Jan. 28, 1964 R. J. ARMITAGE 3,119,134

GOLF BALL WASHER

Filed May 11, 1960

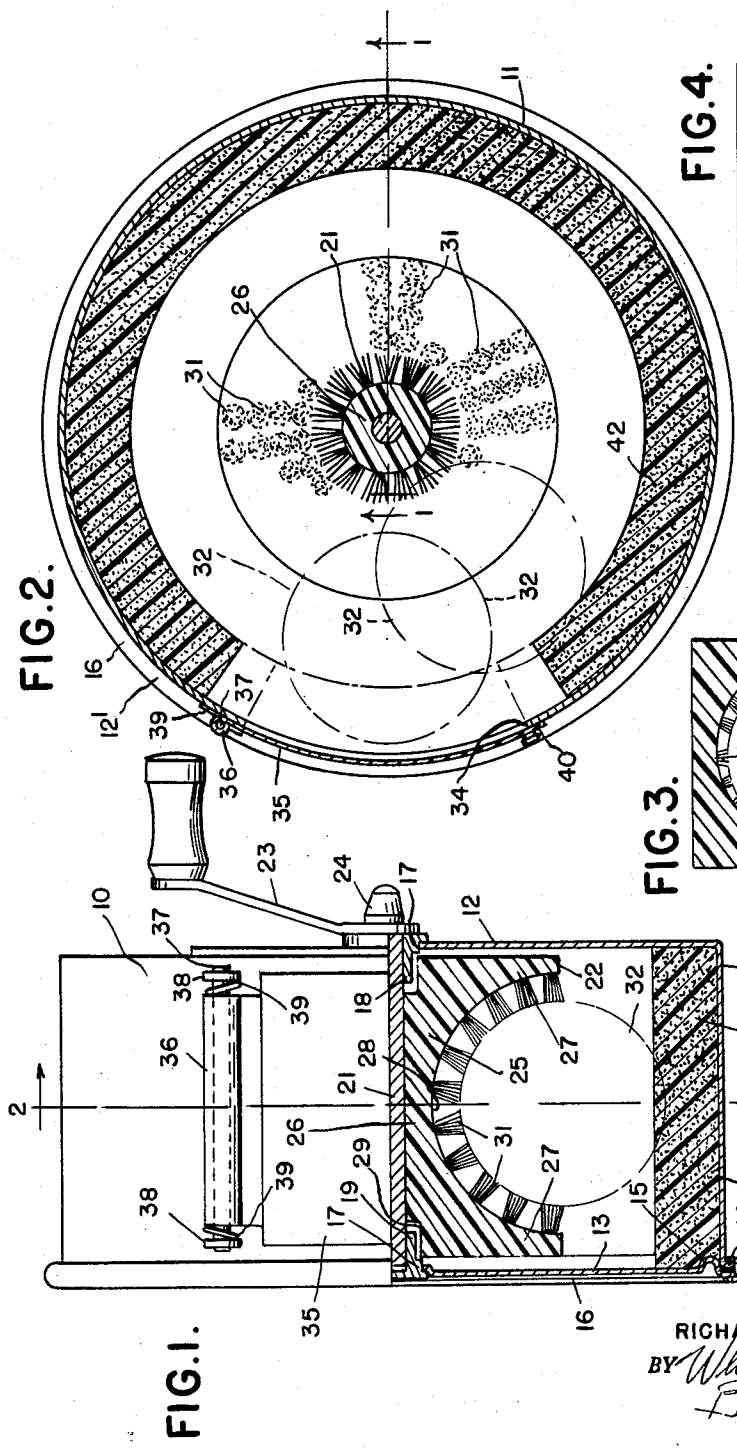


FIG. 1.

FIG. 2.

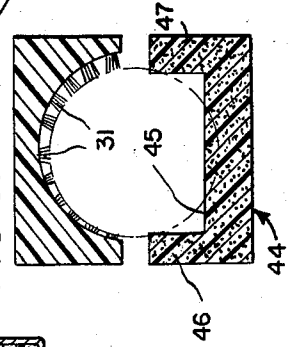


FIG. 3.

