

G. D. FARNAM.

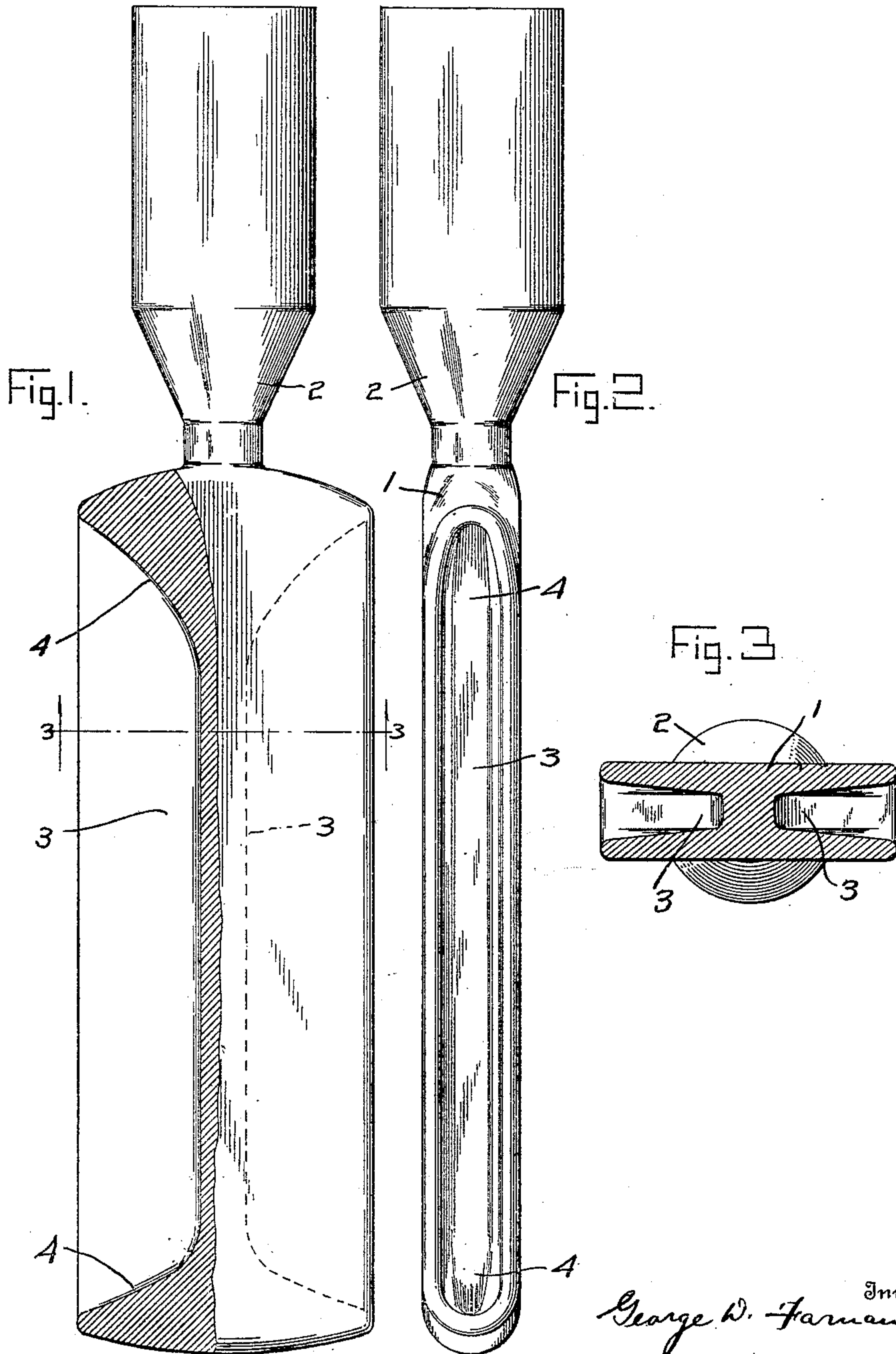
APPARATUS FOR FORMING HOT WATER BAGS AND OTHER HOLLOW RUBBER ARTICLES.

