

May 25, 1965

W. W. FECHNER

3,185,476

SPHERICAL BALL INCLUDING AN INTERNAL RESILIENT HAND GRIP

Filed Aug. 30, 1962

Fig. 1.

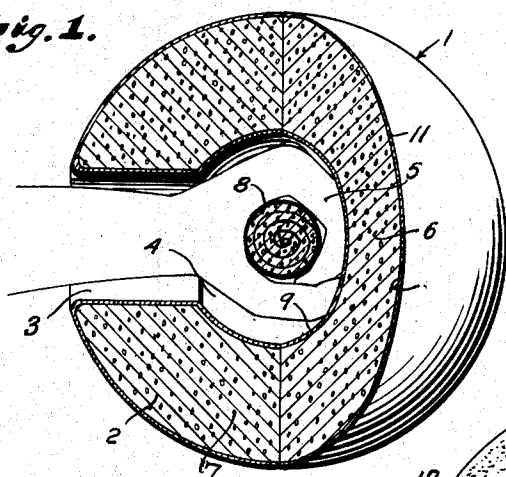


Fig. 4.

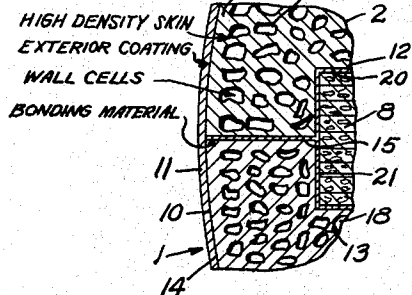


Fig. 2.

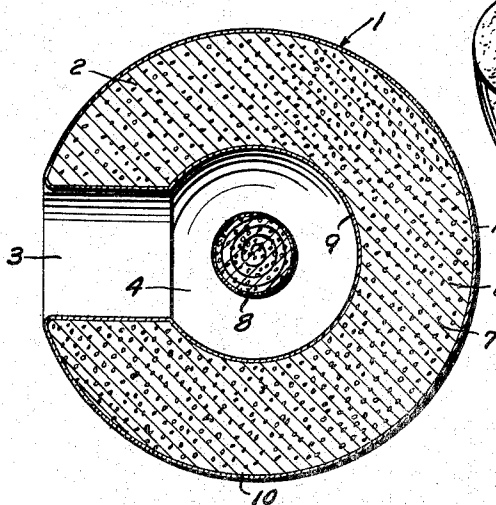
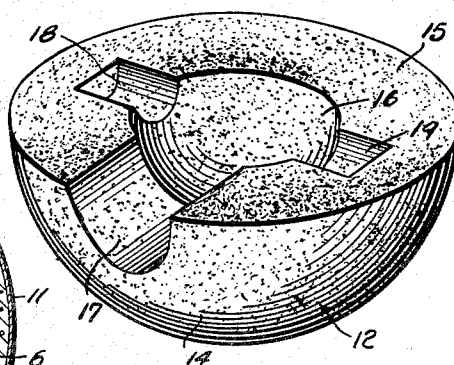
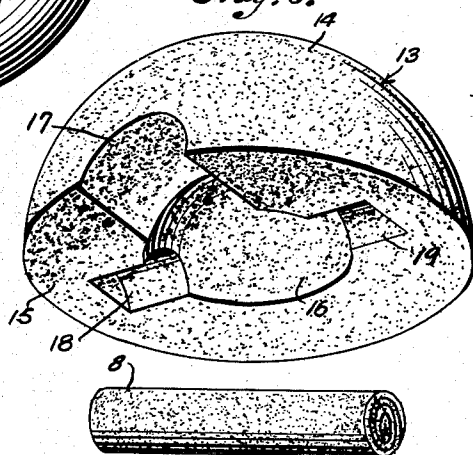


Fig. 3.



INVENTOR.
Walter W. Fechner
BY
Paul E. Mullimore
ATTORNEY

1

3,185,476

SPHERICAL BALL INCLUDING AN INTERNAL RESILIENT HAND GRIP

Walter W. Fechner, 730 Vattier St., Manhattan, Kans.

Filed Aug. 30, 1962, Ser. No. 220,359

5 Claims. (Cl. 273-58)

This invention relates to a play ball that may be tossed about, rolled on the ground, batted, or used for boxing, and has for its principal object to provide a ball of this character that is of light weight, substantially free of visible seams, and safe for the amusement of children, as well as adults.