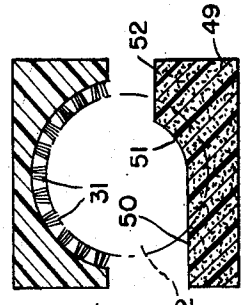


FIG. 4.

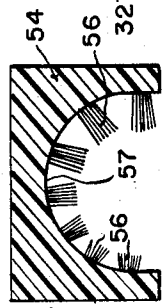


FIG. 5.

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GOLF BALL WASHER

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9 Claims. (Cl. 15—4)

The present invention relates to an improved golf ball washer, preferably portable in character and adapted to be carried by the player either as attached to his golf bag or in a pocket of the latter, or as attached to a golf bag cart, a power driven cart and the like. More particularly, the invention relates to a golf ball washer of this type characterized by a compact, generally cylindrical housing within which a rotary brush is coaxially mounted for rotation, for coaction in scrubbing the golf ball with an annular member of spongy or foamy character, which member serves the functions both of a traction member to secure the desired travel of the ball in the housing in scrubbing, and may if desired also serve as a holder for a suitable amount of water, detergent or like cleaning agent which assists in the easy and expeditious cleaning of the ball.

It is a general object of the invention to provide a portable golf ball washer or cleaner of this general character, in which the rotary brush component, as coaxially mounted within a compact cylindrical casing, is constituted by a brush or bristle holding body, preferably fabricated of a suitable synthetic resin or plastic material, contoured to provide a groove of semi-circular cross section extending annularly about the same, with appropriate tufts of bristles, preferably of nylon, embedded therein in an axial outline following the curvature of the groove. In combination with a rotary brush of this type the invention contemplates the use of an arrangement of one sort or another whereby a golf ball, in being impelled by such rotative brush about the brush axis, is caused to spin and follow a non-symmetrical path, thus to insure that the surface of a ball is thoroughly cleaned over its entire area.

Another object of the invention is to provide a compact golf ball washer, in which traction for the travel of the ball by the brush about the axis of the latter is afforded by an improved annular or partially annular member of foamed or spongy material, in which member a suitable amount of a fluid cleaning or detergent agent material, sufficient to last for a long period without recharging, is entrained or held, as by impregnation or containment within the interstices of the material in question.

In further accordance with the invention, the cleanser holding and traction member is preferably fabricated of a suitable polyester or polyurethane resin or equivalent suitable material, in a foamy or spongy condition or consistency best suiting the same for the combined actions described.

A still further object is to provide a golf ball washer of the foregoing description, in which, in accordance with various different embodiments, the traction and detergent holding member or the brush member, or both, are formed or constituted in a manner to exert an unequal or unsymmetrical action on the ball in driving the same about its annular path coaxial of the brush member. This insures that the ball will be twisted or spun and caused to rotate about axes other than parallel to the axis of the brush member in its travel, with resultant thorough cleansing of the ball over its entire area.

The foregoing as well as other objects will become more apparent as this description proceeds, especially when considered in connection with the accompanying drawing illustrating preferred embodiments of the invention, wherein:

FIG. 1 is a side elevational view partially broken away and in transverse section on a line corresponding to line 1—1 of FIG. 2, showing the improved ball washer;

FIG. 2 is a view in vertical transverse section along line 2—2 of FIG. 1; and

FIGS. 3, 4 and 5 are more or less schematic views illustrating different embodiments of rotary brush and detergent holder member contemplated for the purposes of the invention.

As shown in FIGS. 1 and 2, the washer of the invention comprises an external housing 10 of generally cylindrical outline and closed at both axial ends. It may be formed of a suitable rust-proof sheet metal body stamping 11 providing a circular end wall 12 and a cylindrical outer wall or flange 12' of an axial length sufficient to house the rotary brush and detergent holding members to be described. The opposite axial end of housing 10 is closed by a circular end plate or disk 13, whose outer periphery is abutted against an outturned annular shoulder 14 on housing wall 12', Disk 13 is provided with an annular bead 15 directly inwardly of this annular zone of abutment in order to facilitate location and assembly of the housing parts relative to one another. As thus assembled (with other components of the washer mounted within the housing in a manner to be described) the disk 13 is held in place by an annular clamp ring 16, the periphery of which is crimped externally about the annular shoulder 14 of cylindrical housing body wall 12'.

