A laundry ball can be used to accommodate detergent free washing of clothes and other laundry items. To provide a more efficient and more washer friendly laundry ball, the structure is fabricated to have a flexible outer surface. In one embodiment the walls of the laundry ball have only a single layer of flexible material, while another embodiment includes walls having multiple layers with the outer layer being more flexible. The material making up this flexible outer surface is resilient and causes less damage to the interior of the washing machine. Added friction also causes more movement and agitation of the laundry ball when used, thus enhancing its operation.
WASHER FRIENDLY LAUNDRY BALL

BACKGROUND OF THE INVENTION

The laundry ball has been developed to allow individuals to wash clothes and other laundry items without the need for detergents or soap. Many laundry ball products are available on the market, each generally including a shell or housing, which contains various components. In certain instances, these internal components may include detergent capsules and other detergent dispensing devices. In many cases these devices will slowly dispense cleaning agents (detergent) over long periods of time. Alternatively, non-detergent components may be contained within the housing. These non-detergent components serve various purposes such as the emission of infrared energy, the neutralization of chlorineric and the generation of negative ions. Each of these features are provided to maximize cleaning power. In one example, these non-detergent components include ceramic balls or other solid components contained within the housing to produce the above-mentioned desired effects.

The housing of the laundry ball is typically fabricated of a relatively rigid material. For example, plastic materials are typically used to create a structure that is relatively rigid. This provides a generally solid or sound enclosure to contain cleaning materials placed therein, while also providing adequate protection. That said, this rigid housing is also problematic in that it creates considerable noise when utilized in a washing machine. Further, a rigid housing can also potentially damage interior surfaces of the washing machine due to the continuous contact. This may ultimately result in denting or chipping of the interior surface.

BRIEF DESCRIPTION OF THE DRAWINGS

The various features and advantages of the preferred embodiments are further described in the following detailed description in conjunction with the drawings in which:

FIG. 1 is a perspective view of the laundry ball;
FIG. 2 is an expanded cross-sectional view of the laundry ball;
FIG. 3 is a partial magnified cross-sectional view of one-half of the laundry ball; and
FIG. 4 is a partial magnified cross-section view of another embodiment of the laundry ball.

DETAILED DESCRIPTION

As suggested above, a laundry ball can be utilized to provide cleaning capabilities to a standard clothes washing machine without the use of detergent. Referring to FIG. 1, one embodiment of laundry ball 10 is illustrated. In this embodiment, laundry ball 10 is generally spherical and includes a coupling ridge 12 extending around the circumference. As will be further discussed below, the preferred embodiment is formulated from two-halves and subsequently joined utilizing appropriate coupling mechanisms. These coupling mechanisms can be positioned behind coupling ridge 12.

As further illustrated in FIG. 1, laundry ball 10 also includes a pattern of small openings 14 in the housing. This pattern can be arranged in virtually any desired layout and provides openings to the interior of laundry ball 10. In addition, a plurality of extensions, posts or fingers 28 extend outwardly from the surface of laundry ball 10. The pattern or arrangement of posts 28 can be configured in virtually any manner.

Laundry ball 10 is designed to hold and contain various elements which will enhance cleaning functions when used in a typical washing machine. For example, the interior of cleaning ball 10 may contain ceramic beads of various types, formulated from selected materials. It is well understood to include ceramic beads or ceramic spheres in laundry ball devices, which operate to reduce surface tension of the water in the washing machine, thereby enabling water molecules to penetrate the fabric and more easily remove dirt. Further, these spheres or beads may also generate negative ions which activate water molecules for more cleaning power. The material provided inside laundry ball 10 may also generate infrared energy, again to reduce surface tension and enhance cleaning action. As another alternative, appropriate materials may be utilized to affect the pH levels of the water than the washing machine, again further enhancing cleaning abilities.

Referring again to FIG. 1, coupling ridge 12 is illustrated as having a plurality of indentations 22. These structures are illustrated to provide gripping power and more easily allow separation, as more fully disclosed below. Again, these structures provide one example configuration that could potentially be utilized.

