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(54) **KNEADING BALL FOR WASHING CLOTHES
BY VIBRATION**

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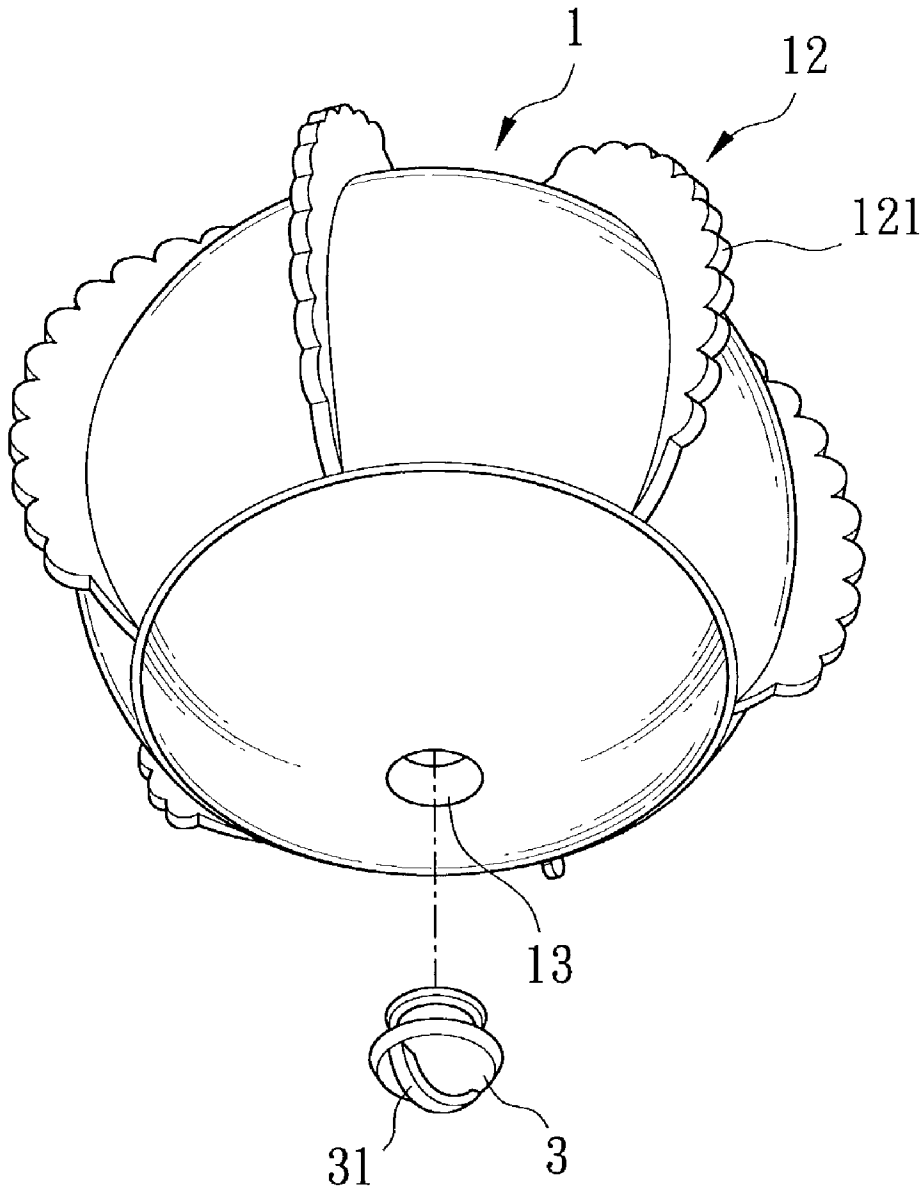
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ABSTRACT

A kneading ball for washing clothes by vibration comprising: a housing, a vibration generating device and a waterproof cover, wherein, the housing is provided thereon with a lot of kneading protrusions for creating disturbance of the liquid detergent having clothes dipped therein for washing in cooperation with the vibration generating device to mildly knead the clothes dipped therein to be hand washed.