There is thus afforded a housing structure for the washer which is simple, inexpensive and compact, and one well sealed to protect the internal components from the effects of exposure.

The axial end walls 12, 13 of housing 10 are centrally provided with circular apertures 17 which receive suitably inwardly extending bushing or bearing sleeve or elements 18, 19, respectively, these bushings being suitably held fixedly to the walls, as by welding, screws, rivets or the like. They serve to journal a brush shaft 21 upon which the rotary scrubbing brush of the washer, generally designated 22, is secured for rotation. Such rotation is imparted to the shaft and brush by a suitable hand crank 23 fixedly secured to one end of the shaft 21, as by a holding screw 24 or equivalent means.

The rotary brush 22, in the embodiment of the invention shown in FIG. 1, comprises a bristle supporting body 25 molded of a suitably hard synthetic plastic composition, such as polyethylene, in an outline to provide a tubular internal hub 26 which, as indicated above, is suitably bonded or otherwise secured to shaft 21, and integral side flange extensions 27. It is to be understood that the bristle holder 22 is symmetrically spool-shaped, and the flanges 27 are so shaped internally as to define an annular recess 28 of semi-circular cross section encircling the holder hub 26. The holder is axially recessed at 29 to accommodate the sleeve bushings or bearings 19, and has axial running clearance relative to the housing end walls 12, 13.

The annular recess 28 is faced with nylon bristles 31 in an appropriate number and thickness of distribution to provide an annular arcuate brushing bristle surface about the entire area of groove 28. The bristles 31 are embedded in the brush holder 22 in the molding of the same, and their radial length, as associated with the arcuate annular recess 28, is sufficient to bring them into close brushing engagement with a golf ball 32 inserted into the ball washer as shown in FIGS. 1 and 2.

In order to enable such insertion, the cylindrical wall 12' of housing 10 is provided with a circular ball-receiving opening 34 (FIG. 2) of necessary diameter to freely receive the ball, and this opening is normally closed by a rectangular swinging cover 35 of a size to substantially overlap the outline of opening 34. To this end, the cover 35 may be formed to provide a wrap-around bearing sleeve 36 receiving a pin 37 carried by fixed, trans-

versely spaced ears or lugs 38 on the exterior of housing wall 12, with a coil torsion spring or springs 39 acting between the lugs 38 and bearing member 36 to urge cover 35 to the closed position of FIGS. 1 and 2. If desired, the cover 35 may be provided with a suitable small external knob or hand-piece 40 adjacent its front edge for convenience in opening the cover.

The remaining component of the washer is a generally annular member 42 of a suitable foam or sponge composition, preferably of synthetic resin nature, such as a suitable polyester, polyurethane or the like. As shown in FIG. 1, its axial width is that of the interior of housing 10, to which the exterior of the member 42 is suitably secured, as by an appropriate adhesive, by bonding by separate mechanical means, etc. The axial width substantially exceeds the diameter of the ball, for the desired brushing and scrubbing action to be described.

The member 42 serves as a frictional traction member in which the ball 32 becomes partially embedded when in brushing engagement with bristles, whereby upon insertion of the ball in the housing, a few turns of the brush causes the ball to travel about the axis of the latter, being thoroughly brushed in so traveling. The spongy member 42 affords a desired degree of frictional traction action on the ball to cause an annular travel of the latter in the housing, and an active scrubbing of the ball, notwithstanding the somewhat impositive driving force imparted by the flexible bristles 31. Member 42 also serves as a holder for a suitable cleansing or detergent agent to promote the cleaning action. Such agent need only be present in an amount to impregnate or permeate the interstices of the foamy traction member 42, and not to an extent to result in objectionable leakage to the exterior of the housing under any handling of the ball washer.

