(No Model.)

E. BROOKS.

BOWLING ALLEY.

No. 601,626. Patented Apr. 5, 1898.

Fig. 1.

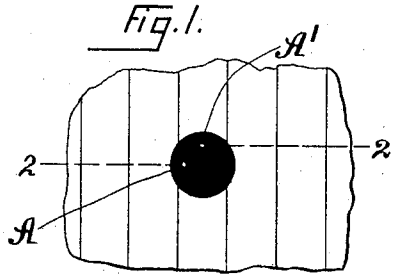


Fig. 5.

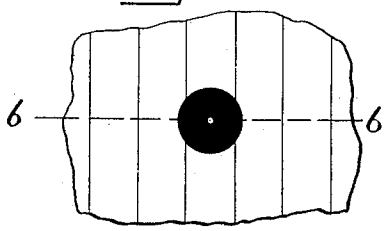


Fig. 2.

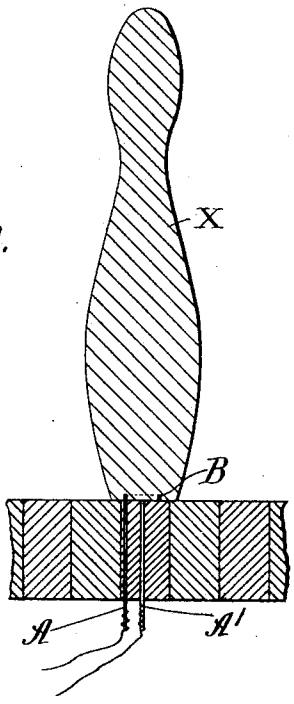


Fig. 6.

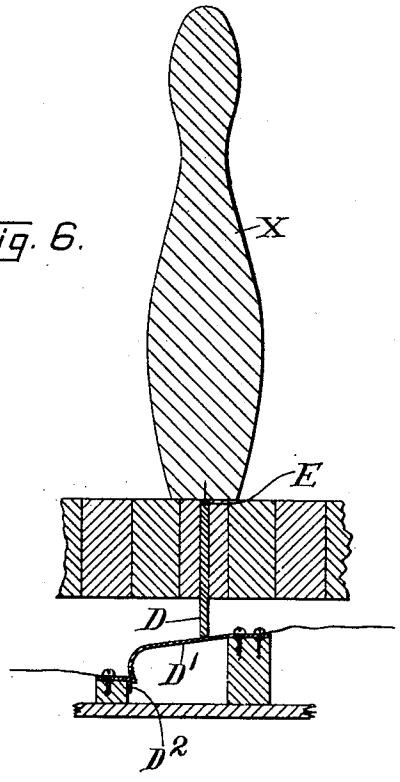


Fig. 3.

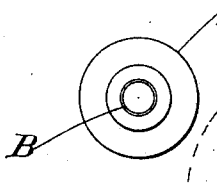
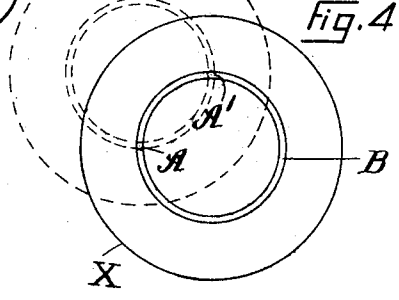


Fig. 4.



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UNITED STATES PATENT OFFICE.

EDWARD BROOKS, OF MILTON, MASSACHUSETTS.

BOWLING-ALLEY.

SPECIFICATION forming part of Letters Patent No. 601,626, dated April 5, 1898.

Application filed February 23, 1897. Serial No. 624,574. (No model.)

To all whom it may concern:

Be it known that I, EDWARD BROOKS, of Milton, in the county of Norfolk and State of Massachusetts, have invented an Improved Bowling-Alley, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 shows the spot and the contacts. Fig. 2 is a section on line 2 2 of Fig. 1 with the pin. Fig. 3 is a bottom view of a pin. Fig. 4 is a diagram upon an enlarged scale for clearness, showing the relations of the pin, the ring, and the contacts, a possible erroneous setting of the pin being shown in dotted lines. Fig. 5 is a plan showing the spot and the top of the plunger which connects with the upper member of spring-contact. Fig. 6 is a section on line 6 6 of Fig. 5.

As is well known, a bowling-alley consists of a long plane surface raised above the surface of the floor upon which it is laid, at one end of which raised surface are arranged pins to be bowled over by a ball rolled from the other end of the raised surface.

It is highly desirable to the proper playing of the game, especially where the players are skilful and competing, that the pins shall be arranged in exactly the same positions each time that they are set up. This has been provided for heretofore by marking the position of each pin by painting or inlaying a spot for each pin to stand upon. It is apparent, however, that this system left a great deal to the eye and diligence of the boy employed to set up the pins.

My invention is intended to control the boy in the performance of his duties by limiting the scope of allowable error in the setting up of the pins. A second feature is that the pin bowled over upon any roll is or may be indicated to the player instantly.

My invention consists in forming an electric circuit having an annunciator at one or both ends of the alley, of which circuit the pin whose position is to be controlled and indicated forms a part. The best means known to me of accomplishing this result is as follows:

Two binding-posts A A′ are set into the floor of the alley, their upper ends flush with the floor, upon the circumference of a circle and ninety degrees apart, the circle being struck from the center of the spot upon which the pin is designed to stand. It is obvious that when these two binding-posts are connected in any way the circuit will be complete. Upon the bottom of a pin X is inlaid and secured a metal ring B, so that its surface is flush with the surface of the bottom of the pin, the metal ring being of the same diameter as the circle, upon the circumference of which, ninety degrees apart, are the two binding-posts A A′. When the pin is properly set upon the spot, the binding-posts will be connected by means of the metal ring B. If the ring B is, say, three thirty-seconds of an inch across its face and the exposed end of the binding-posts is, say, one-sixteenth of an inch across, it is apparent that if the pin be set more than one-sixteenth of an inch out of its true position the circuit will not be completed by connecting the binding-posts A A′ through the ring B. There is an exception to this, however, in case the pin is set almost entirely off the spot, as indicated in dotted lines in Fig. 4; but this is a theoretical difficulty merely, as the attendant, however careless, would be bound to observe the misplacement. This difficulty can be met, if desired, by having four binding-posts, each ninety degrees from the other, and two circuits; but as a practical matter one circuit and two binding-posts, arranged as I have described them, will be found sufficient to attain the desired end. I have thought also of completing the circuit by means of a spring-contact D D′ D^2 and a nipple E upon the bottom of the pin. (See Figs. 5 and 6.) In this modified form of my invention a small hole is made at the center of the spot upon which the pin is to stand, beneath which hole is the spring-contact, the upper member D D′ of which rises flush with the surface of the alley. The nipple E is placed upon the bottom of the pin at its center, so that when the pin is placed in position the nipple E will press upon the upper member D of the spring-contact and force D′ into contact with the lower member D^2, thus completing the circuit.

It is obvious that instead of completing a circuit, if the annunciator is of the type requiring it, a circuit normally complete may be broken when the pin is put into position instead of being completed.

What I claim is—

In a bowling-alley an electric circuit broken at the spot where the pin stands; two binding-posts set upon the circumference of a suitably-sized circle struck from the center of the spot, their tops flush with the surface of the alley and ninety degrees apart and a pin having a metal ring inlaid upon the bottom thereof flush with its bottom surface and of suitable size to connect the two binding-posts, all arranged substantially as described.

EDWARD BROOKS.

Witnesses:
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