Referring now to FIG. 2, laundry ball 10 is illustrated in a separated cross-sectional format. As shown, laundry ball 10 includes a first half 20 and a second half 30. Each half is generally configured as a half-spherical shell. As can be anticipated, these two halves are designed and configured to mate with one another, thereby forming an enclosed housing. First half 20 includes coupling ridge 12 discussed above and illustrated in FIG. 1. In a similar manner, second half 30 includes an indentation 32 designed to nest within a portion of first half 20. Although not illustrated, it is understood that many coupling structures could be included, such as threads, mated notches and tabs, and several other coupling mechanisms.

Referring now to FIG. 3, one embodiment is illustrated in a more detailed partial cross-sectional view of first half 20. As better illustrated in this figure, first half 20 is created of a multi-layer structure having an outer layer 24 and an inner layer 26. In this embodiment, inner layer 26 is a relatively rigid plastic material. This inner structure can be formed utilizing well understood and well-known injection molding techniques, or can be formed of virtually any material. Further, outer layer 24 or outer cover 24 is created from a flexible, more pliable material. For example, this material making up outer layer 24 may include a rubber type material, silicone or other easily recognized flexible products. Utilizing this two-layer structure provides for an overall laundry ball which is more efficient and less damaging to typical washing machines. Less damage is created to washing machines and related products by having a “softer” and more flexible material in contact with the machines interior surfaces. Further, the surface friction provided by this more flexible material creates added interference and more movement within the washing machine, thus further creating a more efficient product.

In addition to the characteristics described above, outer layer 24 also includes a surface pattern designed to manage impacts within a washer, while also create additional friction. In the embodiment described above, this pattern includes a plurality of small pegs, extensions or fingers 28 extending from the surface. Here, fingers 28 are also arranged in a pattern. This pattern can be varied, depending on the
desired appearance. That said, the extensions 28 are arranged to increase efficiency of laundry ball 10.

[0015] In another embodiment, the wall structure can be formed of a single layer. This embodiment is better illustrated in FIG. 4, which shows portions of laundry ball 40 in a cross-sectional view. More specifically, a first half 50 and a second half 60 are both illustrated in partial cross-sectional view. In this embodiment, the walls 52 and 62 fabricated from a very flexible material. As illustrated, walls 52 and 62 have only a single layer, while also having apertures 54 and 64, along with extensions 56 and 66. These wall features (e.g. apertures 54 and 64, extensions 56 and 66) are similar to those illustrated in FIG. 3 above.

[0016] The single layer wall structure 52 and 62 of the embodiment illustrated in FIG. 4 is again, made of a very flexible material. In this manner, laundry ball 40 is not capable of causing damage to the interior of the washing machine in any manner. When laundry ball 40 contacts an inner surface of a washing machine, the effected wall structure (52 or 62) will simply be compressed and form itself to the surface. Further, this structure will cause the ball to slightly compress when in contact with the laundry itself. In addition to being compressible/pliable, the surface of laundry ball 40 will also include a level of friction which enhances operation. More specifically, laundry ball 40 will interfere or interact with laundry items, thus causing agitation and interaction within the machine. This interaction will cause movement of laundry ball 40, thus making it more efficient.

[0017] The above description generally describes the invention in the context of a preferred embodiment. Those skilled in the art will appreciate and understand that various modifications could easily be made while continuing to fall within the scope and spirit of the following claims. Applicant intends the following claims to cover all such modifications.

1. A laundry ball for providing detergent free cleaning in an automated laundry machine, comprising:
   a first housing having a substantially spherical shaped housing wall, an outer surface of the first housing wall further having a plurality of flexible extensions projecting outwardly and a plurality of openings extending there through, wherein the first housing portion housing wall includes a flexible outer layer causing interaction with the laundry being cleaned; and
   a second housing portion having a substantially spherical shape housing wall and plurality of flexible extensions projecting outwardly from an outer surface thereof, wherein the second housing portion housing wall includes a flexible outer layer, also causing interaction with the laundry being cleaned, the first housing portion and the second housing portion joined with one another to create an enclosure.

2. The laundry ball of claim 1 wherein the flexible outer layer is formed of a rubber-like material.

3. The laundry ball of claim 1 wherein the walls of the first housing portion and the second housing portion are both formed of an inner layer positioned adjacent the flexible outer layer, wherein the inner layer is more rigid than the outer layer and the inner layer is an injection molded plastic.

4. The laundry ball of claim 1 wherein the housing wall of the second housing portion further includes openings extending there through.

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