

No. 696,992.

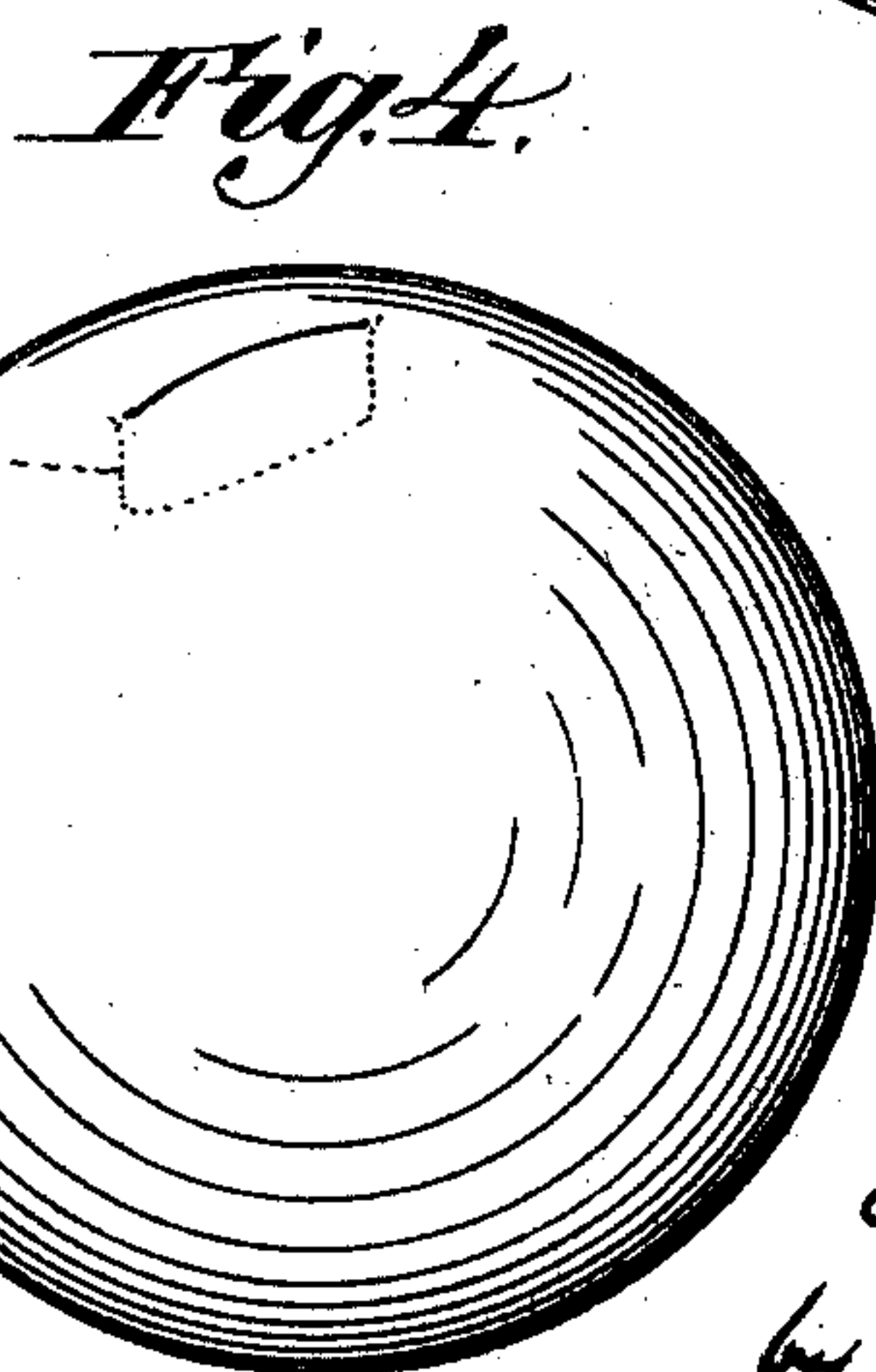
