

No. 768,945.

PATENTED AUG. 30, 1904.

I. F. KEPLER.
RUBBER BAG BODY.

APPLICATION FILED AUG. 31, 1903.

NO MODEL.

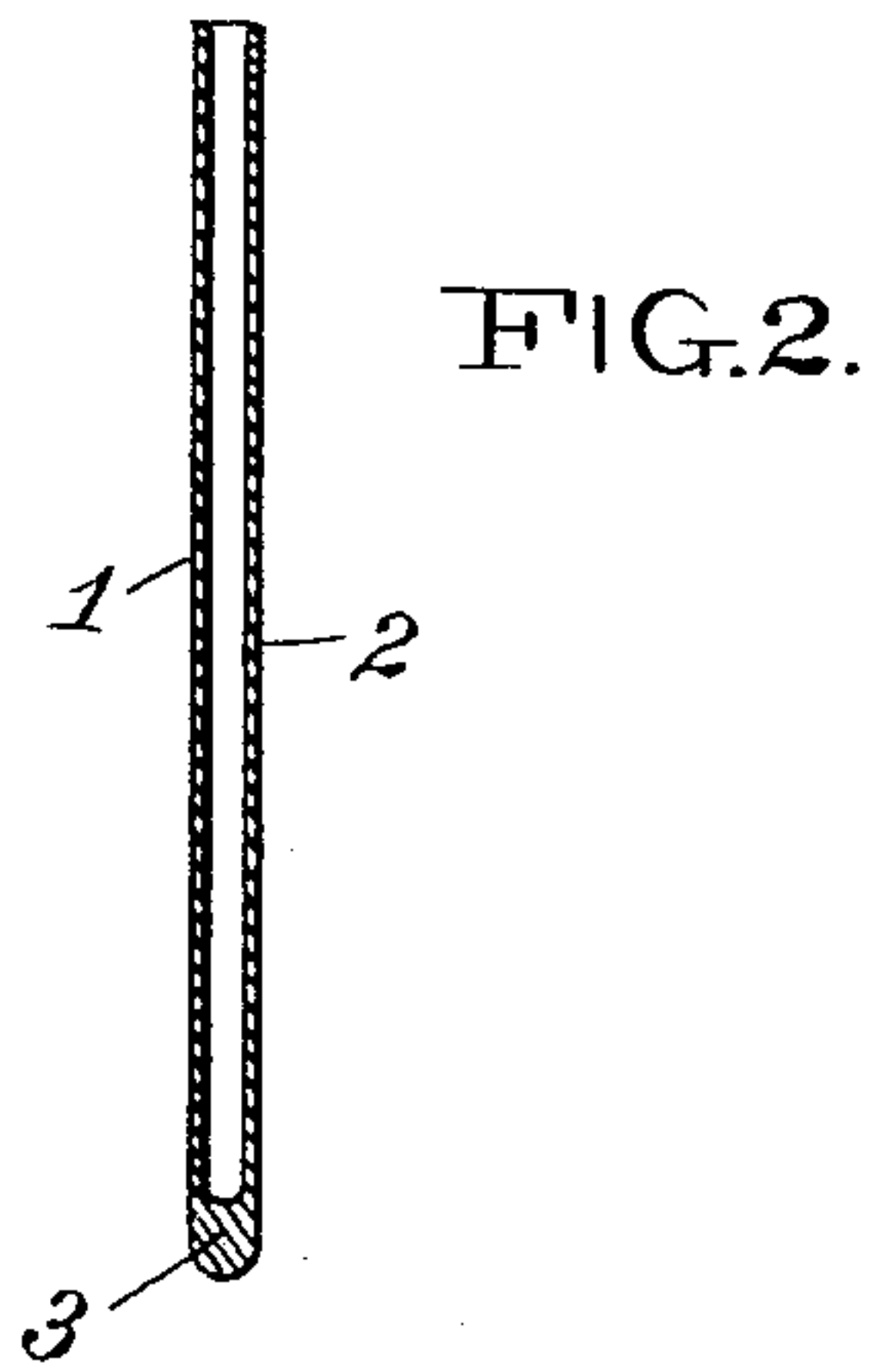
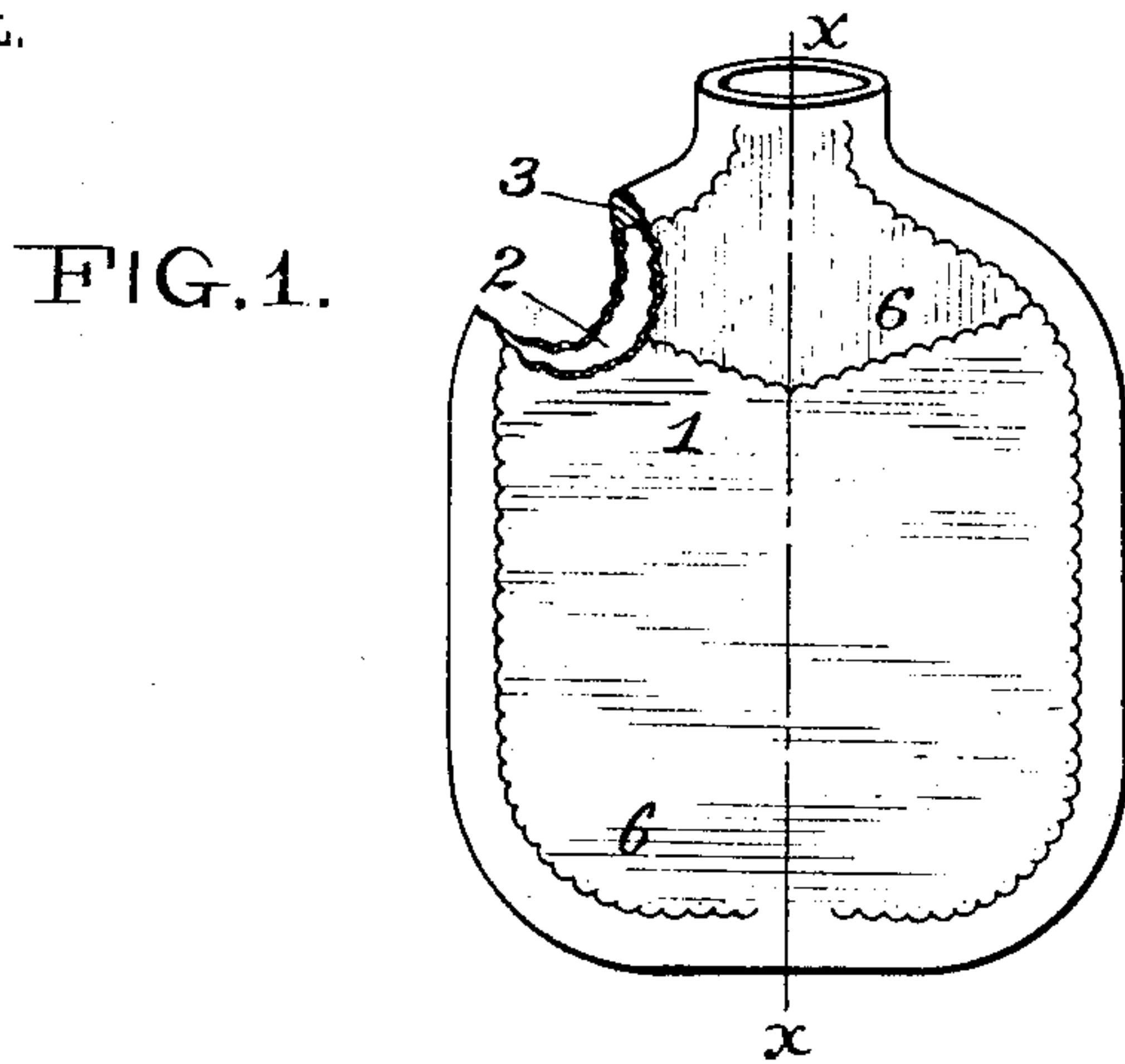