Other objects of the invention are to provide a play ball with an opening connected with a central cavity to pass the hand and wrist of the user for making a fist about a resilient cross bar that extends transversely of the central cavity; to provide a play ball that may be formed of a resilient, spongy, cellular material, such as one of the moldable, resilient, cellular resins or sponge rubber material; to provide the ball with a tough resilient coating that may be suitably decorated; and to provide a play ball that will float when used in water games.

In accomplishing these and other objects of the invention, I have provided an improved construction, the preferred form of which is illustrated in the accompanying drawing, wherein:

FIG. 1 is a perspective view of a play ball constructed in accordance with the present invention, and showing a portion thereof broken away to better illustrate the interior cavity and cross bar as it is gripped by the hand when the ball is used for boxing.

FIG. 2 is a diametrical section through the ball.

FIG. 3 is a perspective view of the parts of the ball, prior to assembly thereof.

FIG. 4 is an enlarged fragmentary section to illustrate bonding material securing the parts of the play ball together and showing the high density skin at the outer surfaces of the sections composing the play ball.

Referring more in detail to the drawing:

1 designates a ball constructed in accordance with the present invention and having a spherical body 2 provided with an opening 3 leading inwardly from the exterior face of the body and connected with an interior cavity 4. The opening 3 provides a passageway that is entirely contained within the spherical body and is of sufficient size to pass the hand 5 into the cavity 4. The ball is of sufficient outer diameter to provide a wall 6 of ample thickness to cushion the effect of a blow when the ball is used for boxing.

The body 2 of the ball is formed of a resilient spongy material in that it has tiny open and/or closed wall cells 7 closely grouped together to provide strength and maintain the shape of the ball, but which are yieldable under impact to absorb the force of a blow. The cellular arrangement of the material from which the ball is constructed is such as to provide activity thereof in springing back to shape, so that the ball has bounce when thrown and batted in the manner of a conventional play ball. Air is trapped in the cellular structure by coating the exterior and interior and bar surfaces with a material such as a formulation of one of the liquid urethane plastics; a vinyl plastic; liquid latex, or other suitable coating material 11, providing for buoyancy of the ball when the ball is used in water sports.

Extending across the cavity 4 is a resilient bar 8 that is preferably of cylindrical shape so that it may be easily gripped in the palm of the hand, as shown in FIG. 1.

In order to promote wearability of the ball for rigorous use and to enhance the moisture resistant properties of the ball, the inner and outer surfaces 9 and 10, as well

2

as the bar 8, are covered with the resilient coating 11 which is also resistant to abrasion. The coating 11 also provides a smooth exterior surface that may be suitably decorated with various figures, ornamental designs, and the like, not shown.

The ball thus described is preferably made of a resilient cellular resin that is capable of being shaped by molding. One such material that is particularly suitable is polyetherisocyanate resin. Another such material may be sponge rubber. Such materials when molded to shape are softly resilient and composed of a multitude of tiny open and/or closed wall cells and of light weight. The molding process also forms a skin 11' on the surface thereof that is of higher density to form a substantially smooth surface easily covered with the exterior coating 11.

The body 2 is preferably formed of sections 12 and 13, as illustrated in FIG. 3. Each section is formed in a mold, not shown, to produce a hemispherical shape having a spherical outer surface 14 and a flat circular face 15 in which a hemispherical cavity 16 and a channel 17 are formed. The channel 17 is semicircular in cross section and extends from the outer surface 14 to connect with the inner hemispherical cavity 16. Also formed within the flat face 15 on a diametrical axis transverse to the axis of the channel 17 and at opposite diametrical sides of the hemispherical cavity 16 are sockets 18 and 19 that are also substantially semicircular in cross section and which terminate short of the outer surface 14. Both sections 12 and 13 are of like shape, and, consequently, may be formed in the same mold. A strip of resilient material, such as may be made from polyetherisocyanate resin or sponge rubber, may be rolled upon itself to form the bar 8 of a diameter to fit snugly within the sockets 18 and 19.

