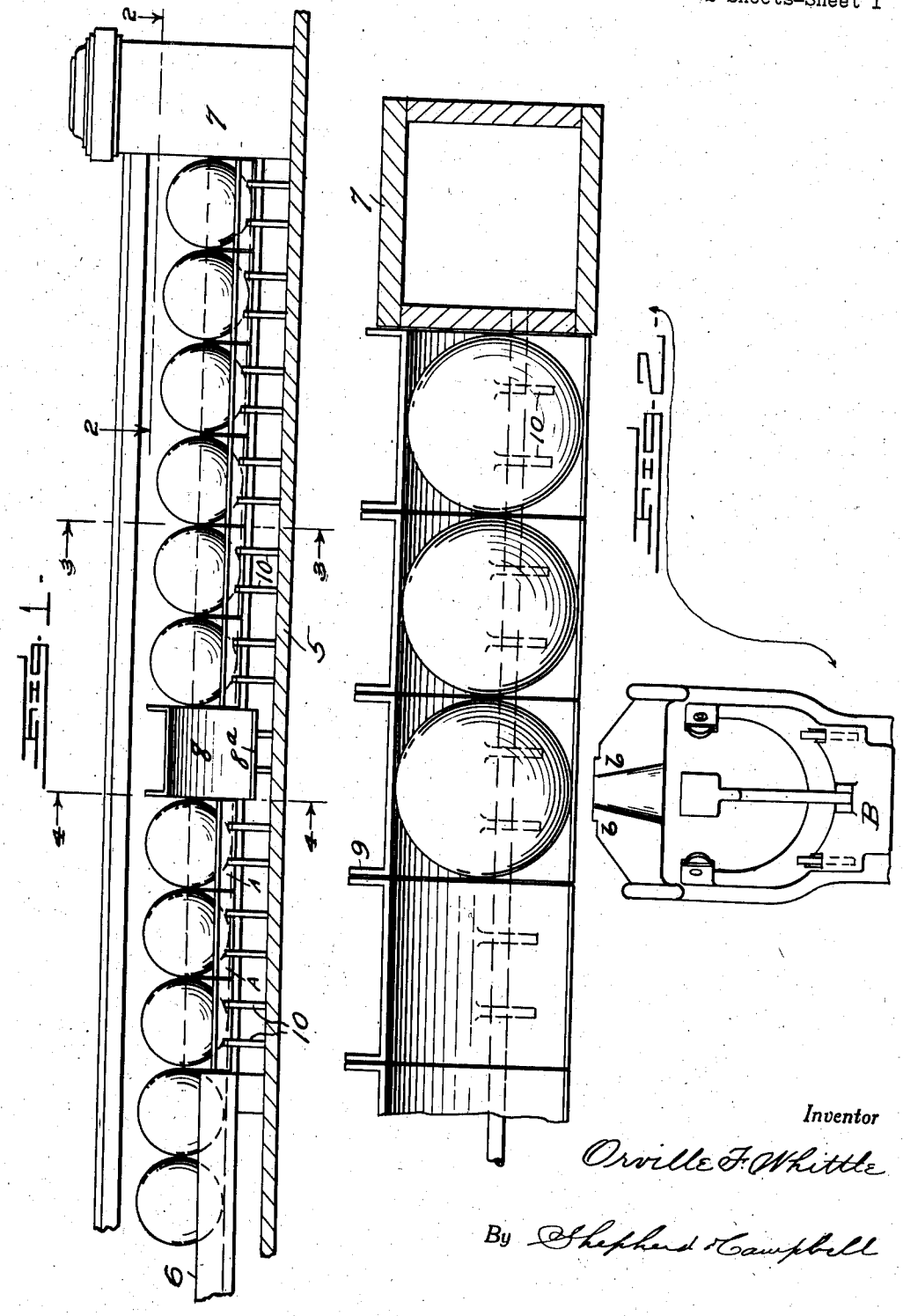
April 21, 1942. O. F. WHITTLE 2,280,332

AUTOMATIC LOADER FOR POWER BOWLING MACHINES

Filed Feb. 17, 1941 2 Sheets-Sheet 1



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FIG. 3.

