Sept. 29, 1964 D. A. MOLANDER 3,150,392

BALL CLEANING APPARATUS

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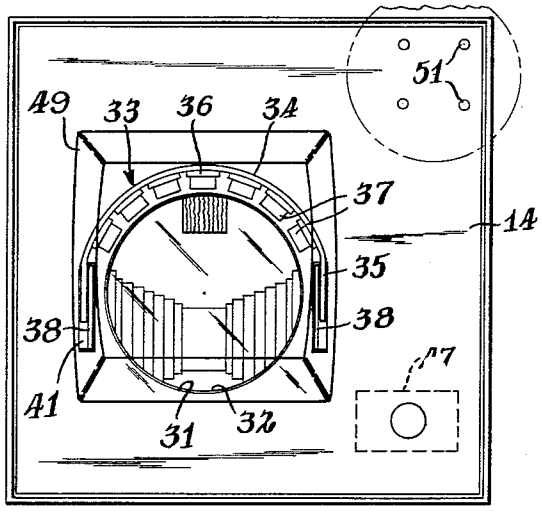
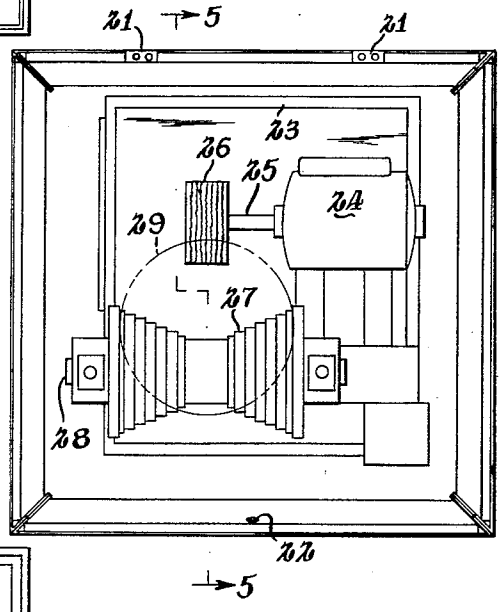


FIG. 1.

FIG. 2.



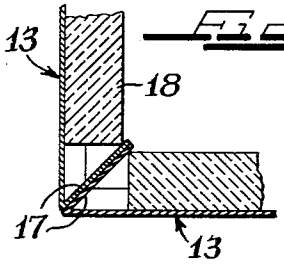


FIG. 3.

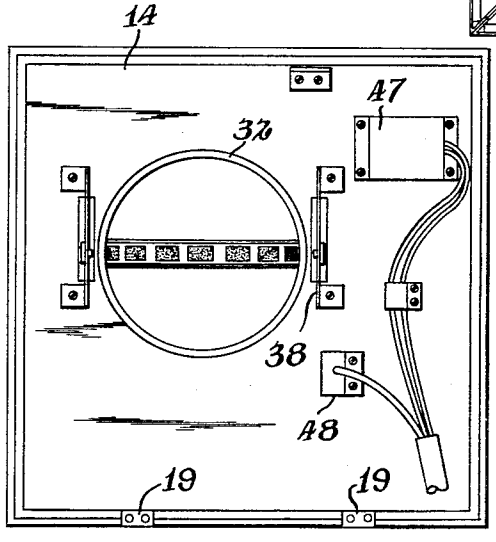


FIG. 4.

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Fig. 5.

