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THEREOF**(30) **Foreign Application Priority Data**

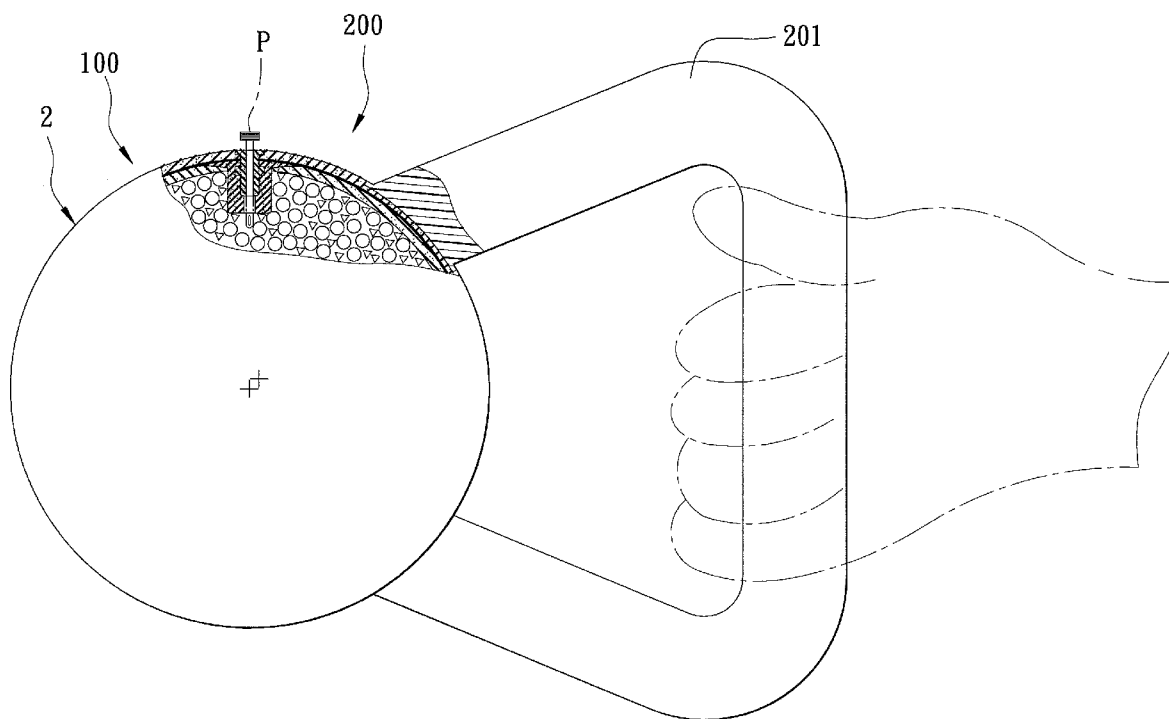
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A63B 21/06 (2006.01)(52) **U.S. Cl.** **482/93**(57) **ABSTRACT**

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A weight member for exercise includes a resilient shell that defines an inner chamber. The inner chamber contains a filling having weighting and shock-absorbing properties. The filling includes a high specific weight material and one of a foamable low specific weight material and a non-foamable low specific weight material. An exercise tool including a handle and at least one weight member attached to the handle is also disclosed.

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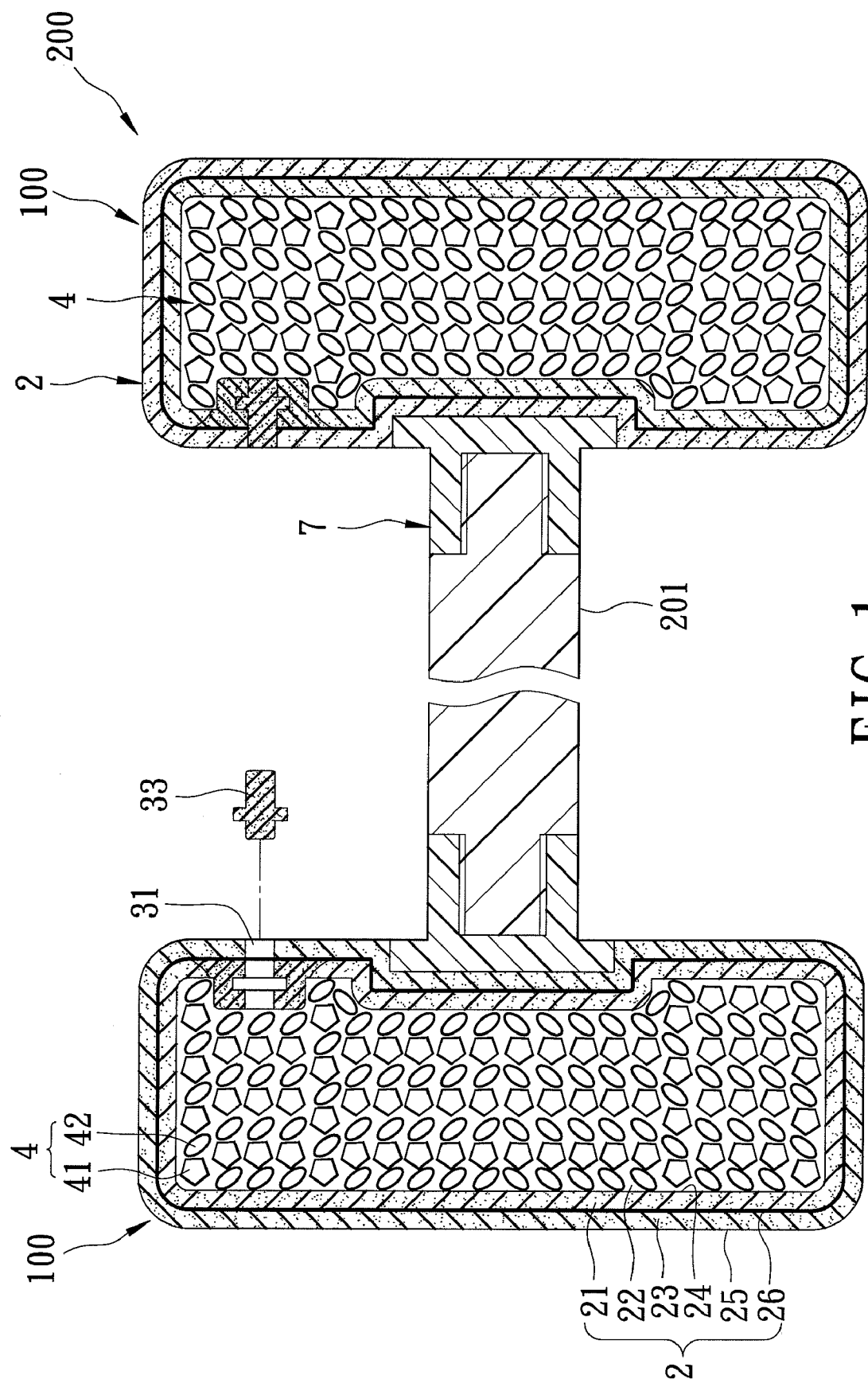