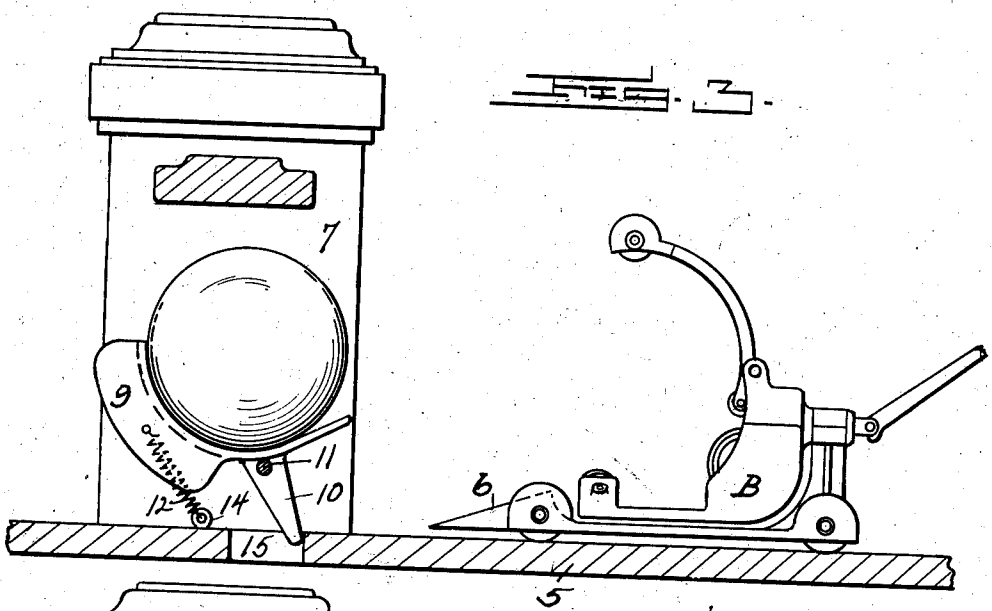
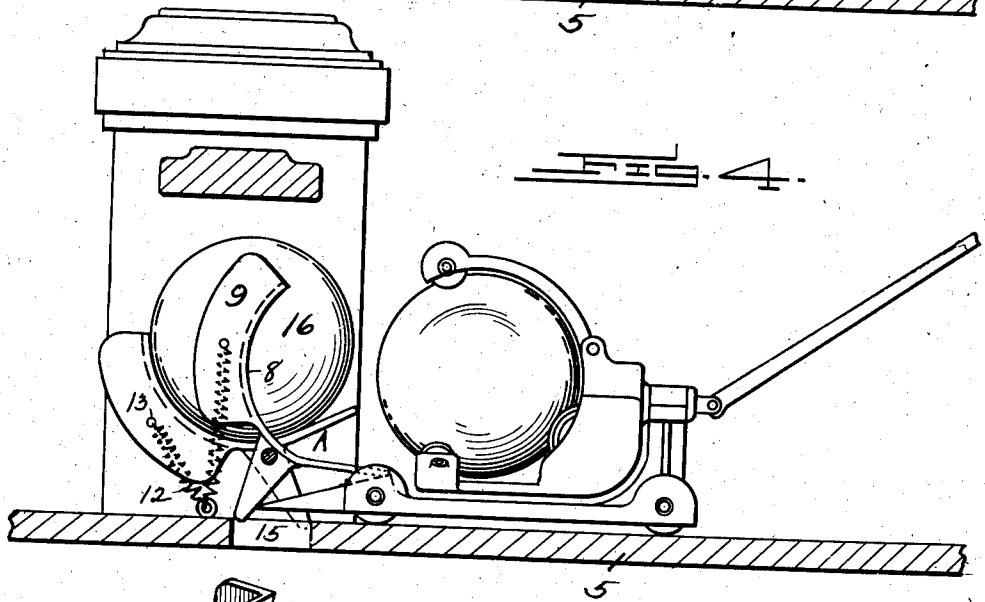


FIG. 4.