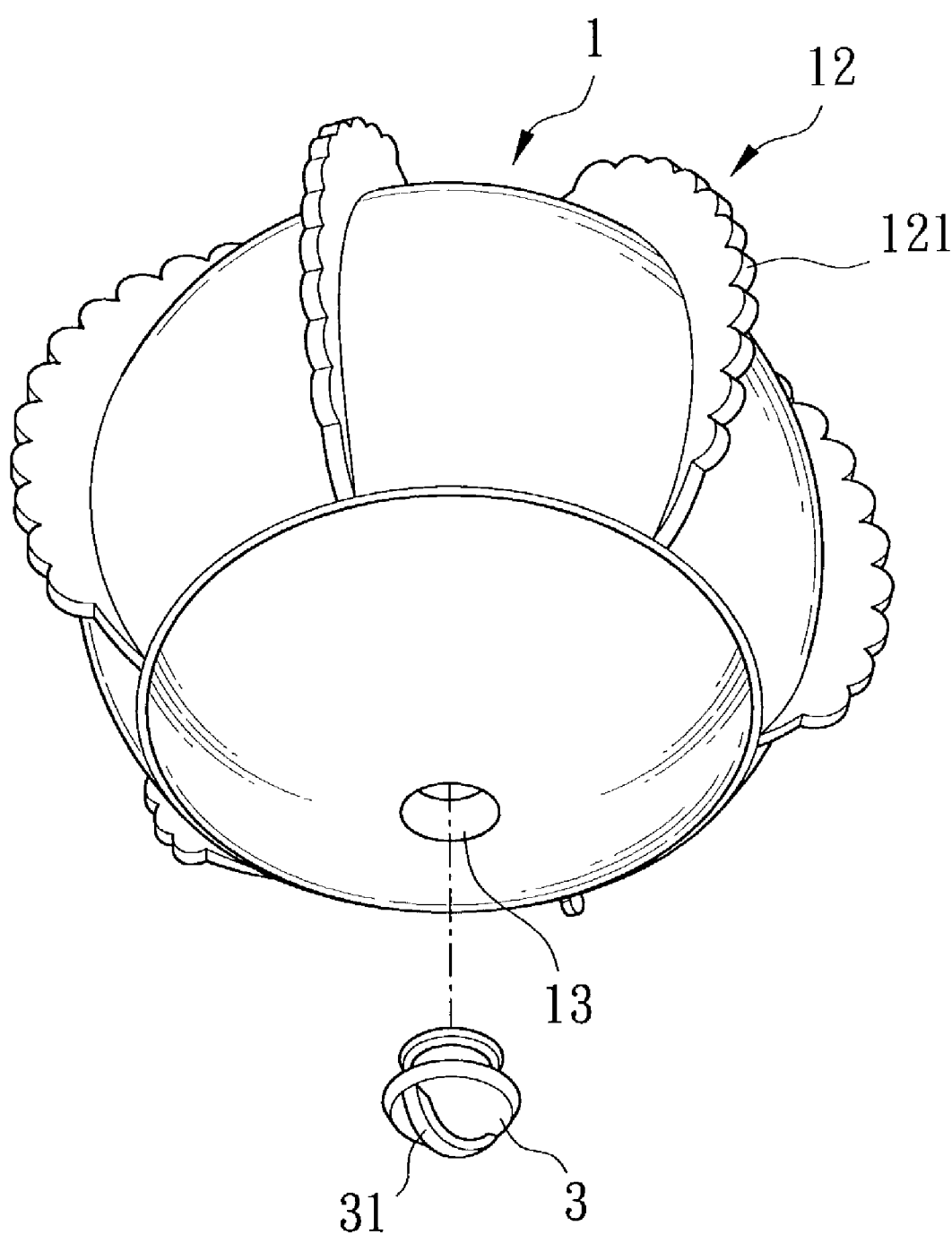