APPLICATION FILED JUNE 8, 1909.

969,464.

Patented Sept. 6, 1910.

2 SHEETS—SHEET 1.



Witnesses

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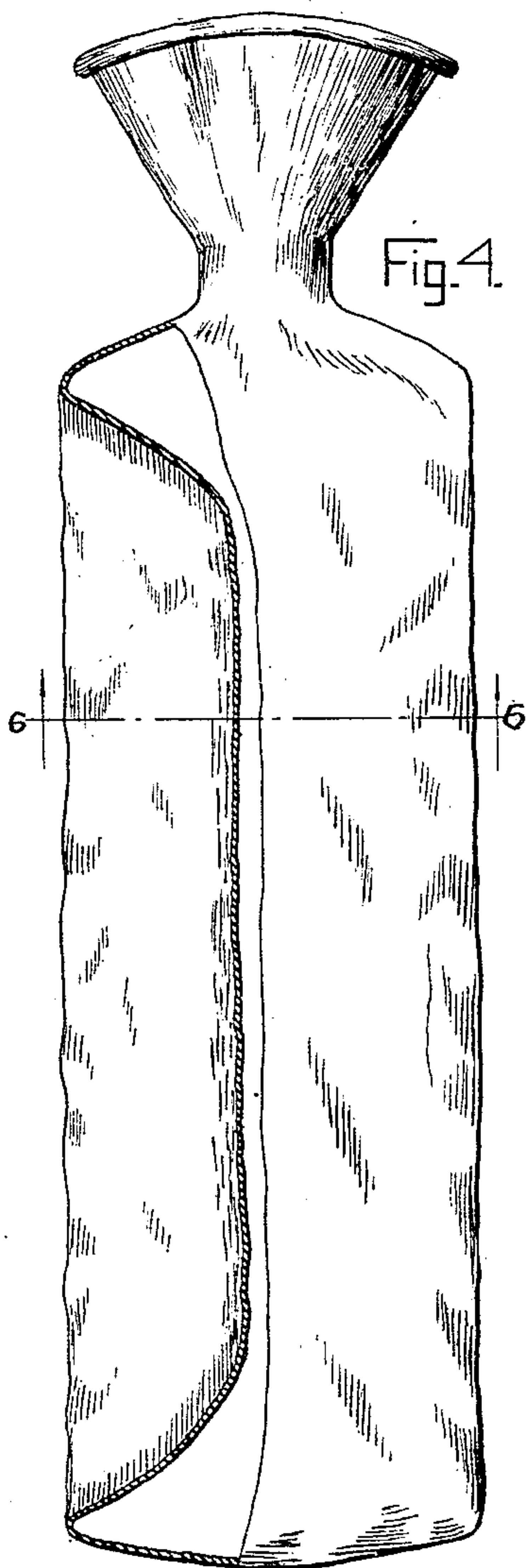


Fig. 4.