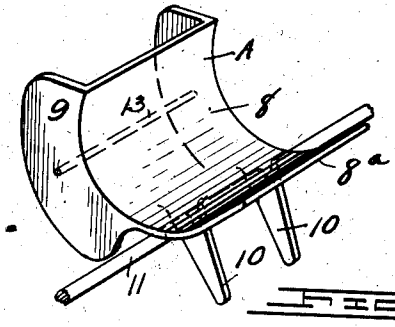


FIG. 5.

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AUTOMATIC LOADER FOR POWER BOWLING MACHINES

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Application February 17, 1941, Serial No. 379,315

9 Claims. (Cl. 273—37)

This invention relates to an automatic loading device for power bowling machines of the character of those shown in my copending applications, Serial No. 323,619, filed March 12, 1940; and Serial No. 319,123, filed February 15, 1940.

The object of the invention is to provide a loading device adapted to receive and retain the balls returned to the player's end of the alley, and to automatically load one of said balls into the bowling machine by the mere act of thrusting said machine toward the runway.

The loading device is so arranged that it is not necessary for the player to select the end ball, but, upon the contrary, is so arranged as to make it possible for the player to select the particular ball which he may desire. Further objects and advantages of the invention will be set forth in the detailed description which follows.

In the accompanying drawings:

Figure 1 is a longitudinal, sectional view through one end of a bowling alley, showing the loading mechanism in elevation.

Fig. 2 is a fragmentary plan view of a part of the structure of Fig. 1.

Fig. 3 is a transverse, vertical, sectional view upon line 3—3 of Fig. 1, showing a ball in one of the loading rack units.

Fig. 4 is a sectional view upon line 4—4 of Fig. 1, showing the loading unit as having been tipped forward to load a ball in the bowling machine, and,

Fig. 5 is a perspective view of one of the loading units.

In the drawings, 5 designates a bowling alley floor, and 6 a runway associated therewith, of the type commonly employed to return balls that have been played, to the player's end of the alley. According to the present invention, the runway 6 terminates short of the end post 7, and the space between the runway and the post is occupied by a plurality of tiltable loading sections A. Each loading section (see Fig. 5) comprises an arcuate pan 8, downwardly and rearwardly extending wings 9, and downwardly projecting fingers 10. The various sections A are pivoted to rock with relation to a fixed rod 11.

Springs 12, connected to rods 13, and to the floor of the alley at 14, tend to throw all of the loading sections to the position illustrated in Fig. 3, the rearward movement of these sections being limited by the fingers 10 when they strike against the forward side of an opening 15 formed in the floor of the alley.

When in the position illustrated in Fig. 3, the several pans are aligned with and constitute, in effect, an extension of the runway 6, so that bowling balls 16 may travel from the runway into the several loading sections. There they remain until a player, using the bowling machine B, desires to load one of the balls into the machine. To accomplish this, the player advances the bowling machine to the left in Fig. 3, until the nose b of the machine strikes the fingers 10 and tips the section A as illustrated in Fig. 4. It will be noted that the forward side of the pan 8 is not a continuation of the arc defined by the remainder of the pan, but upon the contrary, lies tangentially with respect to said arc, so that this forward edge 8^a of the pan bridges the gap between pan and machine and constitutes a runway over which the ball travels and is delivered into the machine.

Machines of the type described are adapted to impart a high degree of rotation to the bowling ball and then deliver it upon the alley so that it may travel in the direction of its rotation, at high speed along said alley.

By using power bowling machines it is possible to employ alleys of more than normal length and to employ balls of more than normal weight. Thus the capability of a machine to load a relatively heavy ball into a power bowler without the necessity of the ball being lifted by the player becomes important. This is especially the case where the machine is being used by persons of limited strength, such as elderly persons or women.