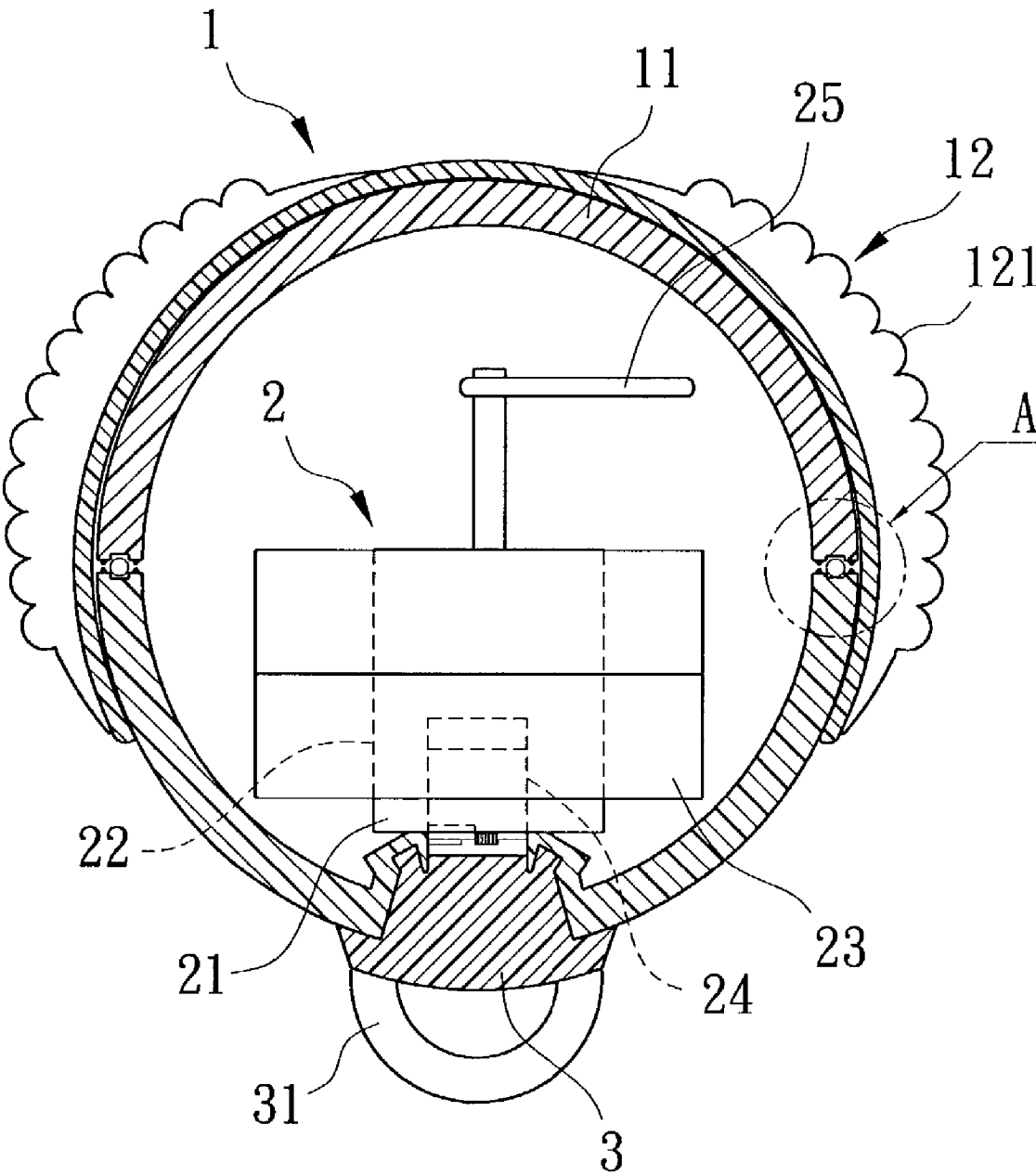