FIG. 1

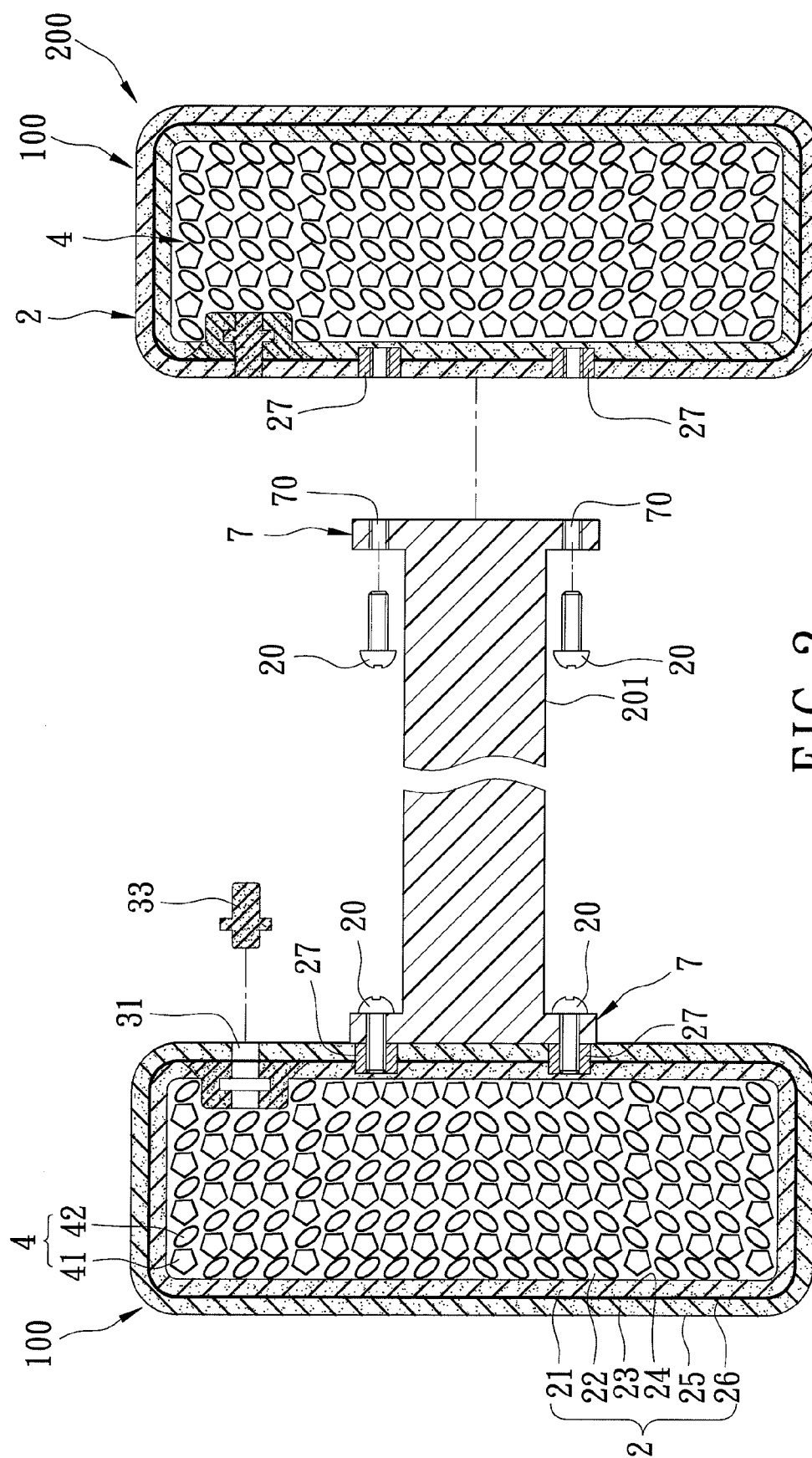


FIG. 2

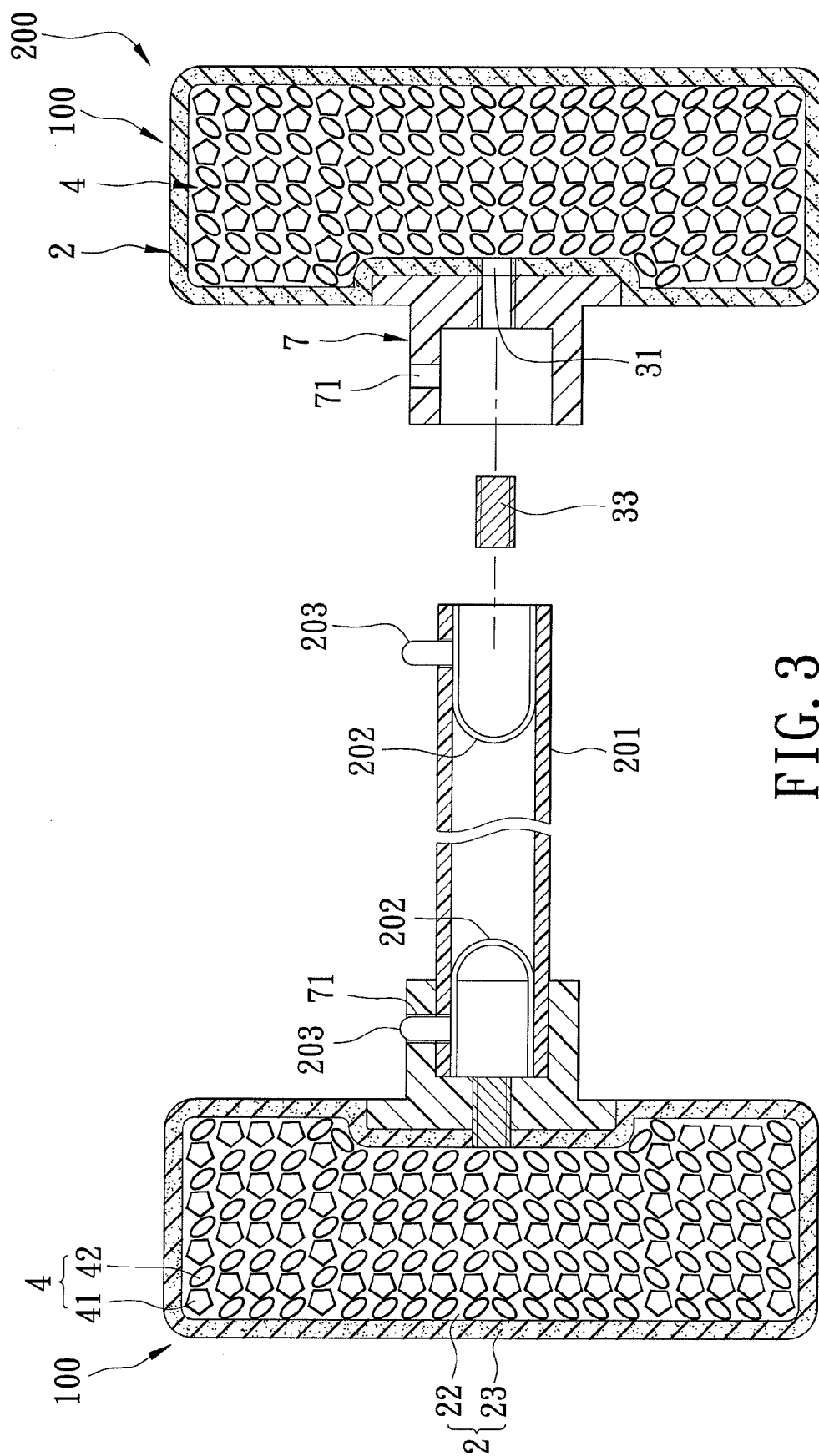


FIG. 3

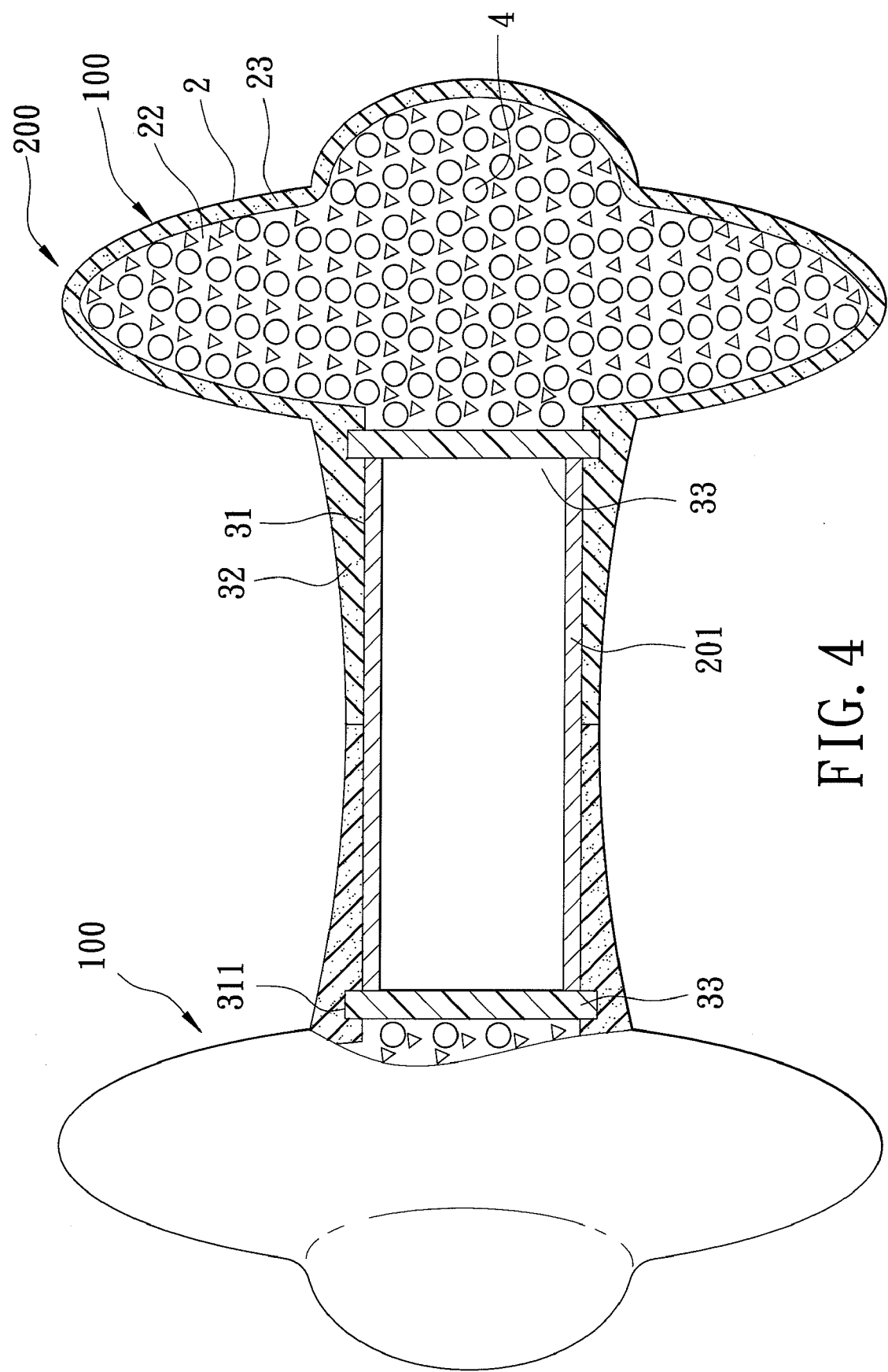


FIG. 4

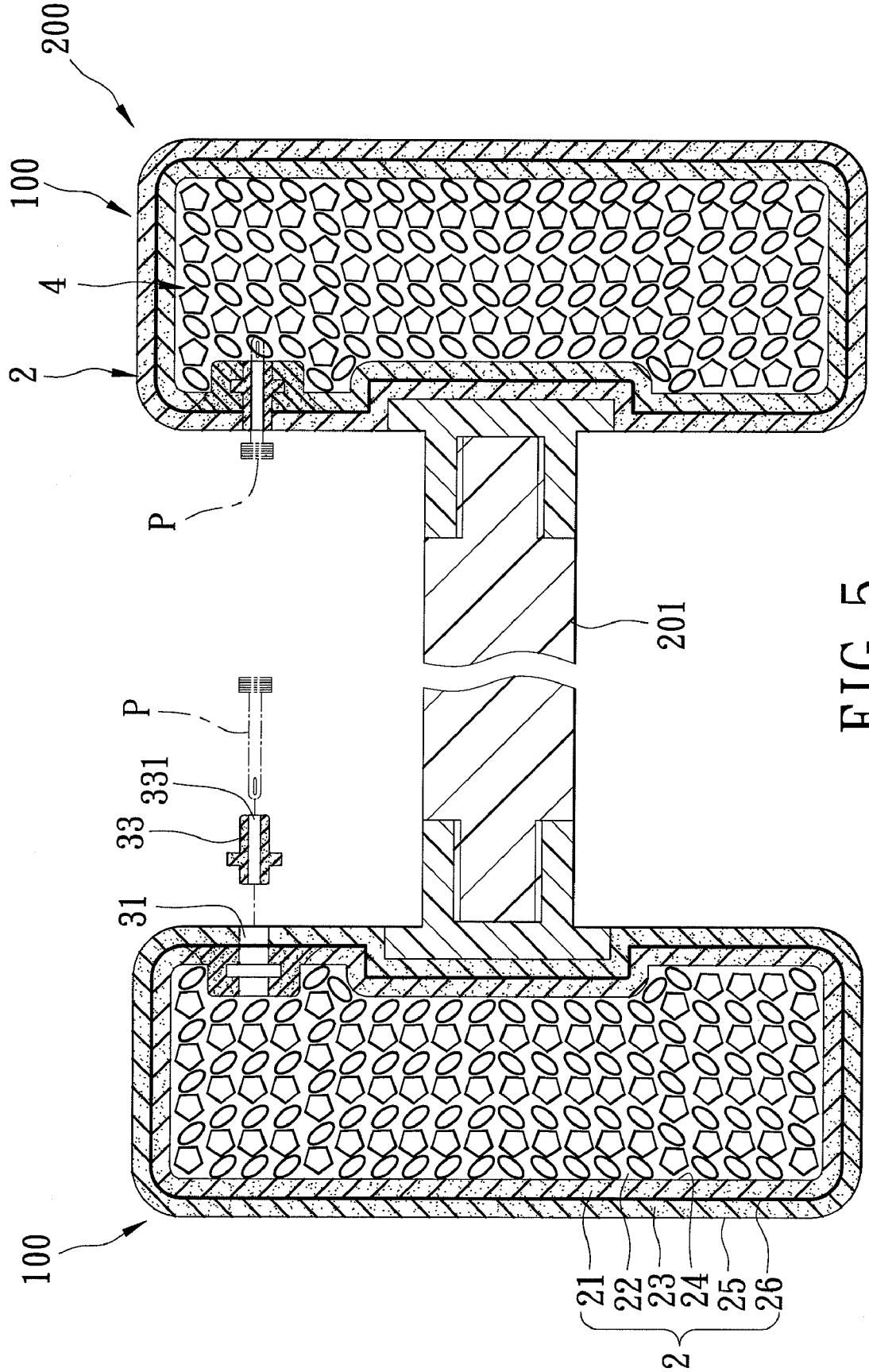


FIG. 5

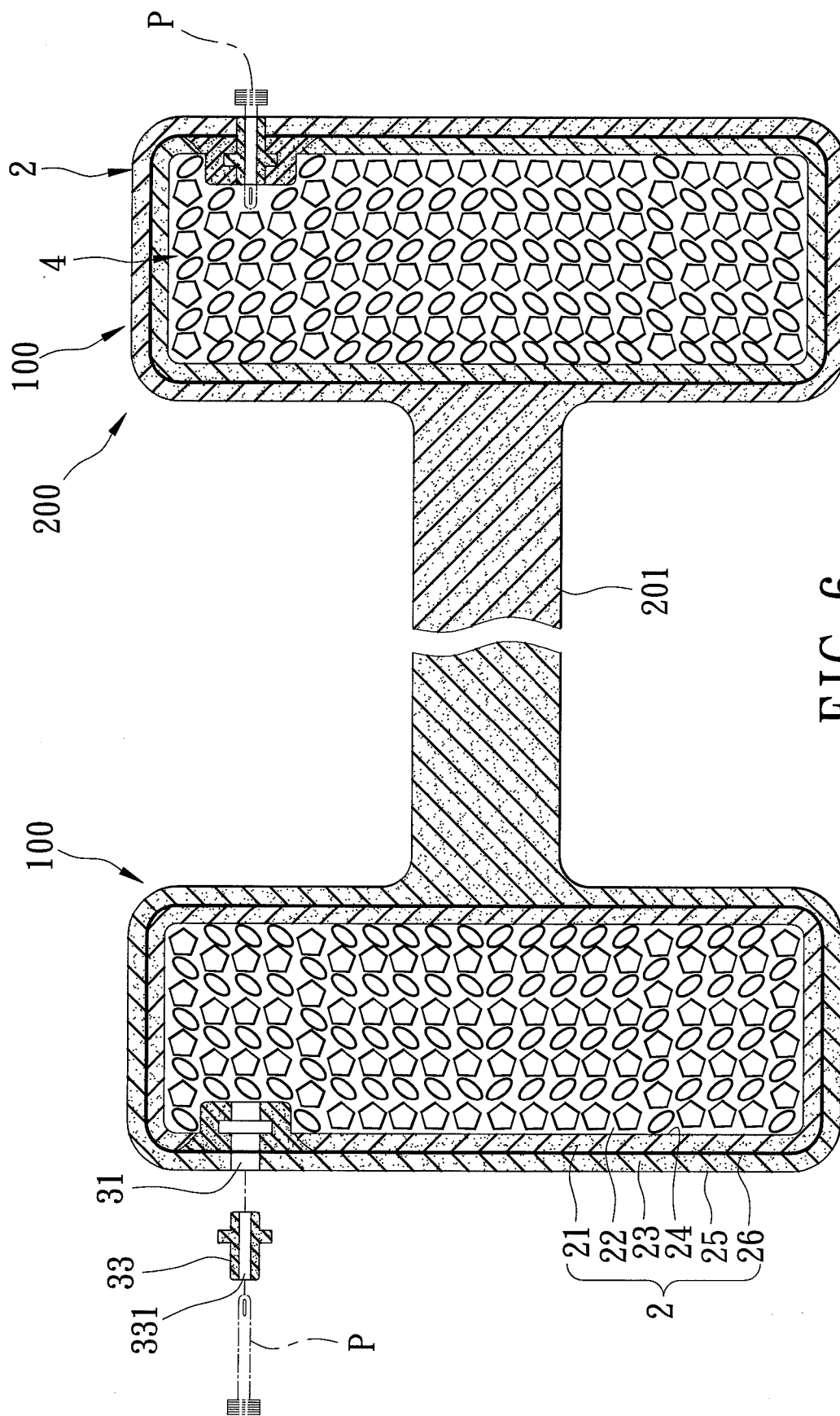


FIG. 6

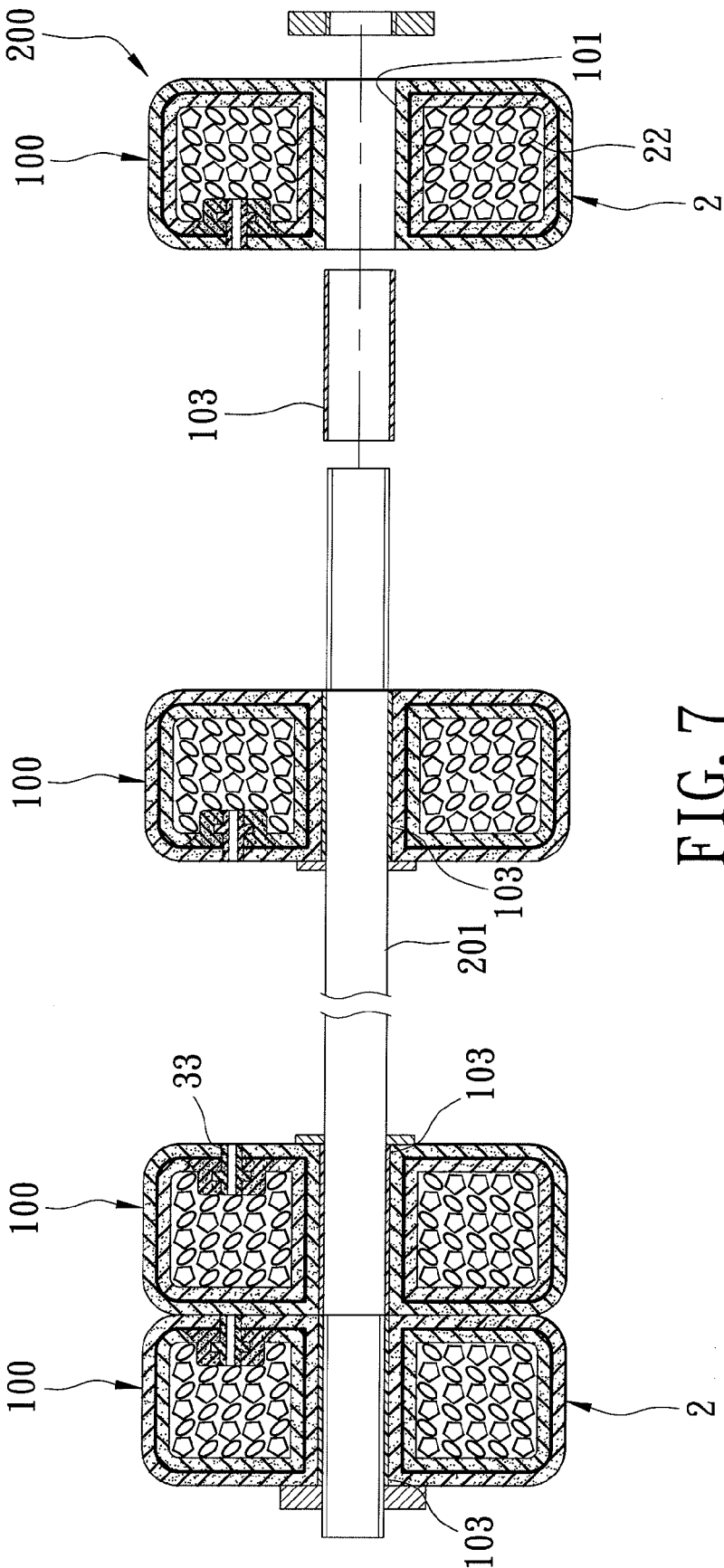


FIG. 7

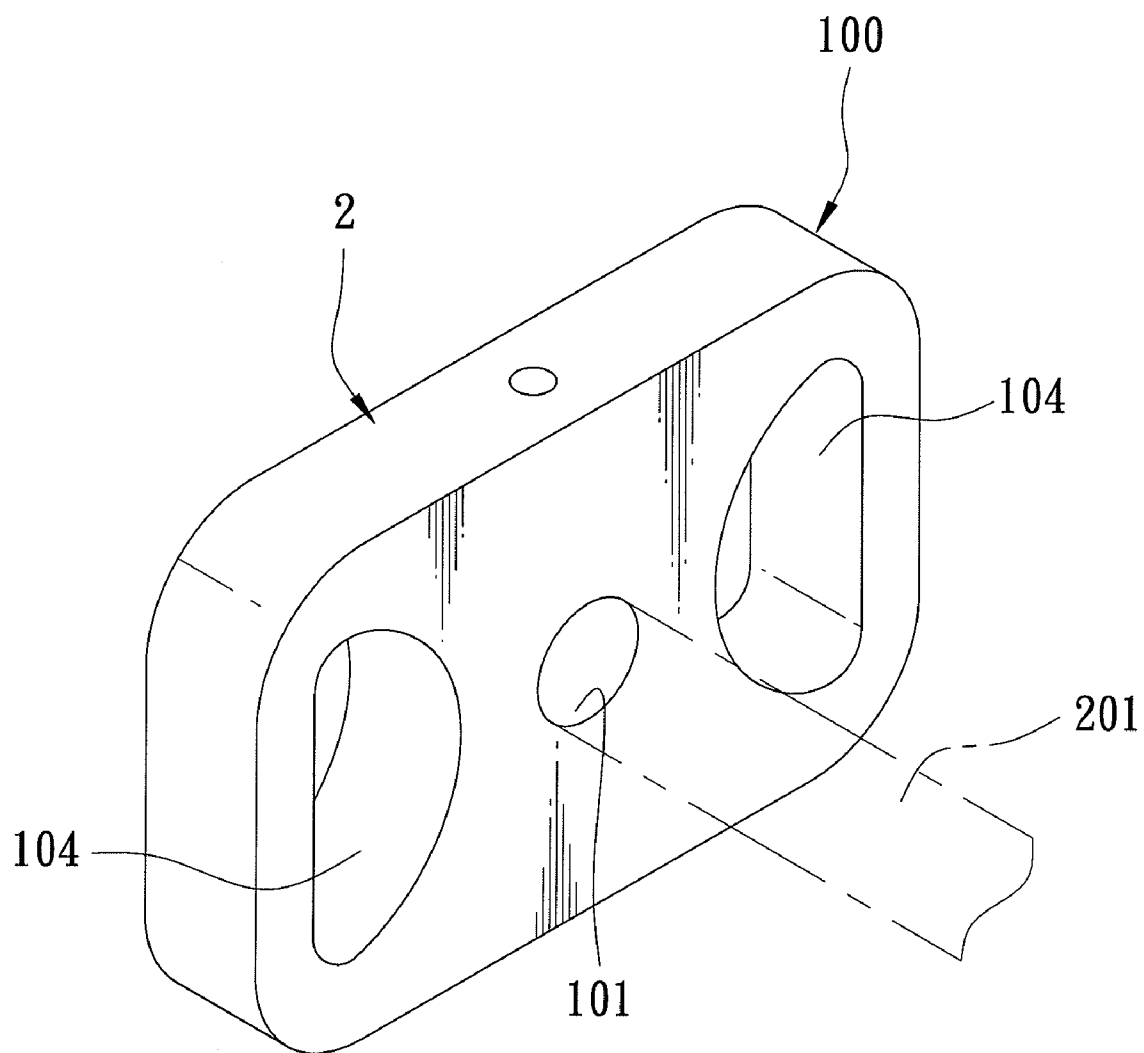


FIG. 8

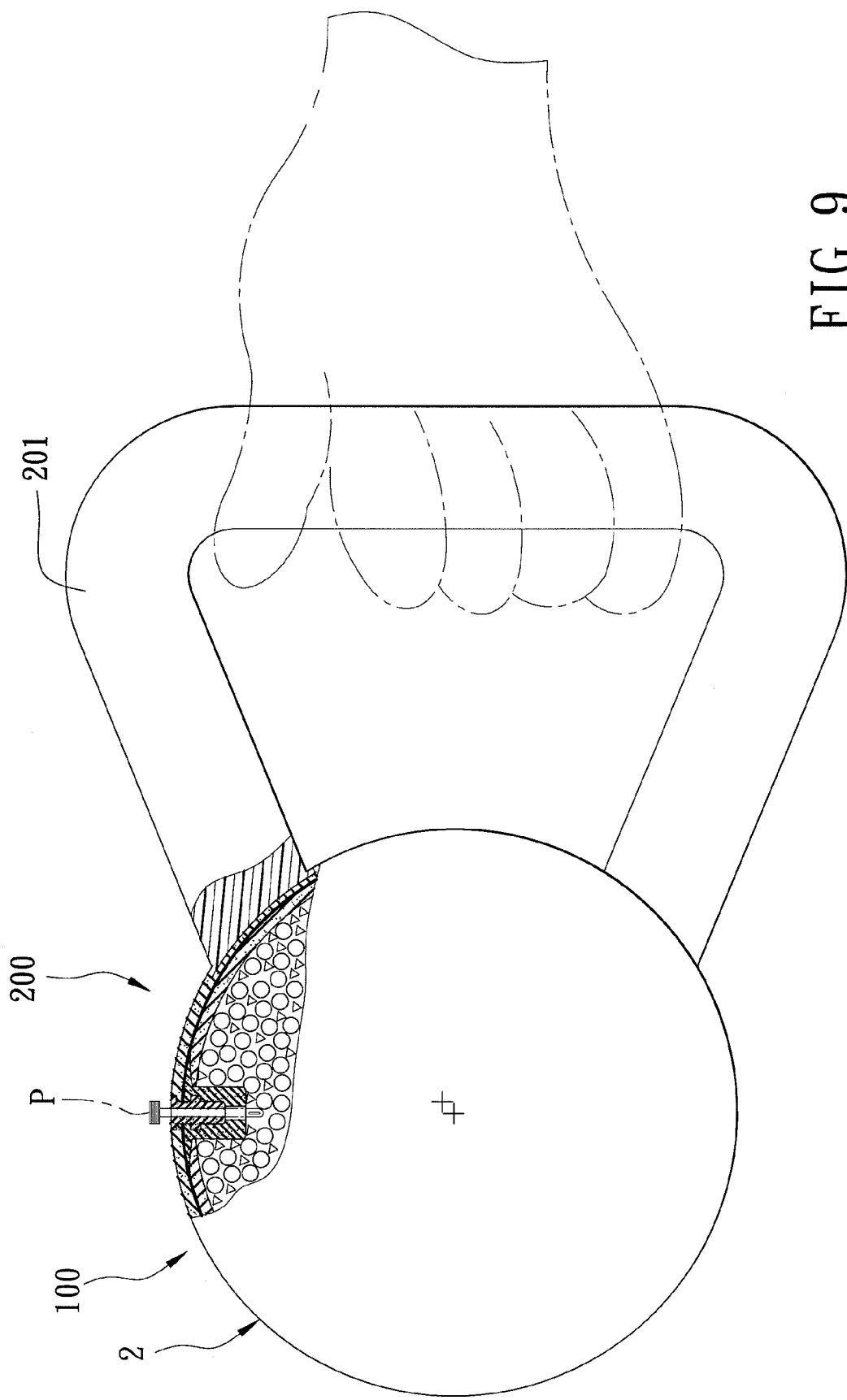


FIG. 9

EXERCISE TOOL AND WEIGHT MEMBER THEREOF

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application claims priority of Taiwanese application no. 096137253, filed on Oct. 4, 2007.

BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention

[0003] The invention relates to an exercise tool, such as dumbbells, barbells and kettle bells used in bodybuilding, weightlifting and other sports, more particularly to an exercise tool including a weight member that is safe to use.

