embodied the preferred form of my invention, but I do not wish to be understood as limiting myself thereto, as I am aware that modifications may be made therein without departing from the principle or sacrificing any of the advantages of this invention, therefore I reserve to myself the right to make such changes as fairly fall within the scope thereof.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:—

In an automatic bowling machine, in combination, a suitable base, a suitable platform supported thereon, a trench surrounding said platform for conducting the balls to the runway, an opening in the trench for admitting the balls to the runway, an inclined runway for the return of the balls from the front to the rear of the machine, a vertically disposed frame at the rear end of the machine having a plurality of vertical tubes therein for the passage of the balls from the returnway to the chute from which the balls are discharged, a plurality of plungers of different lengths seated in the said vertical tubes, and all fixed upon a common support provided in the base of the machine below the said vertical frame and at the rear of the machine, said plungers being adapted to be controlled by a lever, provided therefore, said lever having a fulcrum in the base

of the machine below the said platform and having its lifting end pivoted to the support of the plungers, and its free end extending to the front of the machine said
5 end being provided with a suitable handle whereby the plungers may be manually controlled by the said lever from the front of the machine so that the balls may be discharged from the rear of the machine there-
10 by, said vertical tubes being so disposed and arranged that the balls may be received at the base of one of said tubes and transferred to the next tube and thence to the succeeding tube of the series until the ball reaches
15 the last tube when it is passed into the discharge chute, said discharge chute being centrally disposed within the upright frame, and in the front side thereof, and extending from near the top of the vertical frame to a point near the bottom thereof, and a guid- 20
ing chute communicating with the outlet of the discharge chute said guiding chute being inclined at a suitable degree and having means for regulating its position, where-
25 by the course of the balls may be accurately controlled, substantially as shown and described.

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Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."