As illustrated in FIG. 2, the traction and cleaner holding member 42 extends annularly about the interior of housing wall 12 from adjacent one circumferential edge of the housing opening 34 to a point adjacent the opposite edge of the opening. In the event it is desired to modify the housing to permit a different mode of insertion of the balls 32, the member 42 may be 360° continuous in its annular length. Otherwise, if fuller continuity of the traction effect is desired, the interior surface of the cover 35 may also be faced with the spongy, foamy synthetic composition, and the remainder of the wall 12' filled in with it, as indicated in dot-dash line in FIG. 2.

It is seen from the above that the invention affords a golf ball washer which is compact and efficient in its action, and one in which an initial charge of the combined transaction and cleaner holding member 42 will be sufficient for a long period, indeed, as much as a season's use of the device. As indicated above, the washer may be carried in a golf bag or may be appropriately attached by any suitable conventional type of means to the golf bag or to a golf bag cart or power driven cart. The synthetic composition desired for a cleaner containing member 42 will preferably be of about the same consistency as that of plastic sponge, presently sold for kitchen and related uses. In use, the washer is activated by simply pouring the desired amount of water, detergent or like cleanser into the housing and draining out the excess after saturation of member 42.

As indicated above, it is desired to incorporate into the washer provisions to insure that the ball 32, in traveling with and about the brush 22, will also rotate about axes of its own which do not parallel the axis of brush holder shaft 21; and in this connection the alternative arrangements, more or less schematic in nature, of FIGS. 3, 4 and 5 are practical. Thus, FIG. 3 suggests the use of a combined traction and cleanser holding member 44, shaped arcuately in the manner of the member 42, which has a radially inwardly facing annular recess 45 defined

between integral, radially inwardly extending annular walls 46, 47. These walls are non-symmetrically arranged with reference to a radial center plane at 90° to the axis of rotation of the brush holder body 22, the flange 47, as shown, being substantially thicker than the flange 46, thus to extend closer to such radial plane, or simply being otherwise located in this position. The result is that, in the annular travel of the ball as impelled and cleansed by bristles 31, the ball is urged in an unbalanced fashion against the brushes, resulting in the greater compression of those to the left than those to the right. This unevenness of traction causes the ball to spin, twist or nutate about its own axis, so that in a single cycle of travel its entire surface will be thoroughly cleansed.

FIG. 4 illustrates another alternative embodiment for the same purpose, in which the combined traction and detergent holding member, designated 49, is formed in a non-symmetrical cross section throughout its annular extent, i.e., to exhibit an internal surface portion 50 of cylindrical outline merging through a mild inward curvature at 51 with a radially thicker portion 52. This, again, causes the ball 32 to be thrust unevenly or irregularly against the bristles 31, with the same effect of spinning or twisting the ball about its axis and presenting all surface increments for thorough brushing.

A still further modification is illustrated in FIG. 5, in which the radial brush holder, designated 54 and also preferably molded of a hard plastic resin, has embedded therein bristles 56 which are of progressively increasing radial extent about the axial curvature of the holder surface 57 in which they are embedded. In the alternative, the bristles may be chosen to be of different stiffness and resistance to flexure, but in either event, the effect is the same, i.e., to cause unsymmetrical frictional driving force to be imparted to the ball and thus secure a rotation about its own axis other than strictly parallel with the axis of rotation of the brush holder.

Although reference has been made above to the function of the member 42 as a holder for water or a suitable liquid cleanser or detergent, it is evident that the invention is not necessarily limited in this respect, and that the washer will in many instances serve perfectly satisfactorily when used with the member 42 dry. Likewise, although the brush member 22 is shown in a preferred form as being of a peripherally concave outline, it is possible to have many of the advantages of the washer even though it is built with a cylindrical or otherwise contoured brush member. By the same token, although a housing structure constituted by sheet metal stamped parts has been shown, those skilled in the art will readily appreciate that the washer housing is admirably adapted to be one made of molded plastic, in a one-part or multiple part construction, or of being otherwise constituted than by stamped components.

The drawing and the foregoing specification constitute a description of the improved golf ball washer in such full, clear, concise and exact terms as to enable any person skilled in the art to practice the invention, the scope of which is indicated by the appended claims.

