

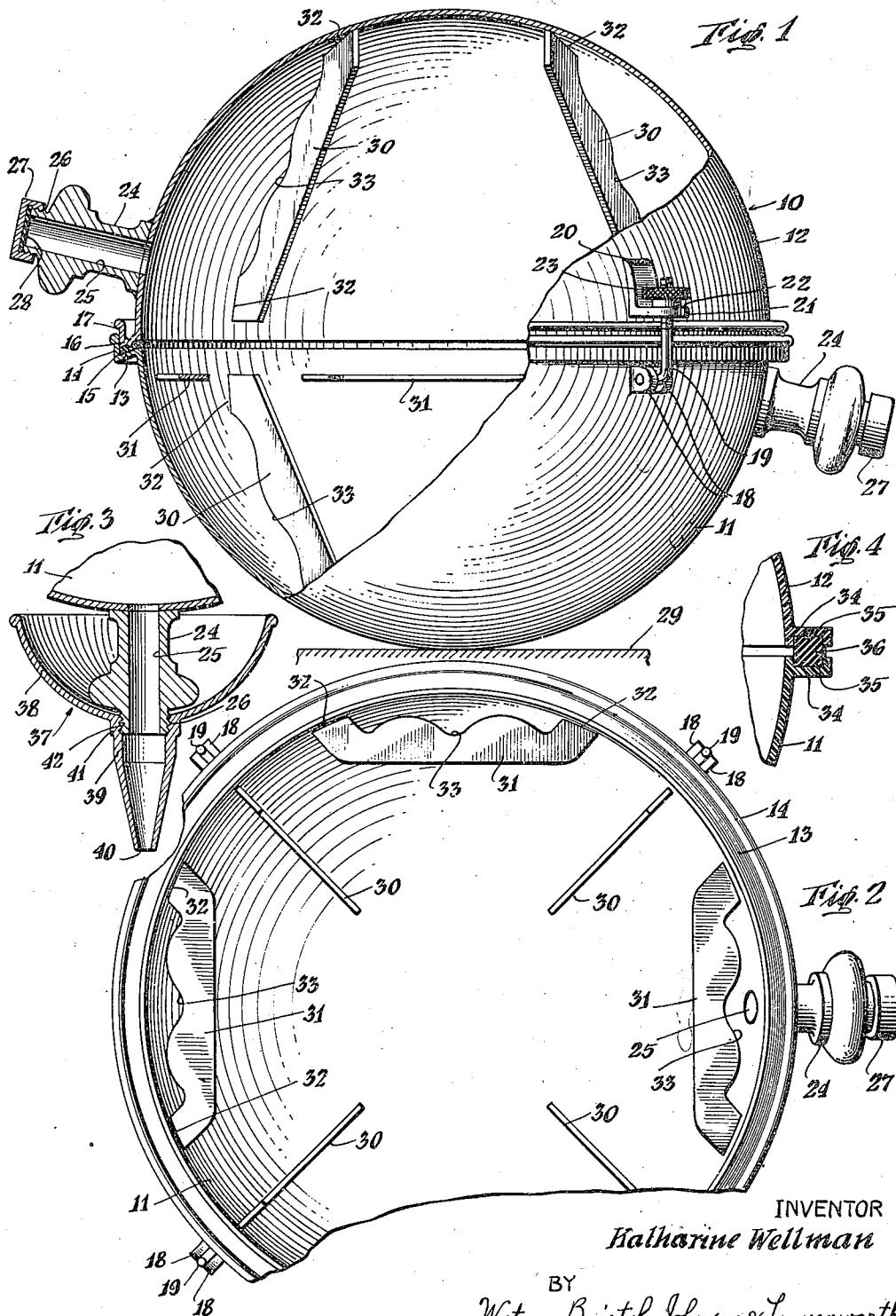
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CLOTHES CLEANING DEVICE

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CLOTHES CLEANING DEVICE

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The present invention relates to clothes cleaning devices and, more particularly, to such devices which are manually operable, and the present application is a continuation-in-part of my application Serial No. 527,216, filed March 20, 1944.

A general object of the present invention is the provision of a readily and economically manufactured clothes cleaning device of simple construction which may be easily manipulated by hand effectively and efficiently to clean clothes and the like in any suitable manner, such as by a procedure commonly known as "dry" cleaning, and which is particularly adapted to domestic or household use.