[0004] 2. Description of the Related Art

[0005] Exercise tools, such as dumbbells, barbells and kettle bells, are often used in bodybuilding and weightlifting. [0006] Conventional dumbbells are formed using metal casting techniques, and the weight of a conventional dumbbell is controlled through the size thereof.

[0007] The conventional metal-cast dumbbell is disadvantageous in that, due to its rigidity, damage to a floor or injury to the user can occur when the dumbbell is accidentally dropped. Moreover, different molds are required to manufacture dumbbells having different weights, thereby resulting in high manufacturing costs. Furthermore, since it is difficult to control the amount of impurities in the raw material for making the dumbbells, the specific weight of the raw material can vary from one batch to another, thereby resulting in large errors in the actual weights of manufactured dumbbells.

SUMMARY OF THE INVENTION

[0008] Therefore, an object of the present invention is to provide a weight member for exercise that can overcome at least one of the aforesaid drawbacks associated with the prior art.

[0009] Another object of the present invention is to provide an exercise tool that includes the weight member.

[0010] According to one aspect of the invention, a weight member for exercise comprises a resilient shell that defines an inner chamber. The inner chamber contains a filling having weighting and shock-absorbing properties.

[0011] According to another aspect of the invention, an exercise tool includes a handle and at least one weight member for exercise. The weight member comprises a resilient shell that is attached to the handle and that defines an inner chamber. The inner chamber contains a filling having weighting and shock-absorbing properties.