Feb. 19, 1963 G. SAMSON, JR 3,077,623

CLEANING DEVICE FOR BOWLING BALLS

Filed March 5, 1962

FIG. 1

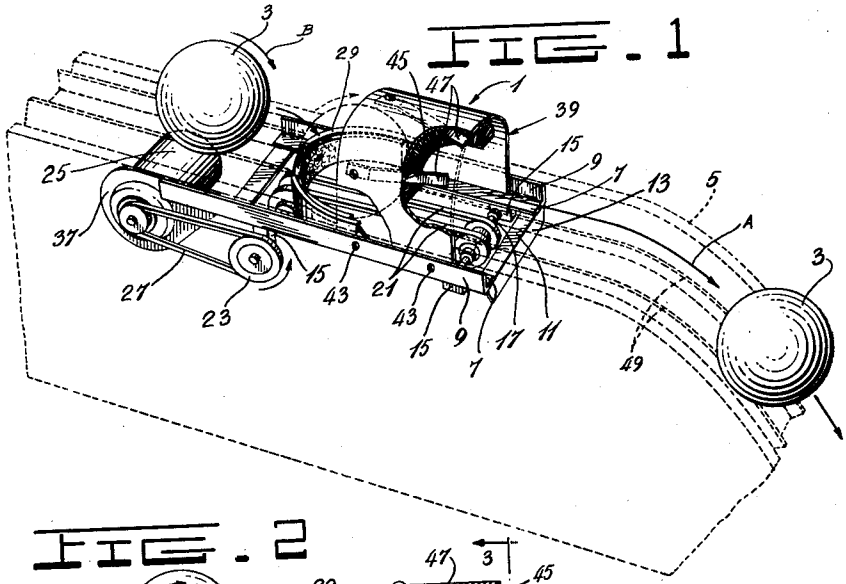


FIG. 2

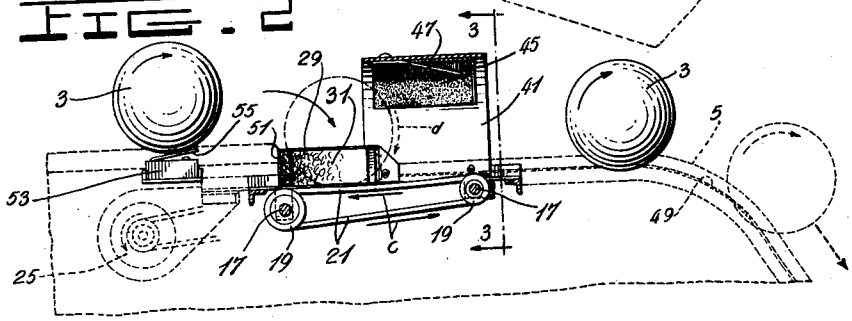


FIG. 3

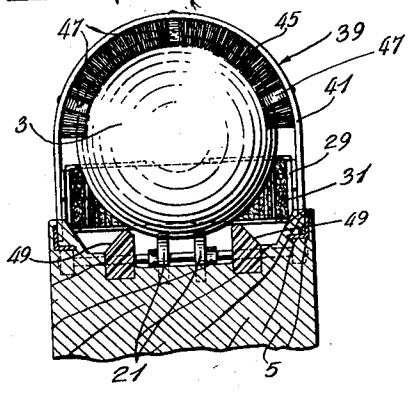
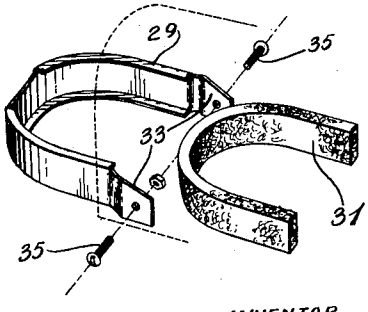


FIG. 4



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CLEANING DEVICE FOR BOWLING BALLS

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7 Claims. (Cl. 15—21)

The instant invention relates to a cleaning device for a bowling ball and more particularly to a device to be mounted on a bowling ball race or track on the path of travel of the bowling ball back from the pin setting area.

In all bowling rooms, the bowling ball after having been used for a certain length of time becomes quite dirty from picking up dirt over the bowling alleys and also when riding on the bowling ball races. It can easily be observed that players that have been playing for an hour or even less have hands that have become quite dirty from the handling of the balls. In spite of this unsanitary and unpleasant situation no device has heretofore been provided or found for conveniently and satisfactorily cleaning the balls and this has become a persistent problem that bowling room owners have always tried to solve, but without success.

It is therefore a main object of the invention to provide a cleaning device for cleaning and polishing bowling balls and avoid the unpleasantness of the above-mentioned unsanitary condition.