Fig. 1



Fi g. 2

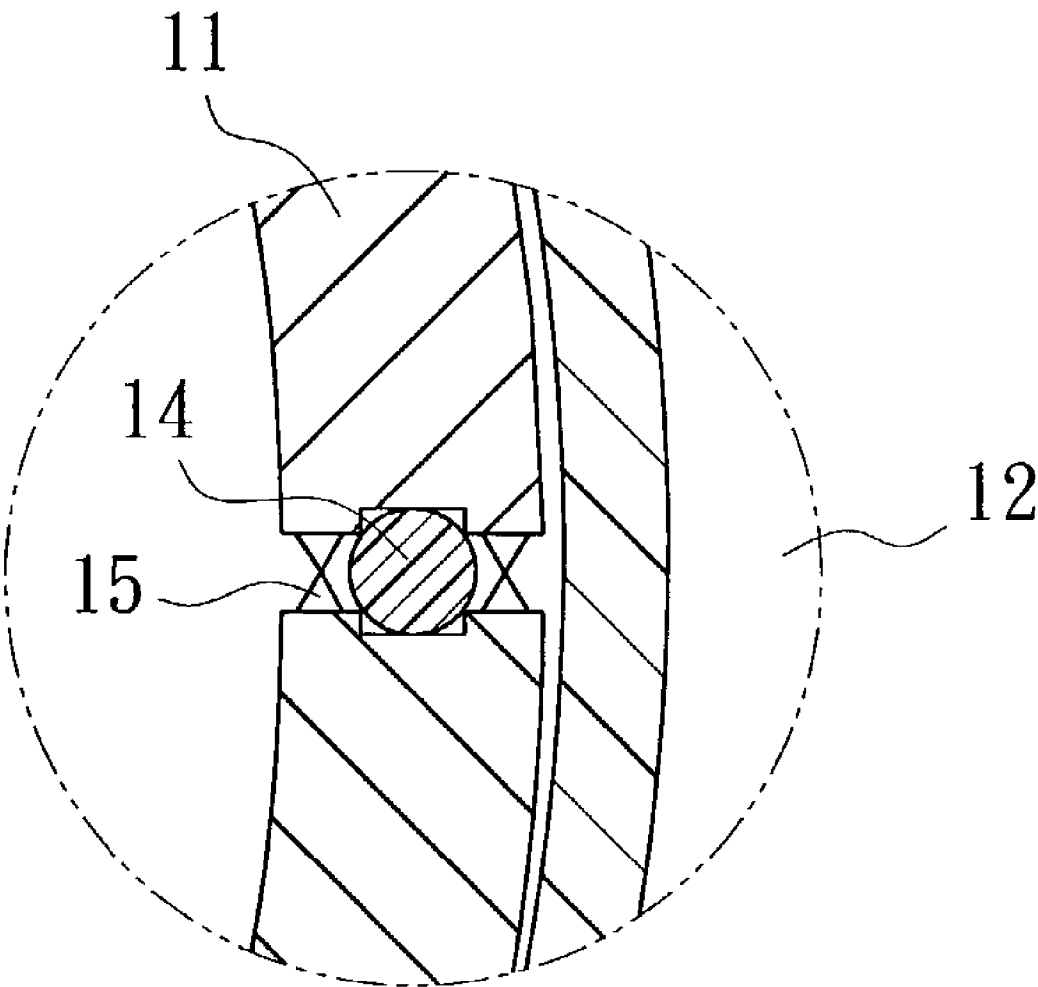