A more specific object of the invention is to provide such a device which is characterized by a clothes-and-cleaning liquid tumbling container substantially spherical in shape and formed of two substantially hemispherical sections each having a relatively smooth curvilinear outer surface the major portion of which is free of obstructions thereby permitting ready manual rocking of the container on a relatively flat supporting base surface with either section, or both thereof alternately serving as the bottom portion as may be desired to assure efficient cleaning of the contents.

Another object of the invention is to provide such a substantially spherical container with a pair of substantially diametrically opposed outwardly projecting hand grasp means, each hemispherical section of the container having one of the grasps secured thereto in a location which assures that the major portion of the outer surface of each section will be free from projecting means that might tend to interfere with desired rocking movement.

A further object of the invention is the provision of such a cleaning container characterized by such diametrically opposed hand grasps arranged as indicated and formed as inlet and outlet fluid spouts communicating with the interior of the container and equipped with removable closure means to permit ready filling and emptying of liquid contents when desired and to assure efficient closure for the tumbling operation of the device.

A still further object of the invention is to provide a dual-purpose funnel which may be removably mounted upon a spout of a container such as the cleaning device mentioned above in a manner to cause the tube portion of the funnel to serve as a liquid discharge extension of the spout, and of such form and dimensions as

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to permit the tube portion of the funnel to be received in the spout to facilitate filling of the container with or pouring in of liquid.

Other objects of the invention will in part be obvious and will in part appear hereinafter.

The invention accordingly comprises the features of construction, combination of elements and arrangement of parts, which will be exemplified in the construction hereinafter set forth and the scope of the invention will be indicated in the claims.

For a fuller understanding of the nature and objects of the invention, reference should be had to the following detailed description taken in connection with the accompanying drawing, in which:

Fig. 1 is an elevational view of an embodiment of the device of the present invention with parts broken away and in section, showing the structure resting upon a relatively flat supporting base surface indicated diagrammatically;

Fig. 2 is a somewhat enlarged top view of one of the substantially hemispherical sections of the container shown in Fig. 1, with parts broken away;

Fig. 3 is a sectional view of a hollow hand grasp and adjacent container structure, shown in Figs. 1 and 2, in combination with a filling and emptying funnel device removably mounted thereon, also shown in section; and

Fig. 4 is a sectional detail of portions of the two hemispherical sections of an embodiment of the container of the present invention showing a modified form of their gasketed sections.

Referring to the drawing, like numerals identify like parts throughout. The cleaning device adapted for cleaning clothes and the like, such as by a well known procedure commonly called "dry" cleaning, comprises a substantially spherical container 10 adapted when suitably manually manipulated to tumble about therein the clothes and cleaning fluid contents effectively to clean the articles of clothing or the like. The container 10 consists of two substantially similar hemispherical sections 11 and 12, each made of any suitable material which is substantially free from attack by the cleaning liquids to be employed, e. g., a molded plastic, fabricated glass, stainless steel, aluminum alloy, plated metals, etc.

The section 11 is provided with a circumferentially extending generally lateral flange 13 terminating in a circumferential lip 14 and supporting a suitable gasketing ring 15. The section 12 has a cooperating circumferential flange 16 ter-

minating in a circumferential lip 17 adapted to be telescoped within the circumferential lip 14 and with the flange 16 bearing down upon the gasketing ring 15.

Any suitable means may be employed to clamp the two hemispherical sections 11 and 12 together in the vicinity of a medial plane with the gasketing means providing a liquid-tight joint. Such means may comprise a plurality of any suitable form of clamps. Each clamp may consist of a pair of ears 18, 18 fixed to one of the sections, such as section 11, near its gasket-supporting flange 13, and having pivoted therebetween one end of a threaded tie bolt 19. The other section, such as 12, may have fixed to the outer surface thereof in the vicinity of its flange 16 a lug 20 having a laterally extending portion 21 provided with a slot 22 receiving the tie bolt 19 when swung into clamping position as shown in Fig. 1. The tie bolt threadably carries a nut 23 which engages beyond the lateral portion 21 of the lug 20 so that when a plurality of such clamping devices are employed the two hemispherical sections 11 and 12 of the container 10 may be clamped together in a liquid-tight manner by tightening down the nuts 23—23. It is obvious that other suitable clamping means that will readily occur to those skilled in the art may be employed in lieu of the pivoted tie bolts just described, such as structures which have no portions fixed to either of the hemispherical sections 11 and 12, and which may thus simplify manufacturing procedures.