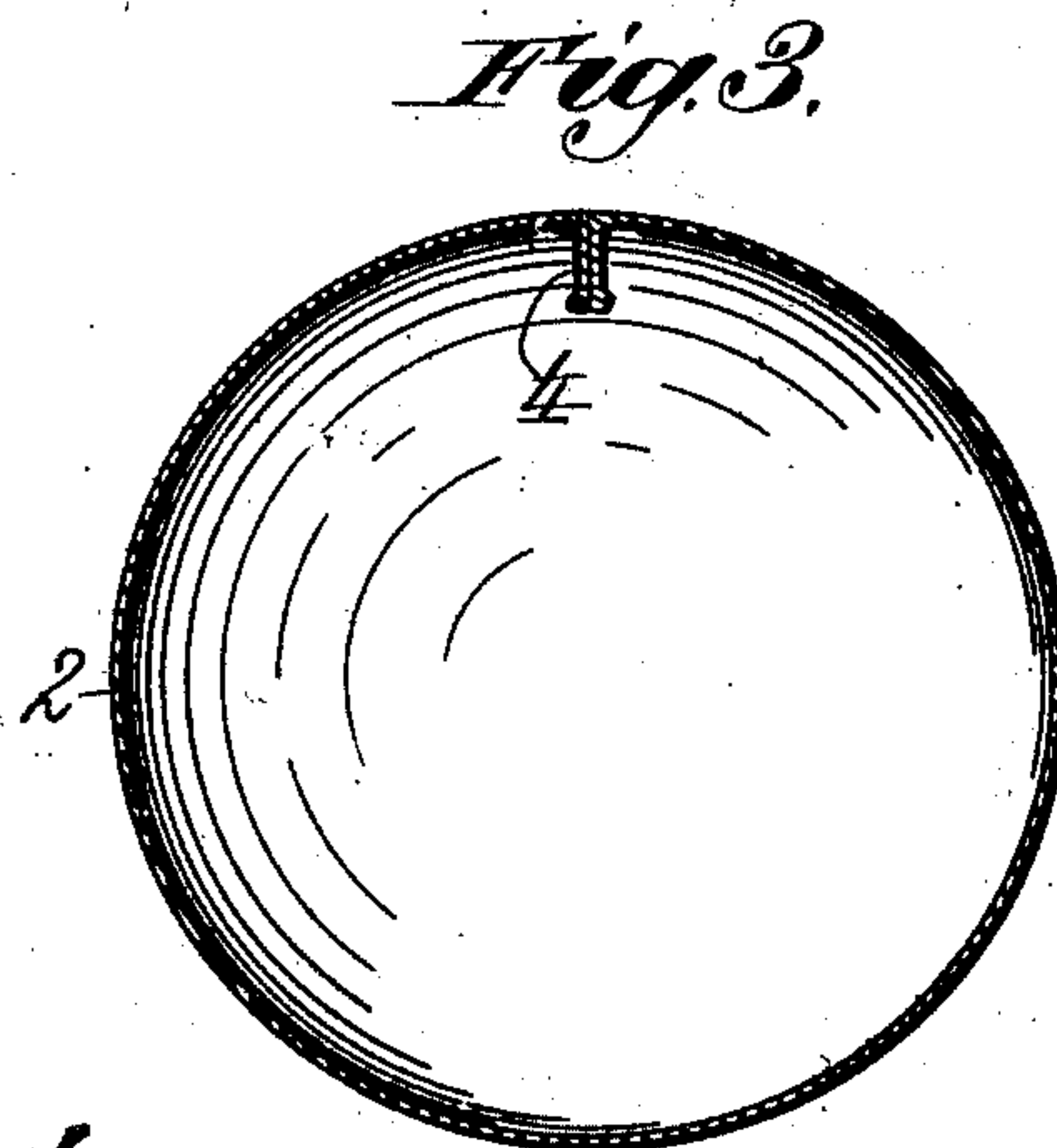
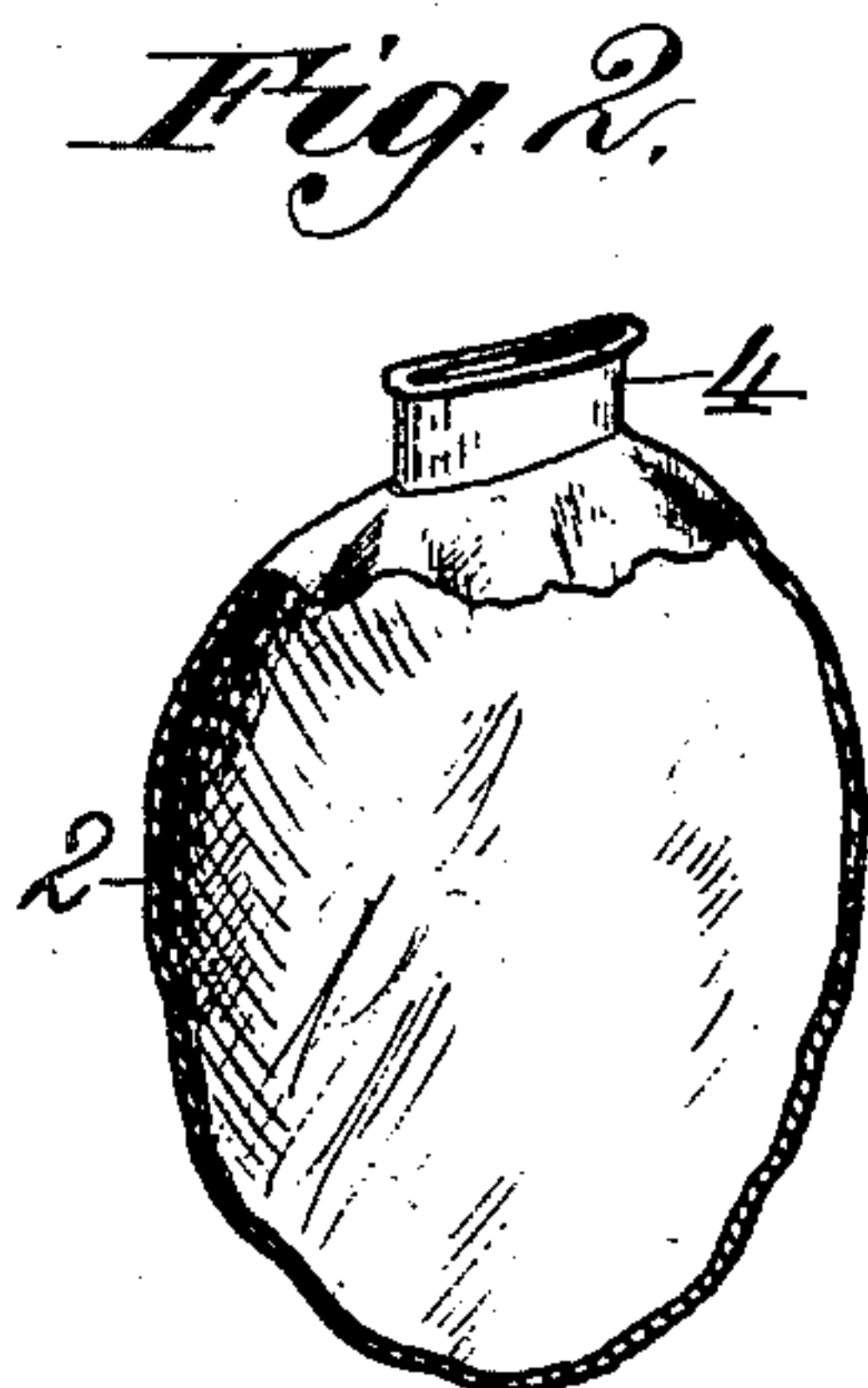