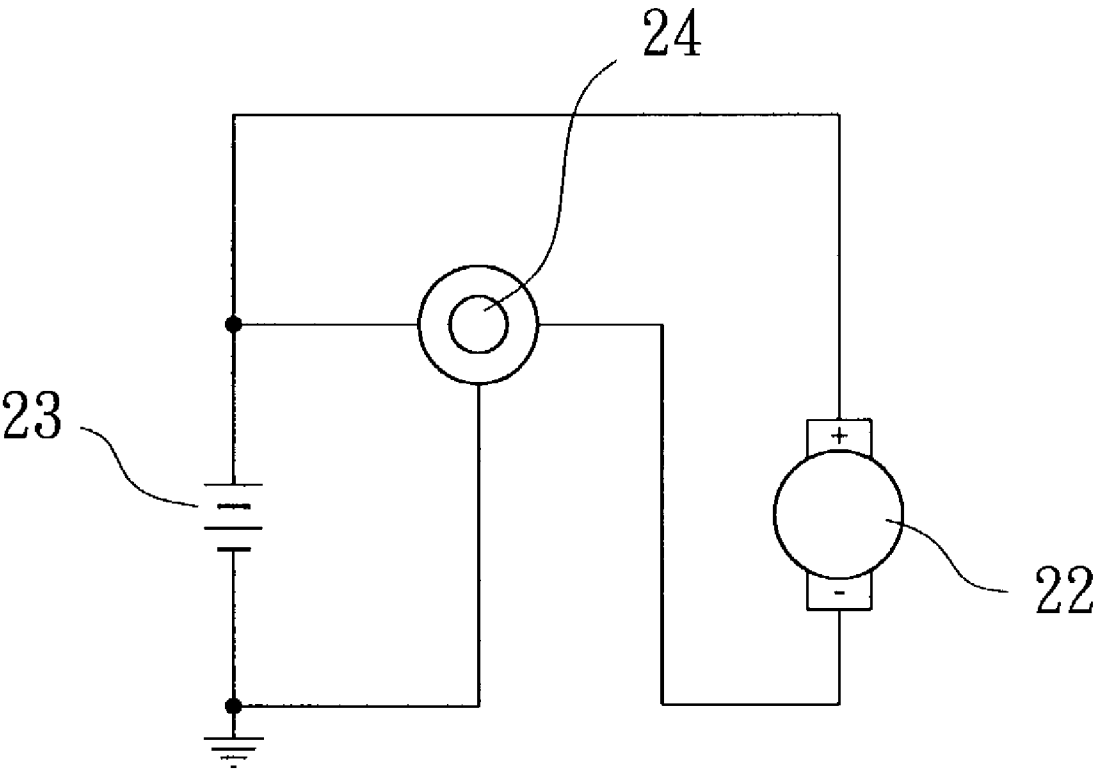
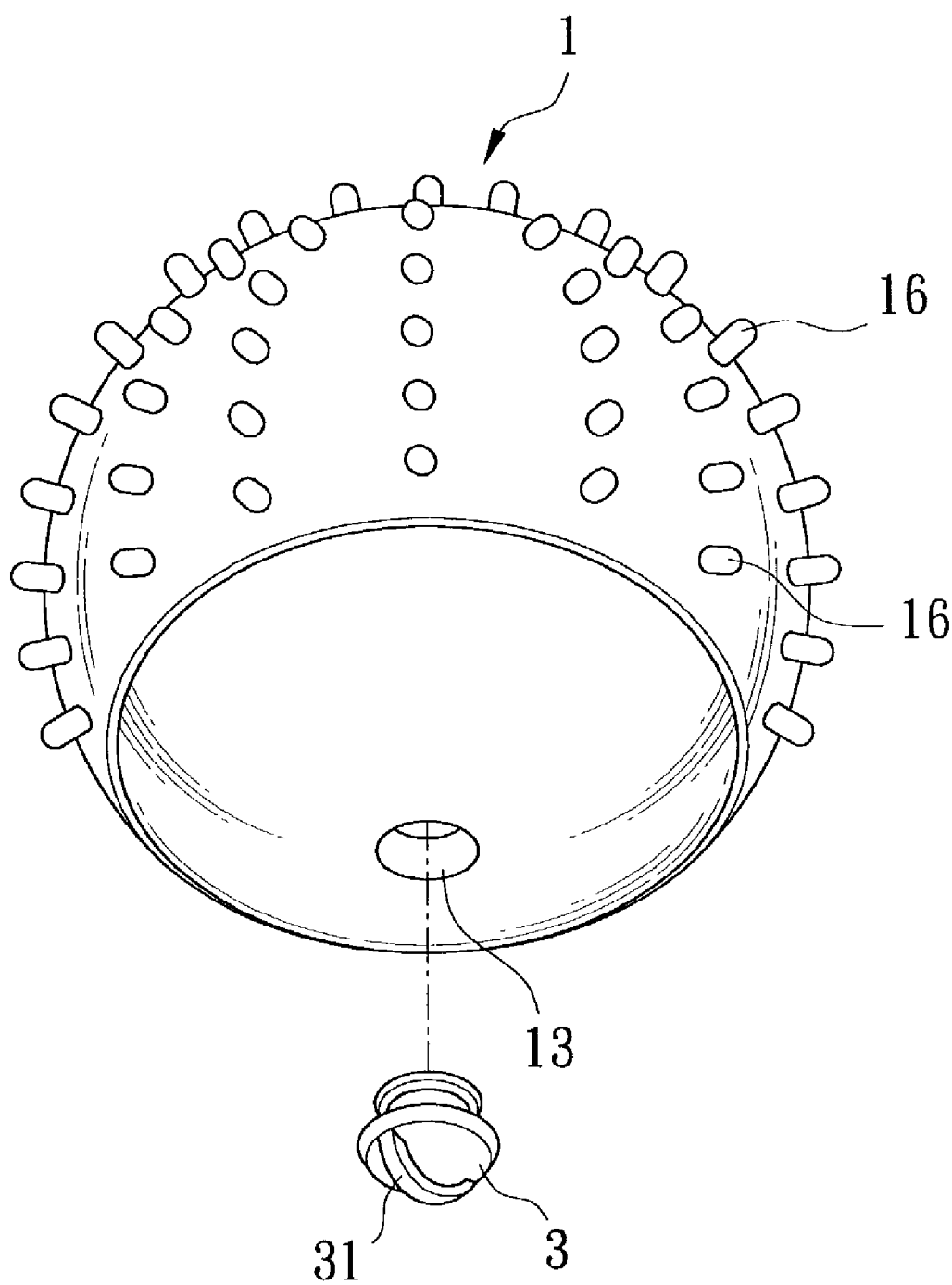