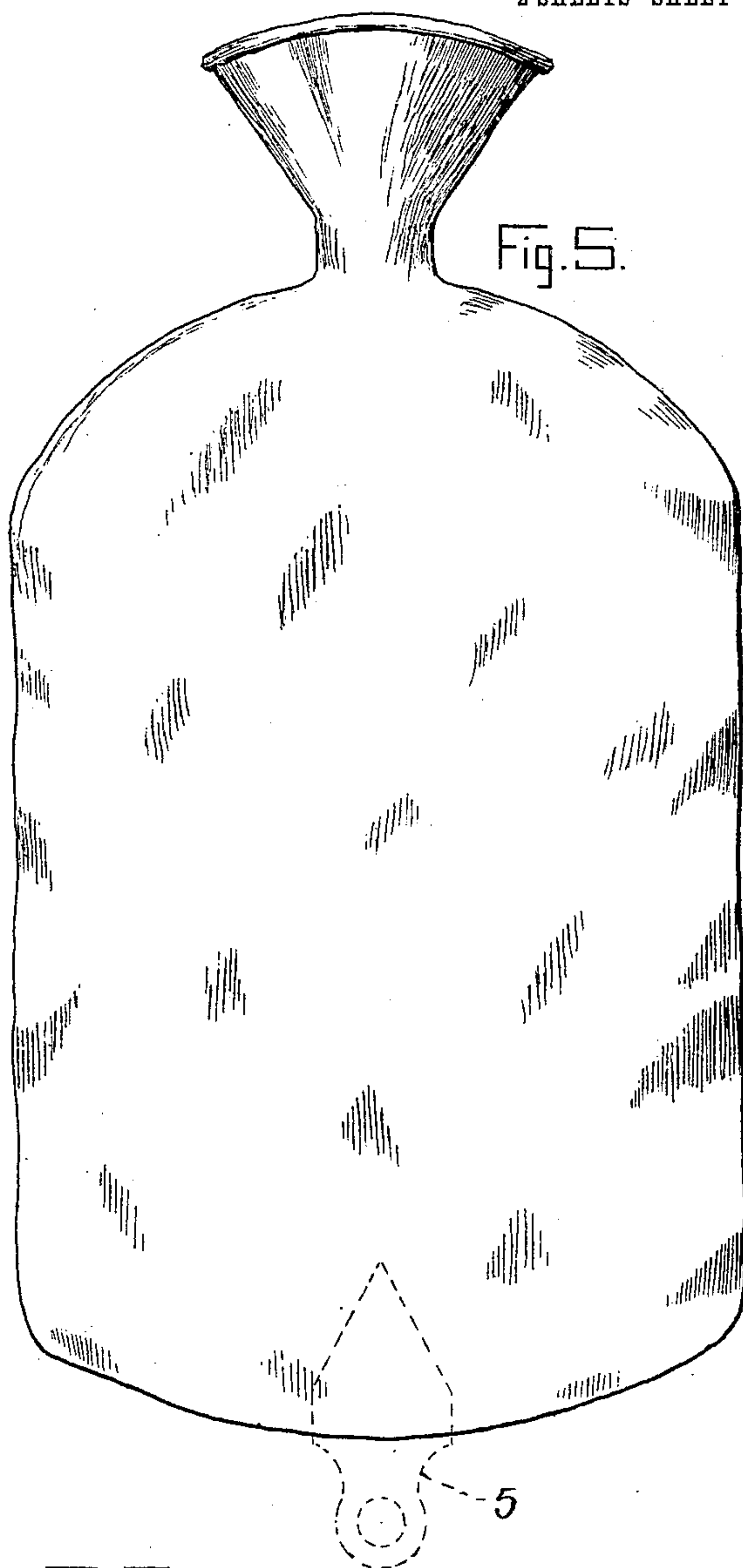


Fig. 5.

Fig. 6.



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UNITED STATES PATENT OFFICE.

GEORGE D. FARNAM, OF AKRON, OHIO, ASSIGNOR TO STAR RUBBER COMPANY, OF AKRON, OHIO, A CORPORATION OF OHIO.

APPARATUS FOR FORMING HOT-WATER BAGS AND OTHER HOLLOW RUBBER ARTICLES.

969,464.

Specification of Letters Patent.

Patented Sept. 6, 1910.

Application filed June 8, 1909. Serial No. 500,991.

To all whom it may concern:

Be it known that I, GEORGE D. FARNAM, a citizen of the United States, residing at Akron, in the county of Summit and State of Ohio, have invented certain new and useful Improvements in Apparatus for Forming Hot-Water Bags and other Hollow Rubber Articles, of which the following is a specification.

This invention relates to improvements in apparatus for forming hot-water bags and other hollow rubber articles, and the object is to produce a simple and effective apparatus for producing an article of the character named which will be of one single piece without any seam whatever.

With the above objects in view, the invention consists in the novel features of construction hereinafter fully described, particularly pointed out in the claims, and clearly illustrated by the accompanying drawings, in which—

Figure 1, is a plan view of the former partly in section; Fig. 2, an edge view of the same; Fig. 3, a transverse sectional view on line 3—3 of Fig. 1; Fig. 4, a plan view of the water-bag as removed from the former and in its normal shape; Fig. 5, a similar view of the bag extended to full shape, as when filled with hot-water, and Fig. 6, a transverse sectional view on line 6—6 of Fig. 5.

