

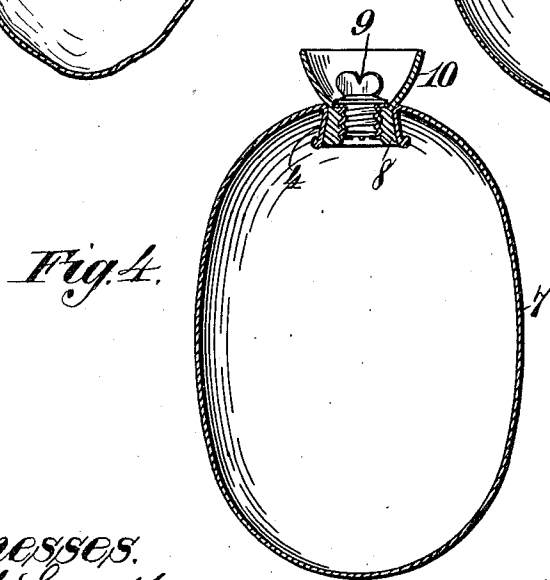
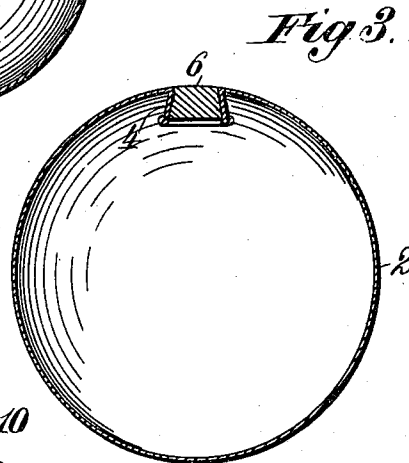
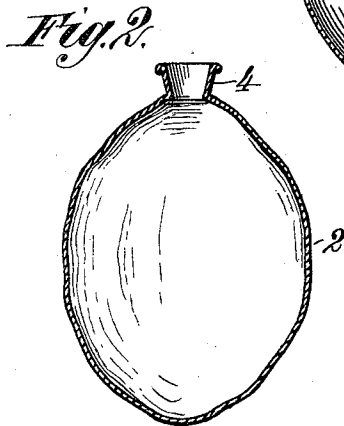
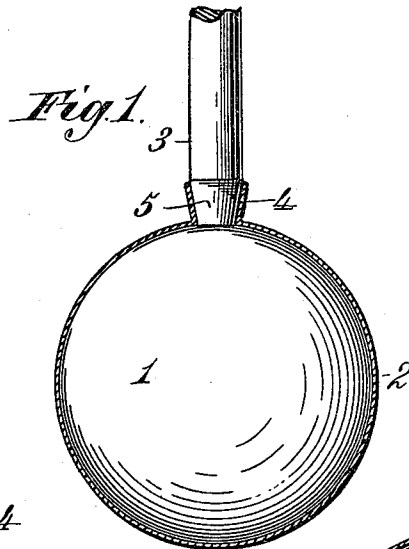
No. 687,248.

Patented Nov. 26, 1901.

T. W. MILLER.
HOLLOW SEAMLESS RUBBER ARTICLE.

(Application filed Aug. 10, 1901.)

(No Model.)



Witnesses:
Robert Everett.
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UNITED STATES PATENT OFFICE.

THOMAS W. MILLER, OF AKRON, OHIO.

HOLLOW SEAMLESS RUBBER ARTICLE.

SPECIFICATION forming part of Letters Patent No. 687,248, dated November 26, 1901.

Application filed August 10, 1901. Serial No. 71,551. (No specimens.)

To all whom it may concern:

Be it known that I, THOMAS W. MILLER, a citizen of the United States, residing at Akron, in the county of Summit, State of Ohio, have invented new and useful Improvements in Hollow Seamless Rubber Articles, of which the following is a specification.

My invention relates to hollow flexible rubber articles—such as balls, punching-bags, water-bags, &c.—and has for its objects to provide a seamless article cured on its inner surface and having improved means for closing the usual aperture therein, whereby the same may be made air-tight or be valved, as desired. These objects I accomplish in the manner and by the means hereinafter described and claimed, reference being had to the accompanying drawings, in which—

Figure 1 is an elevation of a suitable form on which the article is given the desired configuration, the article being shown thereon in section. Fig. 2 is a sectional view of the article after its removal from the form. Fig. 3 is a similar view of a completed article, in this instance a ball. Fig. 4 is a similar view of a completed water-bag.

Similar numerals of reference denote corresponding parts in the several views.

In the manufacture of my improved articles—a rubber ball, for instance—I first provide a bath of rubber-cement of the proper consistency, into which is dipped the solid form 1, said dipping being repeated until there is formed thereon a ball 2 of the desired thickness. The form 1 is provided with an extension 3, not only for convenience in handling, but primarily for the purpose of forming a neck or stem 4 on the ball 1 during the dipping, it being observed that said extension 3 is flared outward at 5 for a short distance from its point of juncture with the form to give the neck or stem 4 a similarly-flared configuration, as shown in Fig. 2. After the dipping has given the desired thickness to the ball, which may be thus made light or heavy, according to the use to which it is to be put, the rubber constituting the ball is then cured while on the form and is then removed therefrom, which may be more readily accomplished by first heating the same by dipping it in hot water and then distend-

ing the neck or stem 4 sufficiently to permit the passage therethrough of the form 1. The ball 2 (shown removed from the form in Fig. 2) is then turned inside out to bring the cured surface thereof on the inside, and the neck or stem 4 is reversed, so as to project into the ball, after which a plug 6, of rubber or other suitable material, is inserted therein and firmly cemented to said neck or stem 4, as shown in Fig. 3; it being observed that said plug is of the exact configuration of said neck or stem, the inward flaring shape of the two materially aiding to prevent said plug being forced out, particularly if the ball is inflated. By forming this neck or stem 4 on the ball a firm opening is provided for the ball, which neither bulges nor sinks when the ball is turned inside out, while the walls thereof afford a large area for cementing thereto the plug 6.

I have shown in Fig. 4 an article 7 of a shape suitable for a water-bag, the same being made by the process hereinbefore described, the plug 8 inserted therein being provided with a threaded aperture for the reception of a suitable stopper 9, usually employed in articles of this character, said plug 8 also having the usual flaring mouth 10 to provide for pouring the water therein.

While I have shown only a solid plug and a threaded plug, it will be understood that any other form of plug—a valved plug for inflation, for instance—may be employed, the form of plug depending entirely on the nature and use of the article.

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

1. As an article of manufacture, a hollow rubber article having an open neck or stem formed integral therewith and projected into the interior of said article, and a plug fitting and secured within said neck or stem, substantially as set forth.

2. As an article of manufacture, a hollow rubber article having a flaring open neck or stem formed integral therewith and projected into the interior of said article, and a plug fitted and secured within said neck or stem, substantially as set forth.

3. As an article of manufacture, a hollow

seamless rubber article, cured on its inner
surface, and having an open neck or stem
formed integral therewith and projected into
the interior of said article, and a plug fitting
5 and secured within said neck or stem, sub-
stantially as set forth.

In testimony whereof I have hereunto set

my hand in the presence of two subscribing
witnesses.

THOMAS W. MILLER.

Witnesses:

J. A. H. MYERS,

DAYTON A. DOYLE.