A further object of the invention resides in the provision of a cleaning device of the aforesaid type that will also automatically push away any ball being cleaned whenever another one arrives at a predetermined distance from the cleaning device.

Yet another object of the invention consists in providing a cleaning device which not only cleans and polishes the balls but also gives them a momentum that drives them away from the device after cleaning and polishing.

Yet another object of the invention lies in the provision of a cleaning device as aforesaid of extremely simple construction and thus of low cost manufacture, yet quite efficient to automatically clean and polish bowling balls.

The various objects above mentioned are made possible with a cleaning device according to the invention which comprises: Means for producing rotation of a bowling ball; stop means for preventing linear displacement of the ball; said stop means including cleaning means against which said ball abuts as it rotates.

Further, the device includes means to suddenly stop rotation of the ball and allow it to be driven away from the stop means under the influence of its own momentum.

It is also within the scope of the invention to provide damping and centering means to properly center the ball on the race and also to prevent it from falling off the race or track.

Further advantages and other objects of the invention will become apparent as the following description proceeds having regard to the annexed drawings wherein:

FIGURE 1 is a perspective view, partly cut away to show some parts of the internal structure, of a cleaning device made according to the teaching of the invention, shown mounted on a bowling race or track.

FIGURE 2 is a cross-sectional elevation view of the cleaning device of the invention, also mounted on a bowling race or track.

FIGURE 3 is a cross-sectional view along line 3—3 of FIGURE 2 and,

FIGURE 4 is an exploded view of the cleaning element of the cleaning means.

As illustrated in FIGURE 1, the cleaning device 1 of the invention is for mounting in the path of bowling balls 3 travelling on a bowling ball returnway 5 illustrated in dotted lines. The direction of linear displacement of the balls 3 is indicated by arrow A while its direction of rotation when on the returnway 5 is shown by arrow B.

The preferred form of the device comprises a rectangular frame made up of longitudinal members 7 having upstanding flanges 9 and connected by transverse members 11 provided with downwardly projecting flanges 13. Below this frame and journaled in bearings 15 are two shafts 17 on each one of which are mounted two pulleys 19 around which are trained two conveyor belts 21. It will be noted from FIGURE 2 that the top surface of each conveyor belt 21 is substantially level with the top surface of the frame, although this need not necessarily be so.

Also mounted on the forward shaft 17 is the driving means for the conveyor which includes a driving pulley 23 in operating engagement with motor 25 through a connecting belt, 27.

Mounted within the above mentioned rectangular frame and fixed to the flanges 9 of the longitudinal members 7 is a stop member 29 best depicted in FIGURE 4. As shown, stop member 29 is arcuate in shape and formed as a channel when seen in cross-section for the reception of the cleaning means or element 31 which may be felt or other similar material and which is preferably forcibly received within this channel-shaped member 29 so as to be securely retained therein. The stop member 29 is terminated at the free ends thereof by outwardly directed ears 33 which are connected to the flanges 9 of the frame by any suitable means such as bolts and nuts 35. As noted, the stop means, which is composed of the stop member 29 and the cleaning element 31, is mounted upright on the frame of the device for a purpose to be determined later. The stop means is located upstream of the conveyor in relation to the direction of travel of the balls.

The motor 25 itself may be mounted on an extension of one of the angle-shaped longitudinal members 7 which would be terminated by a circular support 37 within which one end of the motor 25 is received in any known manner.

Forwardly of the stop means 29, 31, is a damping and centering means 39 best illustrated in FIGURE 3. As its name implies, this member serves for damping the linear movement and for centering the ball on returnway 5. It comprises an outer tunnel-shaped casing 41 which has its lower end fixed to the upstanding flanges 9 of longitudinal members 7 as by screws 43. Inwardly of the said tunnel-shaped casing, is an arcuate brush 45 adapted to come in contact with ball 3 as it leaves the stop means 29, 31.

Further, extending through the arcuate brush 45 is a series of downwardly bent leaf springs 47, best shown in FIGURE 2. As will be understood, while brush 45 serves to slow down the ball as it leaves the stop means 29, 31, the leaf springs 47 are used to ensure that the ball be centered in relation to the lateral upstanding rails 49 of track 5 (see FIGURE 3).

As illustrated in FIGURE 2, the cleaning device is set in a depression in the bowling ball returnway with the stop member 29 abutting the shoulder 51 formed between the two adjacent sections of the race or track 5.

Upstream of the stop member 29 in relation to the direction of travel A of balls 3, there is provided a limit switch 53 or the like, which is part of the driving means of the conveyor, having an upwardly directed operating lever 55 which, when depressed, will stop motor 25 and thus travelling conveyor 21. Switch 53 and lever 55 are so set in relation to the height of the lateral rails 49 that the lever 55 will automatically be depressed by a passing ball, as shown in FIGURE 2. Lever 55 and switch 53 thus serve as a means to stop the conveyor driving means.