The bag is preferably formed by the dipping process. That is, the former or mandrel is dipped into a rubber solution of the proper consistency until it is coated to the required thickness. It is then subjected to a vulcanizing process, and the former removed through the mouth of the bag.

My improved former consists of a body-portion 1 of comparatively narrow transverse extent and having at one end, the funnel-forming portion 2. The bag produced by the former here illustrated is one having slightly rounded ends, and consequently the ends of the former 1 are correspondingly rounded. Formed in the longitudinal edges of the former 1, are indented grooves, or recesses 3, the end-walls 4 of which are curved inwardly, the bottom-walls of the grooves or recesses being of less longitudinal extent than that of the recesses at their open sides.

In producing the bag, a portion thereof is formed by the walls of the recesses or grooves, the area of the flat faces of the

former together with that of the walls of said recesses being equal to the area of the bag to be manufactured. The bag is thus formed with its side-portions folded or turned-in, as illustrated in Fig. 3, and it remains in this shape when the former 1 is removed, but assumes full shape as shown in Fig. 5, when filled. The bag by reason of its folded form may be packed in a small carton and also occupies but small space when not in use, so that it is a very convenient and desirable bag both for the dealer and the consumer.

By producing the bag with a portion thereof folded or turned in, a former small enough to be withdrawn through the filling-opening or mouth, may be used. In the structure illustrated, the material at the filling-opening or mouth of the bag will stretch sufficiently to permit withdrawal of the former. Thus a bag is produced which is in one integral piece, there being no seams whatever.

Heretofore attempts have been made to produce a seamless bag. The nearer approach to such structure however, has been a bag having no seam except at the bottom, which has been necessary in order to permit withdrawal of the mold or former, this opening at the bottom being subsequently closed by cement and by the grommet inserted in the suspending-tab of the bag. As stated however, the bag produced by the exercise of my invention has no seam at all.

A suspending-tab 5 may be attached to the bag by cement or in any other preferred manner.

In order to render the invention operative, it is absolutely necessary that the recesses or grooves in the former be indented, that is their ends must be closed.

I do not limit the invention to the production of hot-water bags, as it may be used in the manufacture of other flexible, rubber hollow articles which it is desired to form in one piece without seam.

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

1. Apparatus for the manufacture of seamless rubber hot-water bags and other hollow rubber articles comprising a former of the size and shape to produce a portion of the article and having in its longitudinal edges, grooves or recesses closed at their re-

mus, 718121, Jan. 15, 03 / 46. Toy / (18-417)
can, 866114, Sep. 17, 07 (18-45)

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Dayton 806783, Dec. 12, 05 (18-26)

5 spective ends, the surfaces of the former and the walls of the recesses together equaling the area of the article to be formed and the end-walls of the grooves or recesses forming a portion of the end-walls of the article.

10 2. Apparatus for manufacturing seamless rubber hot-water bags and other hollow rubber articles comprising a former on which a portion of the article is formed of a size to be withdrawn through the filling or inlet-opening of the article and having in its longitudinal edges, grooves or recesses closed at their respective ends, the surfaces of the former and the walls of the recesses together equaling the area of the article to be formed and the end-walls of the grooves or recesses forming a portion of the end-walls of the article.

20 3. Apparatus for manufacturing seamless hot-water bags and other hollow rubber articles comprising a former having grooves or recesses with closed end formed therein,

the surfaces of the former and walls of the recesses together equaling the area of the articles to be formed and the end-walls of the grooves forming a portion of the end-walls of the article. 25

4. Apparatus for manufacturing seamless hot-water bags and other hollow rubber articles comprising a former having flat sides and formed in its longitudinal edges with recesses or grooves having end-walls, the surfaces of the former and the walls of the recesses together equaling the area of the article to be formed and the end-walls of the grooves or recesses forming a portion of the end-walls of the article. 30 35

In testimony whereof I affix my signature, in presence of two witnesses.

GEORGE D. FARNAM.

Witnesses:

FRED CUENI,
E. J. SAUER.