In assembling the parts thus provided, a suitable bonding or cementing material 20 is placed within the sockets 18 and 19 and upon the flat faces 15 of the sections 12 and 13 as shown at 21 of FIG. 4. The cross bar 8 is then pressed into the sockets 18 and 19 of one of the sections, for example, the section 12, and the flat face 15 of the section 13 is brought into contact with the flat face of the section 12, with the sockets in the section 13 passing over the ends of the cross bar 8, to bring the peripheries of the flat faces 15 into registry. When the sections are thus brought together, the hemispherical cavities 16 and the channels 17 form the spherical cavity 4 and the opening 3, respectively, of the finished ball.

After the bond is set, the coating 11 may be applied to the exterior spherical surface 14 of the ball and to the surfaces of the interior cavity and bar in any suitable manner, for example, by spraying or dipping or other suitable methods of applying the coating material. It may also be desirable to apply the coating to the separate parts before they are assembled and bonded together.

The play ball thus described is preferably used in sets of four, so that when used for boxing each sparring partner will have a ball for each hand. The balls are worn simply by sliding the hands through the openings 3 and into the cavities 4 and fists are made about the bars 8, as shown in FIG. 1. The balls are retained on the hand as long as the bar 8 is gripped. The play balls may thus be used for boxing without causing injury to either of the opponents, and they are easily slipped on and off the hands merely by loosening the grip on the bar 8 and withdrawing the hand while holding the ball with the other hand. The balls may also be tossed about in the manner of a basketball, through a ring, hit over a net similar to a volley ball, struck with the open hand or fist in the manner of a hand ball, or rolled as in bowling by gripping the ball with the fingers in the opening 3.

From the foregoing, it is obvious that I have provided a play ball that is easily constructed of materials that are

3

light in weight, softly resilient, and capable of withstanding rigorous use, and which will not cause injury. It is also obvious that the balls may be made of various sizes suitable for different age groups. The desired degree of resiliency may be varied by varying the composition or formulation of the rubber or resin materials from which the balls are constructed.

What I claim and desire to secure by Letters Patent is:

1. A play ball including
 - a spherical body of resilient cellular material having a passageway opening from the spherical surface of said body and connected with a substantially central internal cavity for passing the hand into the cavity whereby said passageway is completely contained within the spherical body, and
 - a resilient bar extending diametrically across the cavity to be gripped by the hand.
2. A play ball composed of
 - hemispherical sections each having a hemispherical cavity in the center thereof having sockets at opposite diametrical sides of the cavity and channels extending from the cavities and terminating at the outer surface of the sections,
 - a resilient bar extending across the cavities and having ends contained in the sockets, and
 - a bonding material connecting said sections together.
3. A play ball composed of
 - hemispherical sections each having a hemispherical cavity in the center thereof having sockets at opposite diametrical sides of the cavity and channels extending from the cavities and terminating at the outer surface of the sections,
 - said sections each consisting of a single piece of resilient material having closely related cells,
 - a resilient bar extending diametrically across the cavities and having ends contained in the sockets, and
 - a bonding material connecting said sections together.
4. A play ball including

4

hemispherical sections each having a hemispherical cavity in the center thereof having sockets at opposite sides of the cavity and channels extending from the cavities through the outer surface of the sections, said sections comprising a cellular material and having an exterior skin portion having a density greater than the density of the cellular material, a resilient bar extending across the cavities and having ends contained in the sockets, and a bonding material connecting said hemispherical sections together.

5. A play ball including
 - hemispherical sections each having a hemispherical cavity in the center thereof having sockets at opposite sides of the cavity and channels extending from the cavities through the outer surface of the sections,
 - said sections comprising a resilient cellular material and having a skin of greater density than the density of the cellular material,
 - a resilient bar extending across the cavities and having ends contained in the sockets,
 - a bonding material securing the ends of the resilient bar in said sockets and connecting the hemispherical sections, and
 - a moisture resistant coating covering said skin.

References Cited by the Examiner

UNITED STATES PATENTS

421,447	2/90	Stewart	-----	2—18
1,016,244	1/12	Troxler	-----	2—18
1,023,504	4/12	Chester	-----	273—58
1,286,396	12/18	Oldham	-----	2—18
1,646,122	10/27	Tidwell	-----	273—58
2,284,300	5/42	Portal	-----	2—18
3,066,951	12/62	Gray	-----	272—57 X

DELBERT B. LOWE, *Primary Examiner.*