The operation of the device is as follows:

A ball is sent by the pin setting attendant to the play-

ers by setting it on the slightly inclined race or track 5. The said ball travels on the track 5 until it reaches the stop means 29, 31, and then falls into the well formed by the said stop means. As soon as it rests on the travelling conveyor 21, which moves in the direction indicated by arrow C of FIGURE 2, the ball starts rotating in the direction indicated by arrow D in dotted lines, also on FIGURE 2. The conveyor thus forces the ball against the cleaning element 31 consequently providing cleaning and polishing thereof. The ball will remain in that position until a further ball comes along and depresses lever 55. At that moment, the motor 25 stops and under the momentum picked up by its own rotation, the ball sitting in the well formed by the stopping and cleaning means will be thrown in the direction indicated by arrow A. As it passes underneath the tunnel-shaped casing 41 it is further cleaned and slowed down by the brushes 45 and also centered by the leaf springs 47. Thereafter the ball continues on its way to the players' area.

Although a specific embodiment of the invention has just been described, it will be understood that many modifications may be made thereof without departing from the spirit of the invention, the scope of which is set forth in the appended claims.

I claim:

1. A cleaning device for bowling balls adapted to ride on a returnway in a predetermined direction, said device comprising: an endless conveyor mounted in the path of said returnway and moving in a direction reverse said predetermined direction and on which the ball to be cleaned is adapted to rest; stop means located upstream of said conveyor in relation to said predetermined direction and adapted to partly surround the ball to be cleaned for preventing linear displacement thereof on the conveyor to thus produce rotation of the ball under the action of the travelling conveyor; said stop means including cleaning means against which the ball to be cleaned abuts as it rotates and further means upstream of said conveyor and stop means in relation to said predetermined direction to suddenly stop movement of the conveyor to allow the clean ball to be driven downstream from said stop means under the influence of its momentum.

2. A cleaning device for bowling balls adapted to ride on a returnway in a predetermined direction, said device comprising: a frame mounted in the path of said returnway; an endless conveyor moving in a direction reverse said predetermined direction within said frame and on which the ball to be cleaned is adapted to rest; arcuate stop means located on said frame upstream of said conveyor in relation to said predetermined direction and adapted to partly surround the ball to be cleaned to prevent linear displacement thereof and thus to produce its rotation under the action of the travelling conveyor; said stop means including an arcuate cleaning element against which the ball to be cleaned abuts as it rotates; further means upstream of said conveyor and stop means in relation to said predetermined direction to suddenly stop movement of said conveyor and to allow

the clean ball to be driven downstream from said stop means under the influence of its momentum.

3. A cleaning device for bowling balls adapted to ride on a returnway in a predetermined direction, said device comprising: a substantially rectangular frame mounted in the path of said returnway; a travelling endless conveyor mounted within said frame and moving in a direction reverse said predetermined direction; the ball to be cleaned being adapted to rest on said conveyor; an arcuate stop means fixed to said frame upstream of said conveyor in relation to said predetermined direction and adapted to partly surround the ball to prevent linear displacement thereof to thus produce its rotation under the action of the conveyor; said stop means including an arcuate cleaning element against which the ball to be cleaned abuts as it rotates; further means upstream of said frame and stop means in relation to said predetermined direction and operable by a passing ball to suddenly stop said travelling conveyor so that the ball thereof is allowed to be driven away from said stop means under the influence of its momentum.

4. A bowling ball cleaning device to be mounted in the path of a bowling ball returnway, said device comprising: a frame fixed to said returnway; a travelling endless conveyor mounted within said frame on a lower level than said returnway and moving in a direction reverse that of the ball on the returnway; the ball to be cleaned being adapted to fall on said conveyor; an arcuate stop means fixed to said frame upstream of and over said conveyor in relation to said predetermined direction and adapted to partly surround the ball to be cleaned to prevent its linear displacement and thus to cause its rotation under the action of the conveyor; said stop means including an arcuate cleaning element against which the ball to be cleaned abuts as it rotates; means for driving said endless conveyor and including a lever projecting above said returnway and upstream of said stop means operable by a further coming ball to stop said driving means and allow the clean ball to be driven away from said stop means under the influence of its momentum.

5. A device as claimed in claim 4, wherein said lever is the operating member of a microswitch and wherein said driving means includes an electric motor.

6. A device as claimed in claim 4, further comprising damping and centering means on said frame downstream of said stop means.

7. A device as claimed in claim 6 wherein said last named means is a tunnel like structure secured on said frame and having, on its inner surface, an arcuate brush adapted to come in contact with a passing ball to damp its movement; said tunnel also including a series of downwardly projecting leaf springs to properly center the passing ball on said race.

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