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] Other features and advantages of the present invention will become apparent in the following detailed description of the embodiments with reference to the accompanying drawings, of which:

[0013] FIG. 1 is a sectional view of a first embodiment of an exercise tool according to the present invention;

[0014] FIG. 2 is a partly exploded sectional view of a second embodiment of an exercise tool according to the present invention;

[0015] FIG. 3 is a partly exploded sectional view of a third embodiment of an exercise tool according to the present invention;

[0016] FIG. 4 is a partly sectional view of a fourth embodiment of an exercise tool according to the present invention;

[0017] FIG. 5 is a sectional view of a fifth embodiment of an exercise tool according to the present invention;

[0018] FIG. 6 is a sectional view of a sixth embodiment of an exercise tool according to the present invention;

[0019] FIG. 7 is a sectional view of a seventh embodiment of an exercise tool according to the present invention;

[0020] FIG. 8 is a perspective view of a weight member of the seventh embodiment; and

[0021] FIG. 9 is a schematic partly sectional view of an eighth embodiment of an exercise tool according to the present invention.

DETAILED DESCRIPTION OF THE EMBODIMENTS

[0022] Before the present invention is described in more detail with reference to the accompanying drawings, it should be noted that like reference numerals are used to designate like elements throughout the disclosure.

[0023] Referring to FIG. 1, the first embodiment of an exercise tool 200 according to this invention is shown to be in the form of a dumbbell, and includes a handle 201 and a pair of weight members 100, each of which is attached to a respective one of two opposite ends of the handle 201.