What I claim as my invention is:

1. A rotary ball washer comprising a housing presenting an internal annular and axially extending wall, a ball engaging traction and cleaner member of circular cross section secured in said housing to said wall and extending a substantial distance annularly about the latter, said member being of spongy character providing a multiplicity of cavities and adapted to contain a relatively permanent charge of fluid cleansing agent in the cavities thereof, a brush holder mounted within said housing to rotate coaxially of said wall and member and radially inwardly of the latter, bristles extending radially outwardly of said holder and providing a ball engaging and brushing member which is substantially continuous circumferentially of said holder and of outwardly concave outline, at least one of said first named and brush-

ing members being non-symmetrically shaped in reference to a plane central of its axial dimension and normal to the rotative axis of said brush holder to cause a non-uniform spin of a ball engaged and advanced frictionally between the same upon rotation of said holder, and means to rotate said holder from the exterior of said housing.

2. A rotary ball washer comprising a housing presenting an internal annular and axially extending wall, a ball engaging traction and cleaner member of circular cross section secured in said housing to said wall and extending a substantial distance annularly about the latter, said member being of spongy character providing a multiplicity of cavities and adapted to contain a relatively permanent charge of fluid cleansing agent in the cavities thereof, a brush holder mounted within said housing to rotate coaxially of said wall and member and radially inwardly of the latter, bristles extending radially outwardly of said holder and providing a ball engaging and brushing member which is substantially continuous circumferentially of said holder and of outwardly concave outline, said first named and brushing members being non-symmetrically arranged with respect to one another to cause a non-uniform spin of a ball engaged and advanced frictionally between the same upon rotation of said holder, and means to rotate said holder from the exterior of said housing, said traction and cleaner member being formed non-symmetrically with reference to a radial plane centrally thereof and normal to the axis of rotation of said brushing member to cause said spin.

3. A rotary ball washer comprising a housing presenting an internal annular and axially extending wall, a ball engaging traction and cleaner member of circular cross section secured in said housing to said wall and extending a substantial distance annularly about the latter, said member being of spongy character providing a multiplicity of cavities and adapted to contain a relatively permanent charge of fluid cleansing agent in the cavities thereof, a brush holder mounted within said housing to rotate coaxially of said wall and member and radially inwardly of the latter, bristles extending radially outwardly of said holder and providing a ball engaging and brushing member which is substantially continuous circumferentially of said holder and of outwardly concave outline, said first named and brushing members being non-symmetrically arranged with respect to one another to cause a non-uniform spin of a ball engaged and advanced frictionally between the same upon rotation of said holder, and means to rotate said holder from the exterior of said housing, said traction and cleaner member being formed non-symmetrically with reference to a radial plane centrally thereof and normal to the axis of rotation of said brushing member to provide an annularly extending ball engaging portion to cause said spin.

4. A rotary ball washer comprising a housing presenting an internal annular and axially extending wall, a ball engaging traction and cleaner member of circular cross section secured in said housing to said wall and extending a substantial distance annularly about the latter, said member being of spongy character providing a multiplicity of cavities and adapted to contain a relatively permanent charge of fluid cleansing agent in the cavities thereof, a brush holder mounted within said housing to rotate coaxially of said wall and member and radially inwardly of the latter, bristles extending radially outwardly of said holder and providing a ball engaging and brushing member which is substantially continuous circumferentially of said holder and of outwardly concave outline, said first named and brushing members being non-symmetrically arranged with respect to one another to cause a non-uniform spin of a ball engaged and advanced frictionally between the same upon rotation of said holder, and means to rotate said holder from the exterior of said housing, the bristles of said brushing member being distributed non-symmetrically with reference to a radial plane centrally of and normal to the axis of rotation of said brushing member to cause said spin.

