W. C. BANKS.

BOWLING ALLEY.

APPLICATION FILED JULY 26, 1913.

1,150,570. Patented Aug. 17, 1915.

Fig. 1.

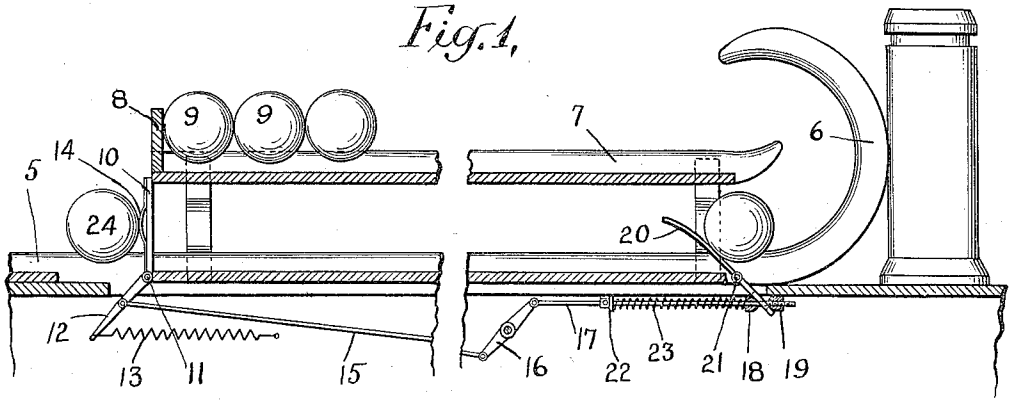


Fig. 2.

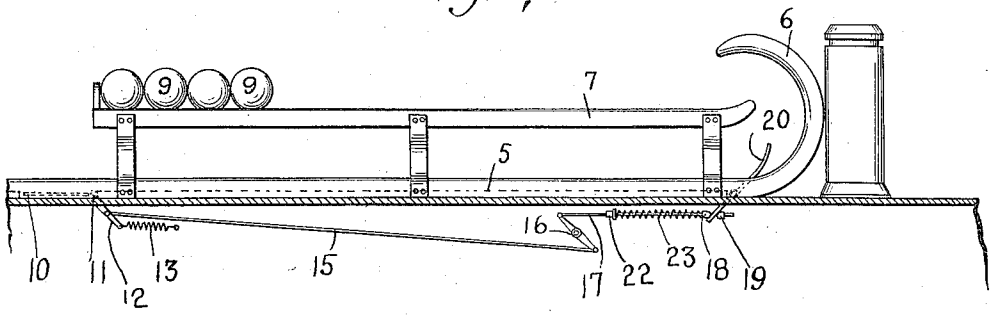


Fig. 3.

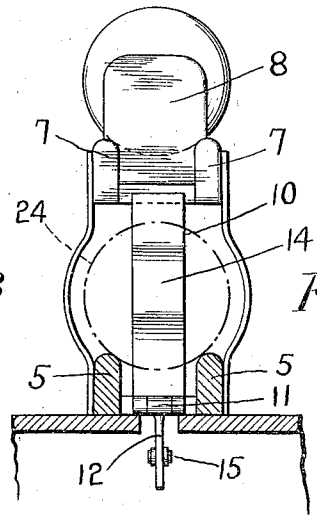
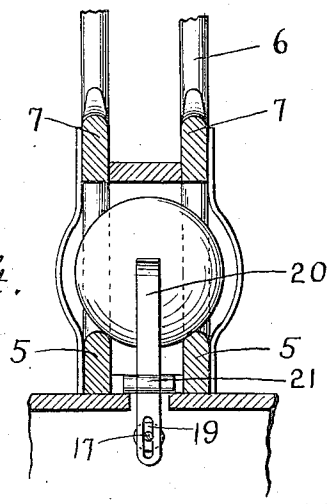


Fig. 4.



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BOWLING-ALLEY.

1,150,570. Specification of Letters Patent. Patented Aug. 17, 1915.

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To all whom it may concern:

Be it known that I, WILLIAM C. BANKS, a citizen of the United States, residing in the borough of Bronx, city and State of New York, have invented certain new and useful Improvements in Bowling-Alleys, of which the following is a specification.

This invention relates to bowling alleys and has reference more particularly to the apparatus employed in connection with a bowling alley for returning the ball to the position of the players.

The invention is directed to the provision of a safety device for so governing the return of the balls as to prevent one ball from striking a sharp blow upon another and thus injuring the balls or inflicting injury upon a player who at the time may be in the act of withdrawing a ball from the runway.

In the construction of bowling alleys heretofore, it has been common to provide a runway for the return of the balls having a semi-circular, upwardly curved portion at its forward end up which the balls run and from which the balls drop on a relatively short stretch of runway from which they are lifted by the players. It sometimes happens that the speed of travel of a ball along the runway is not sufficient to carry the ball around this upwardly curved portion and deposit it upon the support for the balls in the proper way. Instead, the ball runs part of the way around the upwardly curved portion and then drops back. If another ball be sent along the runway before the ball which dropped back has been withdrawn, the two balls would, if no means were provided to guard against it, collide with a sharp blow which would be apt to injure one or both of the balls, particularly about the finger holes therein. Furthermore a player might be in the act of grasping the ball which dropped back at the time when the succeeding ball came along the runway and might get his fingers between the two balls and thus receive a painful injury. The present invention involves the provision of a safety device for guarding against either of these contingencies.