Each of the two hemispherical sections 11 and 12 are provided with a hand grasp 24 fixed to and projecting outwardly from the outer surface thereof. Each hand grasp 24 comprises a hollow member having a fluid passage 25 communicating with the interior of the section. The outer end of each hand grasp 24 is externally threaded at 26 and is removably fitted with an internally threaded cap 27 to close the passage 25 in a fluid-tight manner, preferably with the aid of a gasket 28 seated within the cap. Other suitable passage-closing means which may be removably fitted to the hollow hand grasp 24 to accomplish a similar purpose will readily occur to those skilled in the art.

It will be noted from Fig. 1 that by location of the hand grasp 24 relatively close to the medial plane of meeting of the hemispherical sections 11 and 12, or their respective gasketing flanges, the major portion of the outer surface of each of the sections is left free of protuberances which might interfere with desired and effective manual rocking of the container on a relatively flat supporting base surface, such as that diagrammatically indicated at 29, about any of a plurality of angularly related axes. It will further be noted from Fig. 1 that the two hand grasps 24, 24, one on each of the two hemispherical sections 11 and 12, are preferably arranged in substantially diametrically opposed positions for balance and to permit by similar operational motions rocking of the container with the outer surface of either of the two sections resting upon the supporting base surface.

To assure effective swirling and baffling of the cleaning liquid and articles placed in the container for efficient cleaning of the latter, a plurality of elongated blades 30—30 and 31—31 are fixedly mounted to the inner wall of each of the hemispherical sections 11 and 12. For example, each hemispherical section may be provided with four blades 30—30 arranged in radial planes sub-

stantially ninety degrees (90°) apart, and either, or both, of the hemispherical sections may be provided with four additional blades 31—31 arranged in a plane substantially at right angles to the planes of the blades 30—30 and located substantially intermediate thereof in the vicinity of the medial plane of the container 10 or the gasketing structure of the meeting hemispherical sections 11 and 12, as shown in Figs. 1 and 2.

Each of the baffle blades 30—30 and 31—31 is fixed at spaced points to the inner wall of the hemispherical section upon which it is mounted, for example, substantially at the ends 32, 32 thereof, and at such points of fixation each blade extends inwardly away from the adjacent portions of the inner wall of the section and substantially normal to the latter with the intermediate portion of the blade between the points of fixation being spaced from the inner wall of the hemispherical section to provide for passage of cleaning liquid between the inner wall of the section and the rear edge 33 of the blade. The rear edge 33 of each blade 30 or 31 is preferably sinusously shaped as shown to enhance a desired churning and agitation of the cleaning liquid.

As suggested in Fig. 4, the flanged edges of the two hemispherical sections 11 and 12 may be similarly shaped such as to provide similar laterally extending circumferential flanges 34, 34 each provided with a circumferential groove 35 in which is seated a suitable gasketing ring 36. Such a similarity of structure of the two hemispherical sections 11 and 12 may simplify manufacturing procedures since both sections may be formed in a single mold.

For the purpose of facilitating filling and emptying of the container, a dual-purpose funnel 37 is provided as shown in Fig. 3. This funnel preferably comprises a flared or somewhat conical mouth portion 38 fixed to a tube portion 39 terminating in an end 40 of such external diameter as to be receivable in the passage 25 of one of the hollow hand grasps 24 for facilitating pouring of liquid into the container after the hemispherical sections 11 and 12 thereof have been clamped together. Further, the funnel 37 is provided at the throat 41 of the tube portion thereof with internal threads 42 adapted to be removably engaged with the external threads 26 of one of the hand grasps 24 in the manner shown in Fig. 3, so that the tube portion 39 of the funnel may serve as a discharge extension of the spout provided by the hollow hand grasp.

The embodiment of the present invention disclosed by way of example in the drawing is especially adapted to domestic or household use and may be of a convenient size which permits cleaning in one batch of a fair amount of articles of clothing, fabrics or textiles while being convenient for manual manipulation and operation by a housewife. For example, the container may be of such size as to have a liquid capacity when completely filled of about ten (10) gallons, but it is to be understood that in the use of the device it is not intended that the container be filled to maximum capacity with a cleaning liquid.

In operation, one may place into one of the hemispherical sections 11 or 12 a quantity of articles to be cleaned. Then the other section is securely clamped thereto in a liquid-tight manner. The hand grasp 24 which is fixed to whatever section may be resting upon a suitable relatively flat supporting base surface, such as a table, is then fitted with a closure cap 27, if not previously equipped therewith, and a suitable quantity

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of cleaning liquid sufficient in amount to be swirled about within the container for effectively wetting, washing and flowing through and about the articles may be poured into the container through the passage 25 of the other hand grasp 24 fixed to the uppermost hemispherical section. This pouring of the cleaning liquid into the container may be facilitated by the employment of the dual-purpose funnel 37 with the tube portion 39 thereof inserted into the passage 25 of the hand grasp 24 being used for filling purposes. After the cleaning liquid has been poured into the container 10 another closure cap 27 is fitted upon the hand grasp 24 employed for filling purposes, thereby closing the container in a liquid-tight manner.