By referring to Fig. 4, it will be seen that when a unit moves forward the wings 9 act as barriers to prevent adjacent balls from rolling out of place.

While I have illustrated a plurality of tiltable sections A, it is clear that a single tiltable section will act to load a ball into a bowling machine, and only one section need be employed if the players are willing to be limited to only one ball in their selection.

While the structure shown and described is a simple and efficient one, it is to be understood that the invention includes within its purview not only this particular arrangement of parts, but any other arrangement of parts coming fairly within either the terms or the spirit of the appended claims.

Having described my invention, what I claim is:

1. A loading device for loading bowling balls into power bowling machines, comprising a laterally tiltable section adapted to receive a bowling ball in the rolling movement of the ball in its

return to the player's end of a bowling alley, and members engaged with said tiltable section and adapted to be engaged by a power bowling machine, in such manner that the movement of the bowling machine toward the tiltable section tilts said section to discharge the ball into the bowling machine.

2. A loading device of the character described, comprising a pan-like receptacle mounted to tip laterally with respect to a bowling alley, means tending to move said pan to ball-receiving position and means for tipping the pan laterally to discharge the ball from the pan, said receptacle being of a shape to permit a bowling ball to pass longitudinally therethrough or to retain and support said ball until the receptacle is tipped laterally of the alley.

3. The combination with a bowling alley and a runway extending lengthwise thereof, of a tiltable pan dimensioned to constitute a continuation of said runway and to receive a ball delivered from said runway, means for tilting the pan laterally with respect to the alley to discharge a ball from said pan, and a dirigible, power, wheeled, bowling machine adapted to be thrust bodily toward the pan and means for tipping the pan to discharge a ball therefrom directly into said bowling machine.

4. In combination a bowling alley having a runway extending therealong to return balls toward the player's end of the alley, a row of tiltable pan-like sections aligned with the runway and constituting an extension thereof, each of said sections being adapted to receive a bowling ball, means tending to tip said sections rearwardly to ball retaining position, and members engaged with said sections and adapted to be engaged by a part of a power bowling machine, in such manner, that when the power bowling machine is thrust toward the said section, said section will be tipped forwardly to discharge a bowling ball into the bowling machine.

5. A structure as recited in claim 4, wherein each of said sections is provided with at least one wing, which, when the section is tipped forwardly, moves to a position to restrain rolling movement of the adjacent balls toward the point evacuated by the discharged ball.

6. A loading unit of the character described, comprising an arcuate pan-like member, the forward edge of which lies tangentially with respect to the remainder of the pan, a pair of wings extending downwardly and rearwardly from the rear portion of the pan, a spring tending to tip the pan-like member rearwardly, means for mounting said member for such rearward tipping movement and depending fingers carried by the pan-like member disposed in a position to be engaged by the nose of a bowling machine, so that when the bowling machine is moved toward the pan-like member, the ball will be discharged laterally into the bowling machine.

7. In a ball loading device for power bowling machines, the combination with a standard bowling alley and its runway for returning the bowling balls to the player's end of the alley, of a movable section disposed in the length of said runway of a shape to permit a bowling ball to roll therethrough in the direction of the length of the runway, or to receive and retain the bowling ball, and means for mounting said movable section to tilt laterally with respect to the runway to thereby discharge a contained ball in a direction transverse of the alley.

8. A structure as recited in claim 7, in combination with a dirigible, power bowling machine adapted to be rolled upon said alley and to be advanced toward said movable section, said machine being provided with members adapted to form a seat for the bowling ball into which the bowling ball may roll as it is discharged from said movable section.

9. A structure as recited in claim 7, in combination with a dirigible, power bowling machine adapted to be rolled upon said alley and to be advanced toward said movable section, said machine being provided with members adapted to form a seat for the bowling ball into which the bowling ball may roll as it is discharged from said movable section, and means upon the bowling machine for engaging the said movable section to tilt the same.

ORVILLE F. WHITTLE.