[0024] Each weight member 100 includes a resilient shell 2 that defines an inner chamber 22, and a filling 4 that is contained in the inner chamber 22 and that has shock-absorbing and weighting properties. The shell 2 is made of a resilient material, such as rubber, thereby imparting the shell 2 with deformable and shape-restorable properties. In this embodiment, the shell 2 includes an inner lining layer 21 defining the inner chamber 22, an outer skin layer 23 enclosing the inner lining layer 21, and a carcass 26 disposed between the outer skin layer 23 and the inner lining layer 21 to enhance the strength of the shell 2. It is noted that the carcass 26 is optional and may be omitted in other embodiments of the invention. Moreover, while the shell 2 is in a shape of a cylinder with a wall thickness of at least 2 mm in this embodiment, the shape of the shell 2 is not limited thereto in other embodiments of the invention. Furthermore, the number of layers included in the shell 2 can vary depending on actual requirements, e.g., the desired resilience and strength and the cost of the weight member 100. Suitable materials for forming the shell 2 include resilient plastic, polyurethane, thermoplastic rubber, and polyvinyl chloride.

[0025] In this embodiment, a coupling seat 7 is fixed to an outer surface 25 of the outer skin layer 23 of the shell 2 of each weight member 100 for threaded coupling with the handle 201. However, other coupling mechanisms may be employed between the shell 2 and the handle 201 in other embodiments of this invention.

[0026] The filling 4 includes a low specific weight material for imparting the filling 4 with shock-absorbing and bulk properties, and a high specific weight material for imparting the filling 4 with weighting properties. The low specific weight material may be a foamable or non-foamable material.

[0027] The filling 4 is introduced into the inner chamber 22 in granular form. In particular, the filling 4 is formed from low specific weight granules 41 and high specific weight granules 42 that are uniformly mixed in suitable proportions to achieve an appropriate weight for the weight member 100, and is introduced into the inner chamber 22 via a hole 31 that extends through the outer surface 25 of the outer skin layer 23

and an inner surface **24** of the inner lining layer **21**. A stopper **33** is used to close the hole **31**.

[0028] Examples of materials suitable for the low specific weight granules **41** and the high specific weight granules **42** include, but are not limited to: foamable low specific weight materials such as polystyrene, ethylene-vinyl acetate copolymer, shock-absorbing foam, and polyurethane; non-foamable low specific weight materials such as wood fragments, scrap tire fragments, cork fragments, plastic granules, seeds and shells thereof, shells of fruits, fabrics, cotton, and artificial fibers; and non-foamable high specific weight materials such as sand, iron sand, natural ore powder, pebbles, etc.

[0029] In this embodiment, a foamable low specific weight material, such as polystyrene, is used for the low specific weight granules **41**, and high specific weight sand is used for the high specific weight granules **42**.

[0030] During manufacture of the weight member **100** of this embodiment, after forming the shell **2** and uniformly mixing the foamable low specific weight granules **41** and the high specific weight granules **42** together, the granules **41**, **42** are introduced into the inner chamber **22** via the hole **31**. The shell **2** is then placed in a mold, and the assembly of the shell **2** and the granules **41**, **42** is heated to cause the foamable low specific weight granules **41** to swell, thereby resulting in the filling **4** that is contained in the inner chamber **22**. The resultant filling **4** can have a form of a mixture of foamed low specific weight granules **41** and high specific weight granules **42**, at least one low specific weight foam body with high specific weight granules **42** dispersed therein, or a combination of both. The assembly of the shell **2** and the filling **4** is then removed from the mold, and the hole **31** is closed with the use of the stopper **33**.

[0031] Through the use of the resilient shell **2** and the filling **4** having shock-absorbing and weighting properties, damage to a floor and injury to the user can be alleviated when the exercise tool **200** is accidentally dropped. In addition, a desired weight for the weight member **100** can be achieved through mixing of suitable low specific weight and high specific weight materials in appropriate proportions, thereby dispensing with the need to use different molds to cast different sizes of products. It is thus possible to manufacture weight members **100** with precisely controlled weights at lower manufacturing costs.

[0032] FIG. 2 illustrates the second embodiment of the exercise tool **200** of this invention, which differs from the first embodiment in the connection between each weight member **100** and the handle **201**. In this embodiment, the shell **2** of each weight member **100** has a set of nuts **27** secured thereto. Each end of the handle **201** is formed with a coupling seat **7**. Each coupling seat **7** is formed with a set of fastener holes **70** that are registered with the nuts **27** on the shell **2** of a corresponding weight member **100** and that permit a set of screws **20** to engage threadedly the nuts **27**.

[0033] FIG. 3 illustrates the third embodiment of the exercise tool **200** of this invention. Compared to the first embodiment, the shell **2** of each weight member **100** only includes the outer skin layer **23**, which defines the inner chamber **22**. The hole **31** is formed through the coupling seat **7** and the outer skin layer **23**. The stopper **33** threadedly engages the coupling seat **7** to close the hole **31**, but may be plugged into the hole **31** in other embodiments of the invention. The coupling seat **7** of each weight member **100** is formed with a radial pin hole **71**. The handle **201** is hollow and has opposite ends, each provided with a spring-loaded pin mechanism that includes a retaining pin **203** biased by a U-shaped spring plate **202** to extend radially and outwardly of the handle **201**. When one end of the handle **201** is extended into the coupling seat **7**

of a corresponding weight member **100**, the retaining pin **203** extends into the pin hole **71**, thereby coupling the weight member **100** to the handle **201**. The stoppers **33** of the weight members **100** are concealed by the handle **201** in this embodiment so as to ensure a neat appearance for the exercise tool **200**.

[0034] Due to the use of the pin mechanism in this embodiment, replacement of the weight members **100** can be conducted with relative ease.

[0035] It is noted that the stoppers **33** may be provided directly on the opposite ends of the handle **201** in a possible modification of the third embodiment.

[0036] FIG. 4 illustrates the fourth embodiment of the exercise tool **200** of this invention. Like the third embodiment, the shell **2** of each weight member **100** only includes the outer skin layer **23** that defines the inner chamber **22**. The shell **2** of each weight member **100** has the appearance of a disc in this embodiment, and further has a tubular extension **32** that defines the hole **31**. The tubular extension **32** has an inner surface formed with an annular groove **311** proximate to the inner chamber **22**. In this embodiment, the stopper **33** of each weight member **100** is in a form of a plate that is inserted into the tubular extension **32** and that has a periphery engaging the annular groove **311**. The handle **201** is made of a rigid material (such as rigid plastic or metal), may be a solid or hollow bar, and has opposite ends inserted fittingly into the tubular extensions **32** of the shells **2** of the weight members **100**, thereby attaching the weight members **100** to the handle **201**.

[0037] It is noted that the stoppers **33** can be provided directly on the opposite ends of the handle **201** in a possible modification of the fourth embodiment.