In accordance with the invention a trap or shield is provided for arresting the travel of the succeeding ball and this trap or shield is actuated automatically in case a ball drops back upon the runway instead of being deposited upon the upper supporting runway. The apparatus involves the provision of a yieldingly supported arm or tripping finger projecting into the runway for the balls and adapted to be depressed readily by any ball in passing it on its course to the support for the balls. But if a ball should fail to complete its course and should move backwardly upon the runway, it would engage this arm and operate the shield or operate a trip for the shield so that the latter would be projected into the runway to arrest the travel of the succeeding ball.

My invention may be embodied in mechanisms of various types and one such type I have illustrated in the drawings annexed hereto.

In these drawings Figure 1 is a central section of the apparatus broken away in part showing the device after the same has been operated; Fig. 2 is a view of the apparatus in elevation showing the safety device in its normal position; Fig. 3 is a transverse section at a point in front of the shield; and Fig. 4 is a transverse section at a point in front of the arm for operating the safety device.

Referring to these drawings, 5 indicates a runway for the balls employed in a bowling alley, this being of a type now commonly employed. At its forward end, the runway terminates in an upwardly directed semi-circular portion 6. The upper end of this portion 6 overlies one end of a rack 7 in the form of a relatively short stretch of runway which is horizontally disposed. At the end of this rack 7 is a stop 8. The balls 9 are caused to travel along the runway 5 and normally move at such speed that they will be carried upwardly around the end portion 6 and then drop upon the end of the rack 7 along which they move at reduced speed until arrested by stop 8.

A movable stop device 10 is provided for arresting the travel of a ball along the runway 5. This stop 10 is pivotally mounted to turn about a horizontal axis 11 and is rigidly secured to an arm 12. A spring 13 is connected to arm 12 and to a stud on the frame-work, this spring normally holding the stop 10 in a horizontal position in which it is shown in Fig. 2. From this position the stop 10 may be turned to an upright position in which it is shown in Fig. 1 and in which it obstructs the passage of a ball along the runway 5. The stop 10 preferably has a yielding surface. In the present in-

stance, a strip of sheet-metal 14 is shown secured to stop 10, this being bowed at its central portion. An abutment is preferably provided for stop 10 to contact when in operative position, to coact therewith in withstanding the impact of a ball advancing along the runway under the circumstances described. This abutment may be in the form of alley illustrated, the left hand end of the rack 7, referring to Figs. 1 and 2.

The arm 12 has one end of a connecting rod 15 secured thereto, the other end of which is connected to one end of a lever 16. The other end of this lever is pivotally connected to a rod 17 having two stop members 18 and 19, the latter of which is threaded thereon. An arm 20 is pivotally mounted to turn about a horizontal axis 21 to the positions shown in Figs. 1 and 2. This arm has a slot therein through which the rod 17 passes as shown in Fig. 4, the arm 20 passing between the two stops 18 and 19. Secured on rod 17 is a stop 22 and a spring 23 is coiled about rod 17 between stops 22 and 18, the latter of which is adapted to slide upon rod 17.

The normal position of the apparatus is shown in Fig. 2. When a ball travels along the runway to the right, it engages the arm 20 and depresses the latter sufficient to allow the ball to pass, this movement of the arm being accompanied by a sliding movement of the stop 18 upon rod 17 against the tension of spring 23. If a ball should fail to pass from the runway 5 to the rack 7 and instead should move downward upon the curved portion 6, it would engage the arm 20 and move the latter from the Fig. 2 to the Fig. 1 position. In moving so, the arm 20 would move the rod 17 to the right and thus move the rod 15 to the left and the latter would turn the stop 10 to its upright position in which it is shown in Fig. 1. This would project a stop into the path of a succeeding ball 24 so that the latter would be arrested by the stop 10. As a result, the ball 24 would not be allowed to strike sharply against the ball which failed to complete its travel to the rack 7. Furthermore, it will be apparent that if a ball failed to complete its course, a player may grasp it and lift it from the runway 5 to the rack 7 without danger of injury caused by another ball traveling along the runway 5. It will be understood that the specific mechanism employed in the safety device illustrated in the accompanying drawings is typical of various mechanisms which may be employed in effecting the objects heretofore set forth. I wish to be understood therefore as not limited to this particular construction, but as including within the scope of the appended claims modified forms of the apparatus which may be employed for attaining the same purposes.

Having described my invention, what I claim as new therein and desire to secure by Letters Patent of the United States is:

1. In a bowling alley, a runway, an arm projecting into the runway and adapted to be depressed by a ball moving forward in the runway, such ball when moving backward being adapted to operate said arm and to be stopped in its backward movement thereby, a stop device movable to an operative position projecting in to the runway, in which it is adapted to stop the forward travel of a second ball, and into an inoperative position out of the runway and connecting mechanism between said arm and said stop, substantially as set forth.

2. In a bowling alley, a pivoted arm projecting into the runway, and adapted to be momentarily depressed by a ball moving forward in the runway, a stop adapted to be projected into the runway, to the rear of said arm, into position to stop the forward movement of a ball in said runway, connections between said arm and stop, whereby movement of said arm caused by contact therewith of a ball moving backward in said runway moves said stop into position to stop the forward movement of a second ball, and means for normally holding said stop out of operative position, substantially as set forth.

3. In a bowling alley, the combination of an arm projecting into the runway, a rod coacting with one end of said arm, a spring between the arm and rod permitting movement of the arm in one direction without operating the rod, a check device movable into and out of the runway, to the rear of said arm, a connection from said rod to said check device, adapted to move said check device into position to stop the advance of a second ball in the runway when said arm is contacted by a ball moving rearwardly, and an abutment contacted by said check device when the latter is moved into such position to stop the advance of a second ball, substantially as set forth.

This specification signed and witnessed this 3 day of July, 1913.

WILLIAM C. BANKS.

Witnesses:
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THOS. J. BYRNE, Jr.

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