Fig. 3



Fi g. 4



Fi g. 5

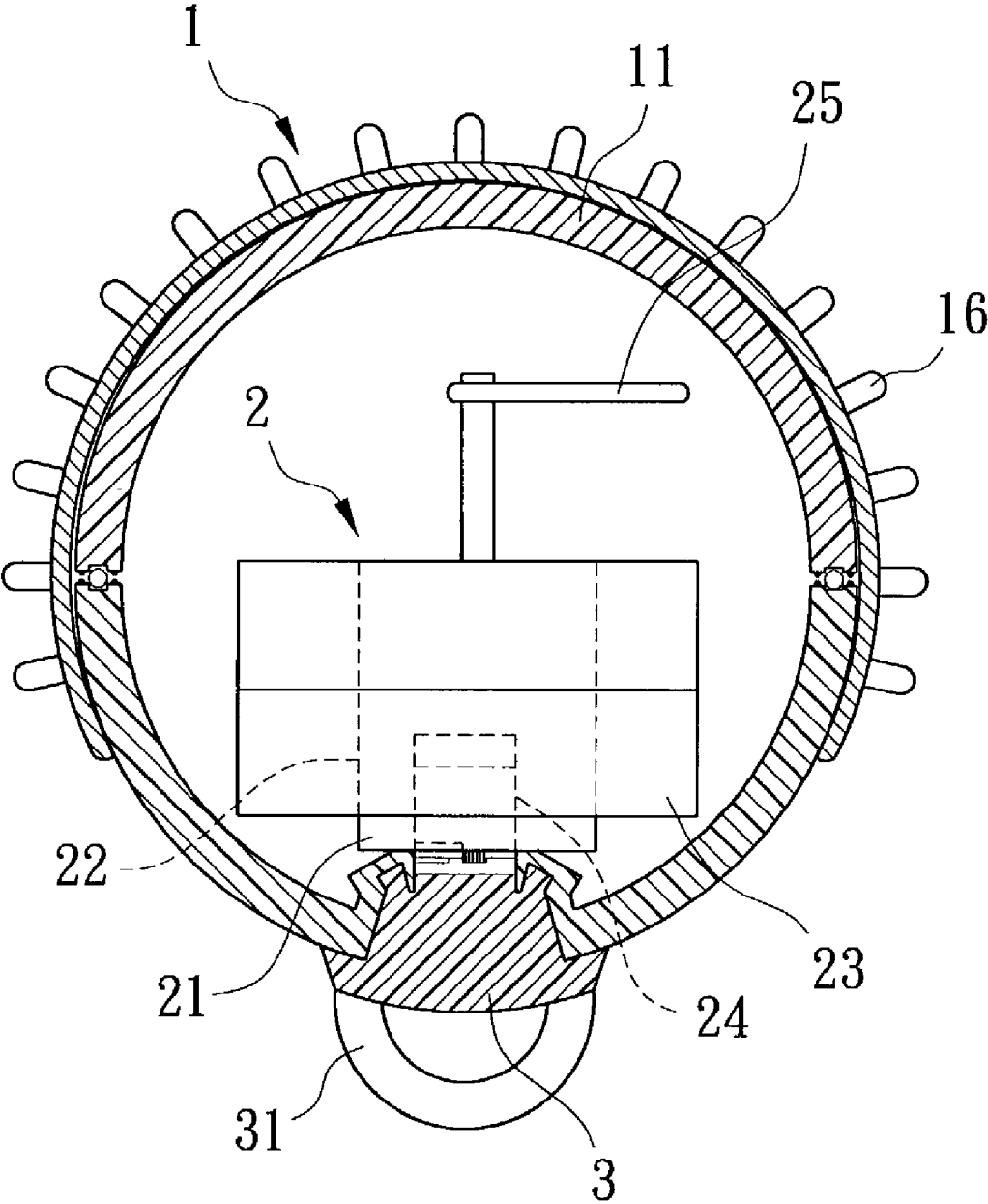


Fig. 6

KNEADING BALL FOR WASHING CLOTHES BY VIBRATION

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] The present invention is related to a kneading ball for washing clothes by vibration, and especially to a kneading ball of which the housing is provided with a vibration generating device, and a lot of kneading protrusions are provided on the surface thereof. The ball can generate disturbance of the liquid detergent having the clothes dipped therein for hand washing, thus can be used as a kneading ball for assisting in dealing with clothes for hand washing or the like.

[0003] 2. Description of the Prior Art

[0004] Cleaning modes of clothes are varied in pursuance of the nature of the clothes, the invention of washing machines has largely saved manpower, however, elevation of quality as well as fashions of clothes increases the limitation to washing; various washing nets, washing bags etc. being auxiliary of a washing machine can not suit all kinds of clothes. Clothes not suitable for placing in a stirring washing machine can be washed by kneading softly by manpower; and even some clothes are merely dipped in liquid detergent in waiting for decomposition of dirt. However, these modes are power and time exhausting. The motive of the present invention is to provide a kneading ball for assisting in dealing with clothes for hand washing or the like by vibration.

SUMMARY OF THE INVENTION

[0005] The primary object of the present invention is to provide a kneading ball for washing clothes by vibration, the ball generates vibration automatically when clothes are dipped in liquid detergent; and a lot of kneading protrusions are provided on the surface of the housing thereof, vibration can generate water flow for hand washing of clothes.

[0006] Another object of the present invention is to provide a kneading ball structure for washing clothes by vibration, which ball is compact and waterproofing, and can be directly used in liquid detergent, a vibration generating device enclosed in the housing thereof can be kept dry to elongate the life of use of the kneading ball, and can avoid electric leakage, thereby safety can be improved.

[0007] To acquire the above stated objects, in the present invention, the vibration generating device, the housing and a waterproof cover are combined altogether. The housing is provided on the surface thereof with a hole for combining of the waterproof cover therewith. The vibration generating device is mounted in the housing; a base seat of the vibration generating device is connected with the hole of the housing. The vibration generating device has an electric motor with rechargeable batteries to drive an eccentric wheel and in turn to make vibration of the housing, the charging pin of the vibration generating device is mounted in the housing near the hole, so that the waterproof cover can be detached from the hole in favor of electric charging. The housing can be formed by combining two semispherical half-housings by supersonic wave melting under high frequency, thereby the two semispherical half-housings can be tightly combined with each other, and a waterproof rubber ring is provided

between the two tightly combined half-housings to enhance the effect of waterproofing. A lot of kneading protrusions are provided at intervals on the surface of the housing, the kneading protrusions can increase disturbance of liquid when the ball is used in liquid detergent by vibration of the housing and can increase the friction and kneading-washing effect on the clothes being washed.