Effective cleaning of the articles within the container is then accomplished by grasping the hand grasps 24, 24, and manually rocking the container on the relatively flat supporting base surface or table with a variety of motions to assure rocking about a plurality of different axes, such as back and forth with the hand grasps alternately moving up and down, and also by rotation of the hand grasps to cause transverse rocking, and by motions comprising combinations and variations thereof. As a result the cleaning fluid will be caused to swirl and vigorously move about in various directions through and past the articles therein. The articles of clothing may also be tumbled and moved about by virtue of the motion of the container, the currents of cleaning fluid and the functioning of the baffle blades 30—30 and 31—31, the latter also effectively assuring efficient swirling of the cleaning liquid and effective movement thereof relative to the articles.

Following manipulation of the container in the manner indicated above, it may then be, and preferably is turned over or reversed so that the hemispherical section which was uppermost in the first operation will now rest upon the relatively flat supporting base surface, and the tumbling operation is then repeated. This will assure efficient cleaning of the contents.

The cleaning liquid, after use, should be removed from the container before the latter is opened up, to avoid spilling, or it may be desired to replace the cleaning liquid after a period of tumbling but prior to the completion of the cleaning operation of a single batch of articles. For this purpose the cap 27 on the hand grasp 24 which may be lowermost may be removed so that that hand grasp may serve as a discharge spout. However, emptying operations may be facilitated by the use of a spout extension which is efficiently provided by the dual-purpose funnel 37 when used in the manner indicated in Fig. 3. For this purpose cap 27 upon the uppermost hand grasp 24 may be removed and the funnel threadably substituted therefor, after which the container may be rotated to lower the funnel-fitted hand grasp so that the relatively small end 40 of the funnel tube portion 39 will effectively serve as an efficient discharge directing spout.

It will thus be seen that the objects set forth above, among others which have been made apparent in the above description, are efficiently attained and since certain changes may be made in the above construction and different embodiments of the invention could be made without departing from the scope thereof, it is intended that

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all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claims are intended to cover all of the generic and specific features of the invention herein described and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A manually operable clothes cleaning device comprising a substantially spherical clothes-and-cleaning liquid tumbling container formed of two substantially hemispherical sections detachably secured together in a liquid-tight manner in the vicinity of a medial plane, each of said sections having a relatively smooth curvilinear outer surface to permit ready manual rocking thereof on a relatively flat supporting base surface about any of a plurality of angularly related axes, and a pair of substantially diametrically opposed outwardly projecting hand grasps with one secured to one of said sections and the other secured to the other section relatively close to the medial plane leaving the major portions of the outer surfaces of said sections free for rocking contact,

2. A manually operable clothes cleaning device comprising a substantially spherical clothes-and-cleaning liquid tumbling container formed of two substantially hemispherical sections detachably secured together in a liquid-tight manner in the vicinity of a medial plane, each of said sections having a relatively smooth curvilinear outer surface to permit ready manual rocking thereof on a relatively flat supporting base surface about any of a plurality of angularly related axes, a pair of substantially diametrically opposed outwardly projecting hand grasps with one secured to one of said sections and the other secured to the other section relatively close to the medial plane leaving the major portions of the outer surfaces of said sections free for rocking contact, said hand grasps being hollow to provide inlet and outlet fluid passages communicating with the interior of said container, and removable means closing the passages.

3. A manually operable clothes cleaning device comprising a substantially spherical clothes-and-cleaning liquid tumbling container formed of two substantially hemispherical sections detachably secured together in a liquid-tight manner in the vicinity of a medial plane, each of said sections having a relatively smooth curvilinear outer surface to permit ready manual rocking thereof on a relatively flat supporting base surface about any of a plurality of angularly related axes, a pair of substantially diametrically opposed outwardly projecting hand grasps with one secured to one of said sections and the other secured to the other section relatively close to the medial plane leaving the major portions of the outer surfaces of said sections free for rocking contact, said hand grasps being hollow to provide inlet and outlet fluid passages communicating with the interior of said container, and a pair of caps removably fitted on the outer ends of said hand grasps closing the passages.

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