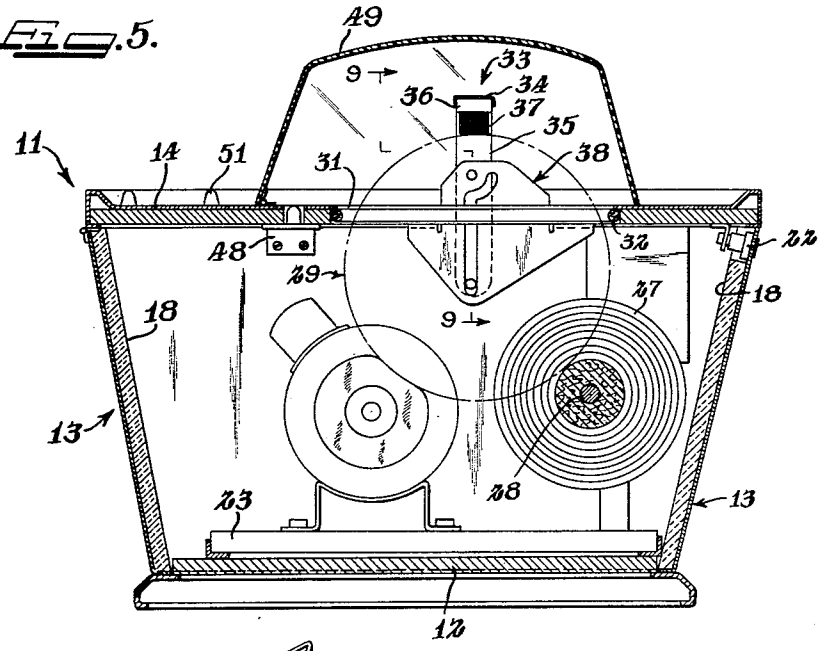
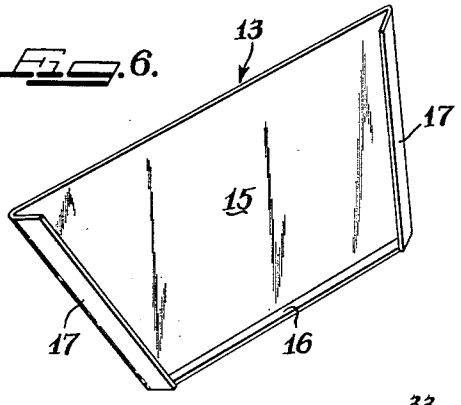


Fig. 6.



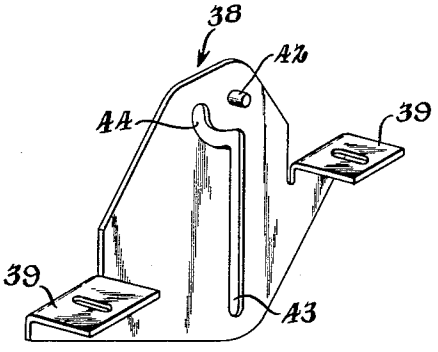


Fig. 7.

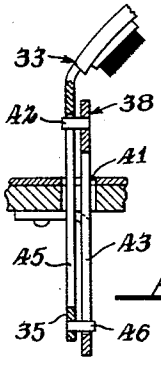


Fig. 9.

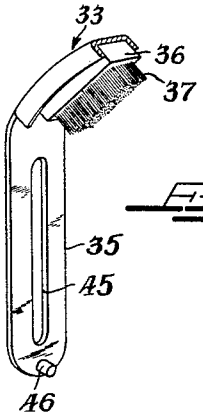


Fig. 8.

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BALL CLEANING APPARATUS

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5 Claims. (Cl. 15—4)

The present invention relates to improvements in cleaning apparatus and more particularly to the construction and assembly of an apparatus for cleaning and polishing bowling balls.

The apparatus, generally, is enclosed in a housing having an opening in its top wall into which a spherical member such as a bowling ball is placed for cleaning. When so positioned, the ball rests upon rotatable spaced apart cleaning and polishing elements at least one of which is power operated. The top wall of the housing mounts a brushing element that is movable from an ineffective position into place over and against the ball. The brushing element is normally urged into wiping engagement with the ball by reason of its own weight. Preferably, the apparatus is coin operated and to this end it includes a coin operated timer switch connected in the electric circuit to the motor for driving one of the two cleaning elements. Also included in the electrical circuit is a normally open control switch that is closed only when a cover is arranged over the opening into which the ball has been placed. In operation, the cleaning, polishing and brushing elements cooperate to cause the ball to revolve on different axes to insure that all surfaces of the ball are engaged and acted upon by the elements.

It is therefore an object of the invention to provide a novel apparatus of the character referred to.