[0008] The present invention will be apparent in its features and structure after reading the detailed description of the preferred embodiment thereof in reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] FIG. 1 is a perspective view showing a preferred embodiment of the present invention;

[0010] FIG. 2 is a sectional view of the preferred embodiment of the present invention;

[0011] FIG. 3 is a sectional schematic view showing the structure at the joint of the two semispherical half-housings of the housing of the present invention;

[0012] FIG. 4 is an electric circuit diagram of the preferred embodiment of the present invention;

[0013] FIG. 5 is a perspective view showing another preferred embodiment of the present invention;

[0014] FIG. 6 is a sectional view of the other preferred embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0015] Referring firstly to FIGS. 1 and 2, the kneading ball for washing clothes by vibration of the present invention is comprised of a housing 1, a vibration generating device 2 and a waterproof cover 3 etc.

[0016] Referring simultaneously to FIGS. 2 and 3, the housing 1 is made of waterproof material, and is formed by combining two semispherical half-housings 11; the end walls at the openings of the two semispherical half-housings 11 are both provided with a connecting member 15 making connection under high frequency, these high frequency connecting members 15 can make combining of the two semispherical half-housings 11 by supersonic wave melting under high frequency; and a waterproof rubber ring 14 is provided between the two high frequency connecting members 15, thereby, the two semispherical half-housings 11 are combined to form perfectly the integral housing 1.

[0017] The housing 1 is provided on the surface thereof with a hole 13 at the top of one of the two semispherical half-housings 11.

[0018] The housing 1 is provided with a lot of kneading protrusions 121 at intervals on the surface thereof, which kneading protrusions 121 are further integrally provided on a plurality of arched wings 12; each wing 12 is extended from the top of a semispherical half-housing 11 to the opening of the half-housing 11, this half-housing 11 does not have the hole 13, so that when the two semispherical half-housings 11 are combined with each other to form the integral housing 1, the wings 12 extend from the top of a semispherical half-housing 11 to the other half-housing 11; the length of each wing 12 is about $\frac{1}{3}$ of the peripheral

length of a diametrical circle, the curvature of each wing 12 is the same as that of the housing 1.

[0019] As shown in FIG. 2, the housing 1 is provided therein with a vibration generating device 2 which is comprised of a base seat 21, a motor 22, a set of rechargeable batteries 23, a charging pin 24 and an eccentric wheel 25.

[0020] The vibration generating device 2 is connected with the hole 13 of the housing 1 through the base seat 21, the motor 22 of the vibration generating device 2 is mounted on the base seat 21 and is located in the housing 1. The rechargeable batteries 23 are arranged at one side of the motor 22, to provide power for the motor 22 to render the motor 22 to drive the eccentric wheel 25 attached thereon. The charging pin 24 is mounted on the base seat 21 and exposed to the outside of the hole 13 of the housing 1.

[0021] As shown in FIGS. 2 and 3, the waterproof cover 3 is made of waterproof material, it is closely coincident with the structural shape of the hole 13 of the housing 1, and is provided with a pick-up lobe 31 to allow a user to mount the waterproof cover 3 on or detach it from the hole 13 of the housing 1 at will.

[0022] As shown in FIG. 4, when the rechargeable batteries 23 have been charged, just activate the switch, the motor 22 rotates; when the rechargeable batteries 23 are exhausted of electricity, it needs only to insert the charging pin 24 in to a charging seat for charging till the batteries 23 are fully charged and ready for use.

[0023] With the above stated elements constructing the kneading ball for washing clothes by vibration, the present invention can have a feature of rendering the vibration generating device 2 to drive the eccentric wheel 25 through the motor 22, rotation of the eccentric wheel 25 makes vibration of the housing 1. The user can place the vibrational kneading ball for washing clothes in a washbasin loaded with liquid detergent having clothes dipped therein for hand washing, the vibrational kneading ball for washing clothes can automatically stir the liquid. The arched wings 12 on the surface of the housing 1 can enhance the stirring action of the liquid when in using the vibrational kneading ball for washing clothes. The protrusions 121 on the arched wings 12 can assist in helping generation of waves in the water. By cooperation of the vibration generating device 2 with the arched wings 12 on the surface of the housing 1 and the protrusions 121 thereon, soft stirring can be effected for washing the clothes, removing dirt and help a user in dipping and hand washing the clothes; in this mode, an object of getting the effect of washing by mild kneading without hurting the clothes can be achieved.

[0024] The two high frequency connecting members 15 can make firm combining of the two semispherical half-housings 11 by supersonic wave melting to prevent water permeation into the housing 1. A waterproof rubber ring 14 is provided between the two high frequency connecting members 15 and is closely stuck on the end walls of the openings of the two semispherical half-housings 11. Thereby, tightness of combining of the two semispherical half-housings 11 can be improved to surely prevent liquid permeation into the integral housing 1.