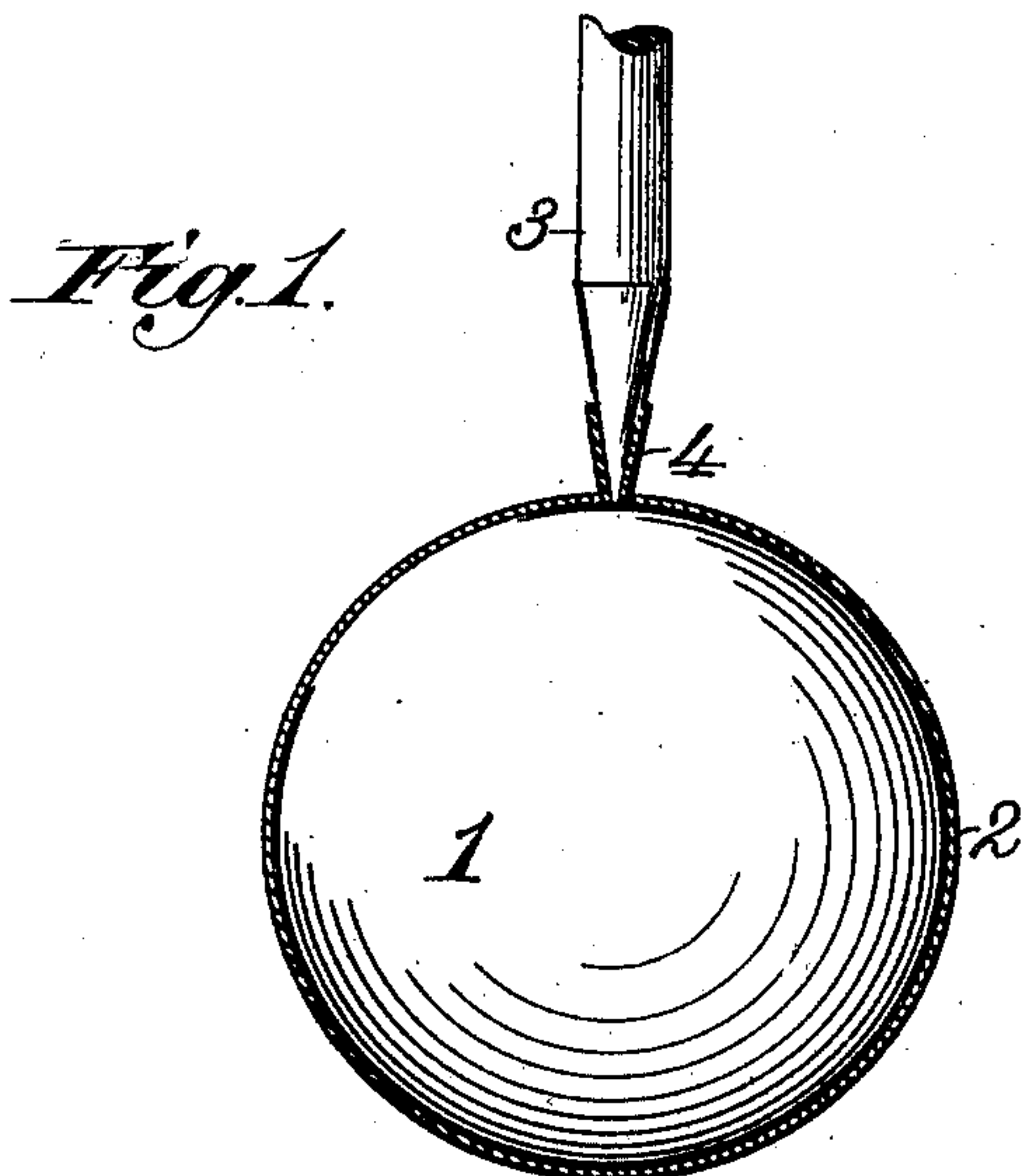
Patented Apr. 8, 1902.