Another object is to provide a ball cleaning apparatus with novel constructions of cleaning, polishing and brushing elements.

Another object is to provide a ball cleaning and polishing apparatus with a brushing element having a novel mounting and of novel construction.

The structure and means by which the above noted and other objects and advantages of the invention are attained will be described in the following specification, taken in conjunction with the accompanying drawings, showing a preferred embodiment of the invention, in which:

FIG. 1 is a top plan view of the apparatus showing the brushing element in a position of non-use;

FIG. 2 is a top plan view of the apparatus with the top wall removed;

FIG. 3 is an enlarged detail sectional view of one corner assembly of the housing structure;

FIG. 4 is a bottom plan view of the top wall;

FIG. 5 is an enlarged vertical sectional view, taken substantially on line 5—5 of FIG. 2;

FIG. 6 is a perspective view of one of the housing walls;

FIG. 7 is a perspective view of one of the brushing element mounting brackets;

FIG. 8 is a fragmentary perspective view of the brushing element; and,

FIG. 9 is an enlarged detail sectional view of the brushing element mounting, taken on line 9—9 of FIG. 5.

Referring to the exemplary embodiment of the apparatus disclosed in the accompanying drawings, the apparatus is enclosed in a novel housing 11, comprised of a bottom wall 12, upstanding outwardly inclined side walls 13, and a removable top wall 14. The side walls 13, best shown in FIGS. 3 and 6, each comprise a flat panel 15 flanged on its lower edge, as at 16, for securement to the bottom wall, and internally flanged, as at 17, on its vertical side edges. The flanges 17 are disposed at an acute angle, as shown, so as to receive therein the marginal edges of a

liner 18 of sound insulation material. When assembled, adjacent flanges 17 are welded or otherwise secured together.

The top wall 14 preferably has hinge elements 19 on one of its edges for association with complemental hinge elements 21 on the upper edge of one of the housing side walls so as to be hingedly connected to the housing. A suitable spring or key latch 22 may be provided at the opposed edge of the top wall for securing it in a closed position. It should be understood, however, that the top wall is hinged for convenience in servicing but that it may be completely removable if so desired. The specific construction of the top wall and of elements mounted thereon will be described in detail hereinafter.

A frame 23 preferably comprised of channel or angle bars, is secured to the housing floor or bottom wall 12. This frame mounts the cleaning and polishing elements and the drive means therefor, now to be described. As best shown in FIGS. 2 and 5, the frame 23 mounts an electric motor 24 having a shaft 25 on which is mounted firmly a thick buffing wheel 26. This buffing wheel may be of any suitable construction but preferably it is of laminated construction comprised of a series of fabric discs. The motor 24 and buffing wheel 26 are located to one side of the vertical center of the housing as shown.

A second buffing or support wheel 27 is mounted on an idler shaft 28 journalled in bearings mounted on frame 23 and located to one side of and parallel with the axis of buffing wheel 26. The buffing wheel 27 is of greater length than wheel 26 and it is fabricated preferably of a series of felt discs of graduated diameters, arranged as shown so as to provide a concave or dished circumferential surface having its smallest diameter at its center and in transverse alignment with buffing wheel 26. When a bowling ball 29 is positioned for cleaning and dressing it rests on the perimeters of said wheels 26, 27, as shown, and when motor 24 is in operation, said ball will spin on different axes in a manner to insure that all of its surface is engaged by the buffing wheels. The precise reason for this spinning movement of the bowling ball has not been ascertained with certainty but is believed to result from the free floating ball being more forcefully engaged at periodic intervals by one or the other of the outwardly inclined surface areas of the concave buffing element 27.

The apparatus is operated only when the top wall 14 is in closed position. Accordingly, the top wall has an opening 31 therein of a size to receive the bowling ball therethrough loosely. The opening is surrounded by a soft cushion ring 32 so as to avoid marring the ball.