5. A rotary ball washer comprising a housing presenting an internal annular and axially extending wall, a ball engaging traction and cleaner member of circular cross section secured in said housing to said wall and extending a substantial distance annularly about the latter, said member being of spongy character providing a multiplicity of cavities and adapted to contain a relatively permanent charge of fluid cleansing agent in the cavities thereof, a brush holder mounted within said housing to rotate coaxially of said wall and member and radially inwardly of the latter, bristles extending radially outwardly of said holder and providing a ball engaging and brushing member which is substantially continuous circumferentially of said holder and of outwardly concave outline, said first named and brushing members being non-symmetrically arranged with respect to one another to cause a non-uniform spin of a ball engaged and advanced frictionally between the same upon rotation of said holder, and means to rotate said holder from the exterior of said housing, the bristles of said brushing member being distributed non-symmetrically with reference to a radial plane centrally of and normal to the axis of rotation of said brushing member to cause said spin, said bristles being of non-uniform radial length across the concave outline of said brushing member.

6. A rotary ball washer comprising a housing presenting an internal annular and axially extending wall, a ball engaging traction and cleaner member of circular cross section secured in said housing to said wall and extending a substantial distance annularly about the latter, said member being of spongy character providing a multiplicity of cavities and adapted to contain a relatively permanent charge of fluid cleansing agent in the cavities thereof, a brush holder mounted within said housing to rotate coaxially of said wall and member and radially inwardly of the latter, bristles extending radially outwardly of said holder and providing a ball engaging and brushing member which is substantially continuous circumferentially of said holder and of outwardly concave outline, said first named and brushing members being non-symmetrically arranged with respect to one another to cause a non-uniform spin of a ball engaged and advanced frictionally between the same upon rotation of said holder, and means to rotate said holder from the exterior of said housing, the bristles of said brushing member being distributed non-symmetrically with reference to a radial plane centrally of and normal to the axis of rotation of said brushing member to cause said spin, said bristles being of non-uniform stiffness across the concave outline of said brushing member.

7. A rotary ball washer comprising a housing presenting an internal annular and axially extending wall, a ball engaging traction and cleaner member of generally circular cross section secured in said housing to said wall and extending a substantial distance annularly about the latter, a brush holder mounted within said housing to rotate coaxially of said wall and member and radially inwardly of the latter, bristles extending radially outwardly of said holder and providing a ball engaging and brushing member which is substantially continuous circumferentially of said holder, and means to rotate said holder from the exterior of the housing to cause an annular travel of a ball in said housing in brushing engagement with and between said bristles and first named member, said traction and cleaner member and said ball engaging and brushing member being placed non-symmetrically relative to one another, at least one of said members being shaped non-symmetrically in reference to a plane central of its axial dimension and normal to the rotative axis of said brush holder.

8. A rotary ball washer comprising a housing presenting an internal annular and axially extending wall, a

ball engaging traction and cleaner member of generally circular cross section secured in said housing to said wall and extending a substantial distance annularly about the latter, said traction and cleaner member being of spongy material having traction-imparting cavities adapted to contain a charge of cleansing agent, a brush holder mounted within said housing to rotate coaxially of said wall and member and radially inwardly of the latter, bristles extending radially outwardly of said holder and providing a ball engaging and brushing member which is substantially continuous circumferentially of said holder, and means to rotate said holder from the exterior of the housing to cause an annular travel of a ball in said housing in brushing engagement with and between said bristles and first named member, said traction and cleaner member and said ball engaging and brushing member being placed non-symmetrically relative to one another, at least one of said member being shaped non-symmetrically in reference to a plane central of its axial dimension and normal to the rotative axis of said brush holder.

9. A rotary ball washer comprising a housing presenting an internal annular and axially extending wall, a ball engaging traction and cleaner member of generally circular cross section and of axial width substantially exceeding the ball diameter, said member being secured in said housing to said wall and extending a substantial distance annularly about the latter, said traction and cleaner member being of spongy material having traction-imparting cavities adapted to contain a charge of cleansing agent, a brush holder mounted within said housing to rotate coaxially of said wall and member and radially inwardly of the latter, bristles extending radially outwardly of said holder and providing a ball engaging and brushing member which is substantially continuous circumferentially of said holder, and means to rotate said holder from the exterior of the housing to cause an annular travel of a ball in said housing in brushing engagement with and between said bristles and first named member, said traction and cleaner member and said ball engaging and brushing member being placed non-symmetrically relative to one another, at least one of said members being shaped non-symmetrically in reference to a plane central of its axial dimension and normal to the rotative axis of said brush holder.

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