[0038] In yet another possible modification of the fourth embodiment, in case the tubular extensions **32** of the shells **2** of the weight members **100** are sufficiently thick and strong, the handle **201** can be omitted, and the tubular extensions **32** can be coupled to each other to serve as a handle of the exercise tool **200** (i.e., the handle is formed integrally with the shells **2** of the weight members **100**).

[0039] FIG. 5 illustrates the fifth embodiment of the exercise tool **200** of this invention. Compared to the first embodiment, the stopper **33** of each weight member **100** is configured with an air inflation hole **331** that permits charging of a suitable amount of air into the inner chamber **22** via an air inflating pin (P) for improving resiliency of the weight member **100**.

[0040] FIG. 6 illustrates the sixth embodiment of the exercise tool **200** of this invention. Compared to the fifth embodiment, the handle **201** is connected integrally to the outer skin layers **23** of the shells **2** of the weight members **100**. While the handle **201** is shown to be a solid one in this embodiment, the handle **201** may be one that is hollow and that is spatially communicated with the inner chambers **22** of the shells **2** of the weight members **100** in other embodiments of the invention.

[0041] FIG. 7 illustrates the seventh embodiment of the exercise tool **200** of this invention. Unlike the previous embodiments, the shell **2** of each weight member **100** is further formed with a handle coupling hole **101** that is spatially isolated from the inner chamber **22**. Preferably, each weight member **100** further includes a rigid inner ring **103** that is fitted in the handle coupling hole **101** and that permits extension of the handle **201** therethrough. Therefore, although the shells **2** of the weight members **100** are deformable, the weight members **100** can be easily attached and removed from the handle **201** by virtue of the rigid inner rings **103**. The weight members **100** serve as detachable weight plates of a barbell or a dumbbell in this embodiment.

[0042] In this embodiment, aside from choosing weight members 100 having desired weight characteristics, it is possible to attach more than two weight members 100 to the handle 201 in order to achieve a desired exercising effect.

[0043] In addition, while the stoppers 33 of the weight members 100 are configured to permit charging of air into the inner chambers 22 in a manner similar to the fifth and sixth embodiments, such a design is optional in other embodiments of this invention.

[0044] FIG. 8 illustrates a weight member 100 of the exercise tool 200 of the seventh embodiment. The shell 2 of the weight member 100 is rectangular in shape, and is configured with a set of finger holes 104 that are spatially isolated from the handle coupling hole 101 and the inner chamber 22 (see FIG. 7). When the weight member 100 is detached from the handle 201, the weight member 100 can be gripped via the finger holes 104 for lifting exercise by the user.

[0045] Referring to FIG. 9, the eighth embodiment of an exercise tool 200 according to this invention is shown to be in the form of a kettle bell, and includes a generally ball-shaped weight member 100 and a handle 201 having opposite ends secured to the resilient shell 2 of the weight member 100 using any suitable manner. The handle 201 may be a rigid handle or a flexible handle. While the weight member 100 is configured to permit charging of air into the inner chamber 22 of the shell 2 via an air inflating pin (P) in a manner similar to the fifth and sixth embodiments, such a design is optional in other embodiments of this invention.

[0046] It should be apparent to those skilled in the art that the shape of the weight members 100 of the exercise tool 200 of this invention is not limited to those of the aforementioned embodiments and can be a custom-designed shape (such as a shape of a human, an animal, a fruit, etc.) in other embodiments of the invention.

[0047] While the present invention has been described in connection with what are considered the most practical and preferred embodiments, it is understood that this invention is not limited to the disclosed embodiments but is intended to cover various arrangements included within the spirit and scope of the broadest interpretation so as to encompass all such modifications and equivalent arrangements.

What is claimed is:

1. A weight member for exercise comprising a resilient shell that defines an inner chamber, said inner chamber containing a filling that has weighting and shock-absorbing properties.

2. The weight member of claim 1, wherein said filling includes a high specific weight material and one of a foamable low specific weight material and a non-foamable low specific weight material.

3. The weight member of claim 1, wherein said filling is formed from a mixture of high specific weight granules and low specific weight granules.

4. The weight member of claim 3, wherein said shell is formed with a hole in spatial communication with said inner chamber for introducing said filling into said inner chamber, said weight member further comprising a stopper for closing said hole.

5. The weight member of claim 4, wherein said stopper is formed with an air inflation hole that permits charging of air into said inner chamber.

6. The weight member of claim 1, wherein said shell is provided with an air inflation hole that permits charging of air into said inner chamber.

7. The weight member of claim 1, wherein said shell is formed with a handle coupling hole that is spatially isolated from said inner chamber and that is adapted for extension of a handle therethrough.

8. The weight member of claim 7, further comprising a rigid inner ring fitted in said handle coupling hole and adapted for extension of the handle therethrough.

9. The weight member of claim 1, wherein said shell is formed with at least one finger hole that is spatially isolated from said inner chamber.

10. An exercise tool, comprising:
a handle; and

at least one weight member for exercise, said weight member including a resilient shell that is attached to said handle and that defines an inner chamber, said inner chamber containing a filling having weighting and shock-absorbing properties.

11. The exercise tool of claim 10, wherein said filling includes a high specific weight material and one of a foamable low specific weight material and a non-foamable low specific weight material.

12. The exercise tool of claim 10, wherein said filling is formed from a mixture of high specific weight granules and low specific weight granules.

13. The exercise tool of claim 12, wherein said shell is formed with a hole in spatial communication with said inner chamber for introducing said filling into said inner chamber, said exercise tool further comprising a stopper for closing said hole.

14. The exercise tool of claim 13, wherein said stopper is formed with an air inflation hole that permits charging of air into said inner chamber.

15. The exercise tool of claim 10, wherein said shell has a tubular extension that defines a hole in spatial communication with said inner chamber for introducing said filling into said inner chamber, said handle having one end inserted fittingly into said tubular extension.

16. The exercise tool of claim 10, wherein said handle is connected integrally to said shell.

17. The exercise tool of claim 10, wherein said weight member further includes a coupling seat secured to said shell and fastened to one end of said handle.

18. The exercise tool of claim 17, wherein said coupling seat is formed with a radial pin hole and permits extension of said one end of said handle therein, said handle being provided with a spring-loaded pin mechanism to engage said pin hole.

19. The exercise tool of claim 17, wherein said coupling seat and said shell are formed with a hole in spatial communication with said inner chamber for introducing said filling into said inner chamber.

20. The exercise tool of claim 10, wherein said shell is formed with a handle coupling hole that is spatially isolated from said inner chamber and that permits extension of said handle therethrough.

21. The exercise tool of claim 20, wherein said weight member further includes a rigid inner ring fitted in said handle coupling hole, said handle extending through said inner ring.

22. The exercise tool of claim 10, comprising two of said weight members attached to opposite ends of said handle.

23. The exercise tool of claim 10, wherein said handle has opposite ends secured to said shell of said weight member.

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