A brushing element 33 is carried by the top wall for movement out of the way of the ball during insertion and removal of the ball and for engagement with the ball during machine operation. This brushing element, best shown in FIGS. 1, 5, 8 and 9, comprises an arcuate metal strap or band 34 terminating in straight end portions or legs 35. Secured to the inside face of the arcuate strap is a brush body 36 having a plurality of groups of bristles 37 projecting from its exposed or concave face. The bristles preferably are of wire stock and the bristles of each group are ground or polished on their free ends to insure a uniform contacting surface and one that is devoid of burrs or other objectionable characteristics which, if present, might tend to scratch or mar the bowling ball. In order to move the brush element into and out of working position and to insure that when in working position it will engage the ball by reason of its own weight, it is mounted in a novel manner now to be described.

Referring now specifically to FIGS. 5 and 7 to 9, the brushing element 23 has its legs 35 pivotally and slidably connected one to each of a pair of like mounting brackets 38 mounted on the top wall one on each side of the ball

opening 31. As best shown in FIG. 7, the bracket 38 is substantially triangular in shape and it has a pair of mounting lugs 39 on each side edge thereof which are secured against the bottom face of the top wall 14, a slot 41 being provided in said top wall for outward projection of the upper end portion of said bracket. The bracket carries on its upper end a pin 42 that projects from one face thereof and the bracket is formed in the area below said pin with a vertically aligned slot 43 that merges at its upper end with an arcuate slot portion 44 having its center on pin 42. Each leg 35 of brushing element 33 is longitudinally slotted, as at 45, and each mounts a rigid pin 46 adjacent to its lower free end. When assembled with a bracket 38 (FIG. 9) the leg pin 46 rides in bracket slot 43 and the bracket pin 42 rides in leg slot 45. It should be apparent from the foregoing that the brushing element can be elevated and then tilted into a horizontal position (FIG. 1) by reason of the arcuate slot portion 44 and that when in a vertical position (FIG. 5) it will rest by reason of its own weight upon the surface of a ball positioned in the top wall opening 31. This brushing element functions to remove foreign matter from the ball surface during the buffing operation performed by buffing wheels 26, 27.

In order to control operation of the apparatus it is preferred to provide a coin controlled timer switch assembly 47 in the electric circuit to the motor and also to provide a safety switch 48 in said circuit which is closed only when a safety cover 49 is swung into its closed position over the ball opening 31. Also, if desired, a series of upstanding pins 51 (FIG. 1) may be provided on the top surface of the housing top wall to afford a seat in which a bowling ball may be rested.

Although I have described a preferred embodiment of my invention, in considerable detail, it will be understood that the description thereof is intended to be illustrative, rather than restrictive, as many details of the structure disclosed may be modified or changed without departing from the spirit or scope of the invention. Accordingly, I do not desire to be restricted to the exact construction described.

What I claim and desire to secure by Letters Patent of the United States is:

1. In an apparatus of the character described, a housing including a top wall having an opening therein to receive a spherical element, a pair of buffer wheels mounted in said housing beneath said opening, said wheels being rotatable on parallel axes spaced apart side by side and being adapted to support the spherical element on their peripheral surfaces, and a brushing element pivotally and slidably mounted over and bridging said opening, said brushing element being adapted to rest upon said spherical element.

2. In an apparatus of the character described, a housing including a top wall, said top wall having an opening to receive a spherical element therein, a plurality of buffing wheels in said housing beneath said opening and upon which the spherical element rests, brackets on said top wall one on each of two diametrically opposed sides of said opening, a brushing element bridging said brackets and having a slidable pivotal connection therewith for movement into and out of a position bridging the opening.

3. In an apparatus of the character described, a housing including a top wall, said top wall having an opening to receive a spherical element therein, a pair of buffing wheels spaced apart beneath said opening and upon which the spherical element rests, brackets on said top wall one on each of two diametrically opposed sides of said opening, a brushing element bridging said brackets, and slidable pivotal connections joining said brushing element to said brackets for movement of the brushing element into and out of a position bridging the opening.

4. In the apparatus recited in claim 3, in which the brushing element is curved longitudinally and has parallel legs on its ends connected to said brackets.

5. In the apparatus recited in claim 3, in which the slidable pivotal connection consists of interengaged pins and slots on the bracket and on the brushing element.

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