[0025] When in application, the user can conveniently mount the waterproof cover 3 on or detach it from the hole 13 of the housing 1 at will. By the fact that the charging pin

24 of the vibration generating device 2 is provided inside of the hole 13, after using of the vibrational kneading ball for washing clothes, the waterproof cover 3 can be removed for electric charging through the hole 13. Besides, the waterproof cover 3 and the hole 13 are mutually complementary in shape, they can be combined with each other tightly without leakage, this arrangement and the provision of the two high frequency connecting members 15 as well as the waterproof rubber ring 14 are all for preventing liquid permeation into the housing 1 and for protecting the vibration generating device 2. Thereby, the reliability of the product and the life of use of the present invention can be increased, thus the practicality of the present invention can be largely improved.

[0026] As shown in FIGS. 5 and 6, the housing 1 of the present invention is provided with a lot of kneading protrusions 16 at intervals on the surface thereof, which kneading protrusions 16 are a lot of separated protruding stubs, and can render the kneading ball for washing clothes to generate water disturbance in the liquid detergent having clothes dipped therein and to increase the frictional kneading washing function by vibration of a vibration generating device 2, and thereby the effect of vibrational kneading washing can be increased.

[0027] The present invention thereby has the following advantages:

[0028] 1. The present invention can create disturbance in liquid detergent for washing clothes by an automatic vibrating function and by providing the delicate wings integrally with a lot of kneading protrusions or providing a lot of mutually separate protruding stubs, thereby, an effect of kneading washing is obtained without damaging the clothes. It is convenient for dipping or hand washing clothes with an effect of mild washing, and can save manpower, increase the efficiency of washing, and get practicability.

[0029] 2. The present invention is provided with a waterproof cover, two high frequency connecting members and a waterproof rubber ring to provide plural protecting functions to prevent liquid permeation into the housing, and a vibration generating device is enclosed in the housing without attacking on the liquid detergent to powerfully protect quality and increase the life of use of the present invention.

[0030] 3. The present invention is small and convenient for operation, a user can place one or more than one vibrational kneading balls for washing clothes in pursuance of the volume of a washbasin, the amount of the clothes as well as the quality of material of the clothes etc.

[0031] In conclusion, the present invention not only gets rid of the defects resided in the conventional clothes washing balls which can only be used in a washing machine, but also can generate vibration automatically and can be used in dipping and hand washing clothes by mild kneading; and by providing the high frequency connecting members, the waterproof cover and the waterproof rubber ring, the present invention can perfectly protect the vibration generating device in the housing and to increase the life of use of the present invention. Thereby, the practicability of the present invention can be largely increased, the batteries can be repeatedly charged for use, and more than one vibrational kneading balls can be used simultaneously without limitation by time and space.

Having thus described the technical process of my invention with high practical industrial value, what I claim as new and desire to be secured by Letters Patent of the United States are:

1. A kneading ball for washing clothes by vibration comprising:

a housing provided on the surface thereof with a hole, and provided with a lot of kneading protrusions at intervals on said surface thereof;

a vibration generating device enclosed in said housing to create vibration; and

a waterproof cover adapted to conveniently mounting on or detaching from said hole of said housing;

said vibrational kneading ball for washing clothes automatically vibrates to generate kneading function in a water basin with liquid detergent having clothes dipped therein for mild washing, thus assists a user in washing clothes not suitable to be washed in a washing machine.

2. The kneading ball for washing clothes as in claim 1, wherein,

said housing is formed by combining two semispherical half-housings, the end walls at the openings of said two semispherical half-housings are both provided with a connecting member making connection under high frequency, said high frequency connecting members make combining of said two semispherical half-housings by supersonic wave melting under high frequency to form said housing of said vibrational kneading ball for washing clothes.

3. The kneading ball for washing clothes as in claim 2, wherein,

a waterproof rubber ring is provided between said two high frequency connecting members, thereby, said two semispherical half-housings are combined to perfectly form said housing.

4. The kneading ball for washing clothes as in claim 1, wherein,

said kneading protrusions provided on said housing are further integrally provided on a plurality of wings.

5. The kneading ball for washing clothes as in claim 1, wherein,

said kneading protrusions provided on said housing are a lot of separated protruding stubs.

6. The kneading ball for washing clothes as in claim 4, wherein,

said wings provided thereon with said kneading protrusions are all arched.

7. The kneading ball for washing clothes as in claim 1, wherein,

said vibration generating device is comprised of a base seat, a motor, a set of rechargeable batteries, a charging pin and an eccentric wheel; said base seat is connected with said hole of said housing, said motor is mounted on said base seat and is located in said housing, the rotation axle of said motor is connected with an axial hole of said eccentric wheel, said rechargeable batteries are arranged at one side of said motor to provide power for said motor, said charging pin is connected with said base seat at said hole of said housing.

8. The kneading ball for washing clothes as in claim 1, wherein,

said waterproof cover is provided with a pick-up lobe to allow a user to mount said waterproof cover or detach it conveniently.

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