T. W. MILLER.

HOLLOW SEAMLESS RUBBER ARTICLE.

(Application filed Jan. 30, 1902.)

(No Model.)



*Witnesses:*  
*Robert C. Smith,*  
*Lucy B. Hill*

*Inventor:*  
*Thomas W. Miller,*  
*by Dick, Doyle & Bayan,*  
*his attys.*



# UNITED STATES PATENT OFFICE.

THOMAS W. MILLER, OF AKRON, OHIO.

## HOLLOW SEAMLESS RUBBER ARTICLE.

SPECIFICATION forming part of Letters Patent No. 696,992, dated April 8, 1902.

Application filed January 30, 1902. Serial No. 91,928. (No model.)

*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 object certain improvements over the construction disclosed in Letters Patent No. 687,248, granted to me November 26, 1901, whereby the advantages of an integrally-formed inwardly-projecting closing-neck are retained, while the disadvantages of the necessity for a closing-plug are obviated. This object I accomplish by forming the article with a narrow elongated opening instead of a circular opening, the same having formed integral therewith a neck or stem, as in my above-mentioned patent, the walls of which may be cemented together, thus effectually closing the opening and at the same time dispensing with the necessity for using a closing-plug.

In the accompanying drawings, 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 view, partly in perspective and partly in section, of the article after its removal from the form. Fig. 3 is a sectional view of a completed article—in this instance a ball. Fig. 4 is a perspective view of the same.

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

In the manufacture of any improved articles—a rubber ball, for instance—I first provide a bath of rubber-cement, into which is dipped the solid form 1, said dipping being repeated until there is formed thereon a ball 2 of the desired thickness. As in my herein-before-mentioned patent, said form 1 is provided with an extension 3; but the same instead of being round in cross-area at its point of juncture with the form 1 is formed in narrow elongated shape to give a similar configuration to the neck or stem 4, as clearly shown in Figs. 1 and 2. After a ball and its neck

or stem of the desired thickness have been formed on the form 1 and extension 3 the rubber constituting the same is cured while on said form and is then removed therefrom by distending the neck or stem 4 sufficiently to permit the passage therethrough of the form 1. The ball 2 is then preferably turned inside out to bring the cured surface thereof on the inside, the neck or stem 4 is reversed, so as to project into the ball, and the walls of said neck or stem, which will be substantially in contact with each other, may then be firmly cemented together, as shown in Figs. 3 and 4, thus forming a perfect closure.

It will be apparent that certain articles, particularly rubber balls, when constructed in this manner will possess certain advantages over those constructed with a closing-plug, as in my before-mentioned patent, for not only is the expense of the manufacture of such a plug dispensed with, but also a lop-sided tendency of the ball, due to the weight of said plug, is practically obviated without losing the advantage afforded by the large area of the walls of the neck or stem 4 for receiving the cement and forming a strong closure.

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 a narrow elongated open neck or stem formed integral therewith and projected into the interior of said article, substantially as set forth.

2. As an article of manufacture, a hollow rubber article having a narrow elongated open neck or stem formed integral therewith and projected into the interior of said article, the walls of said neck or stem substantially contacting and adapted to be cemented together to close said opening, substantially as set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

THOMAS W. MILLER.

Witnesses:

G. KOLP,

LEROY MILLER.