FIG. 3.

FIG. 5.

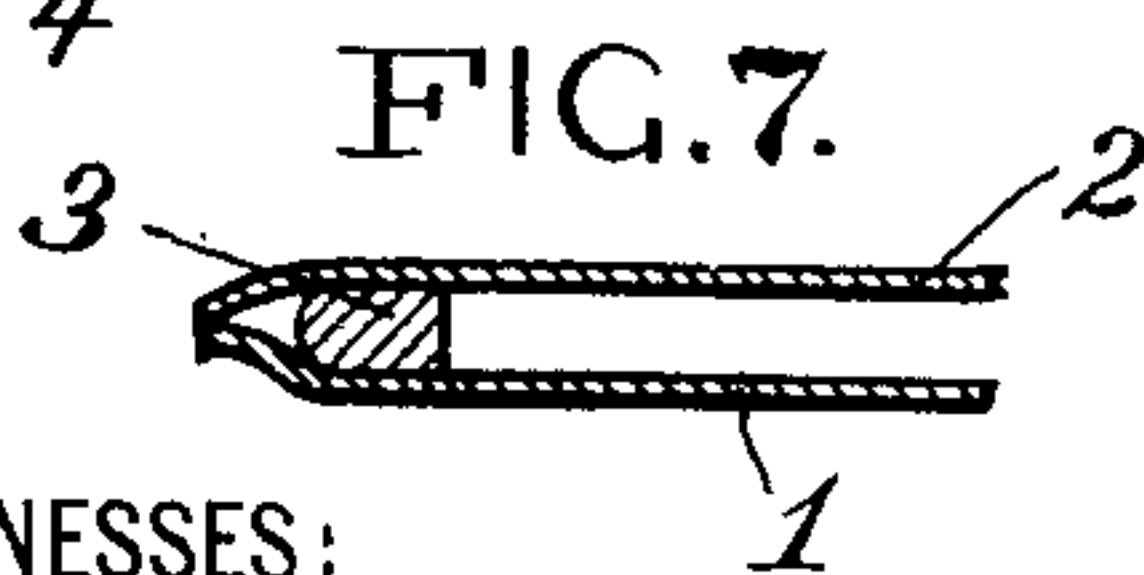
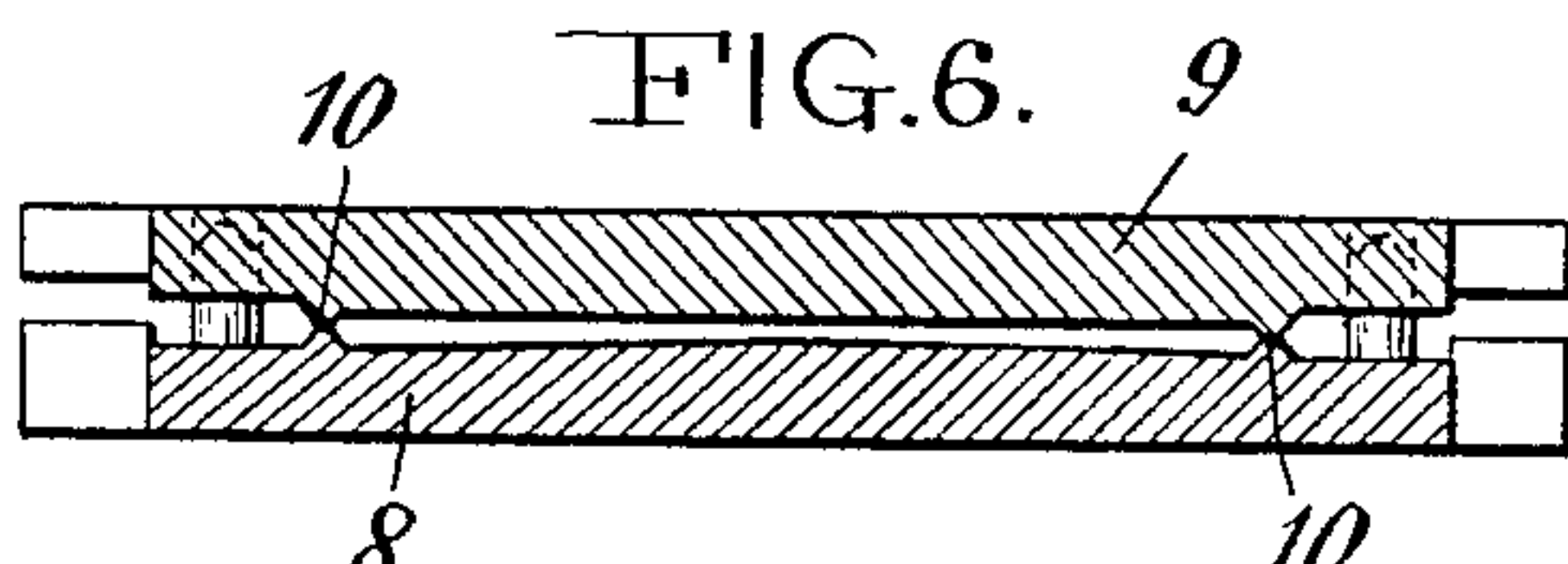
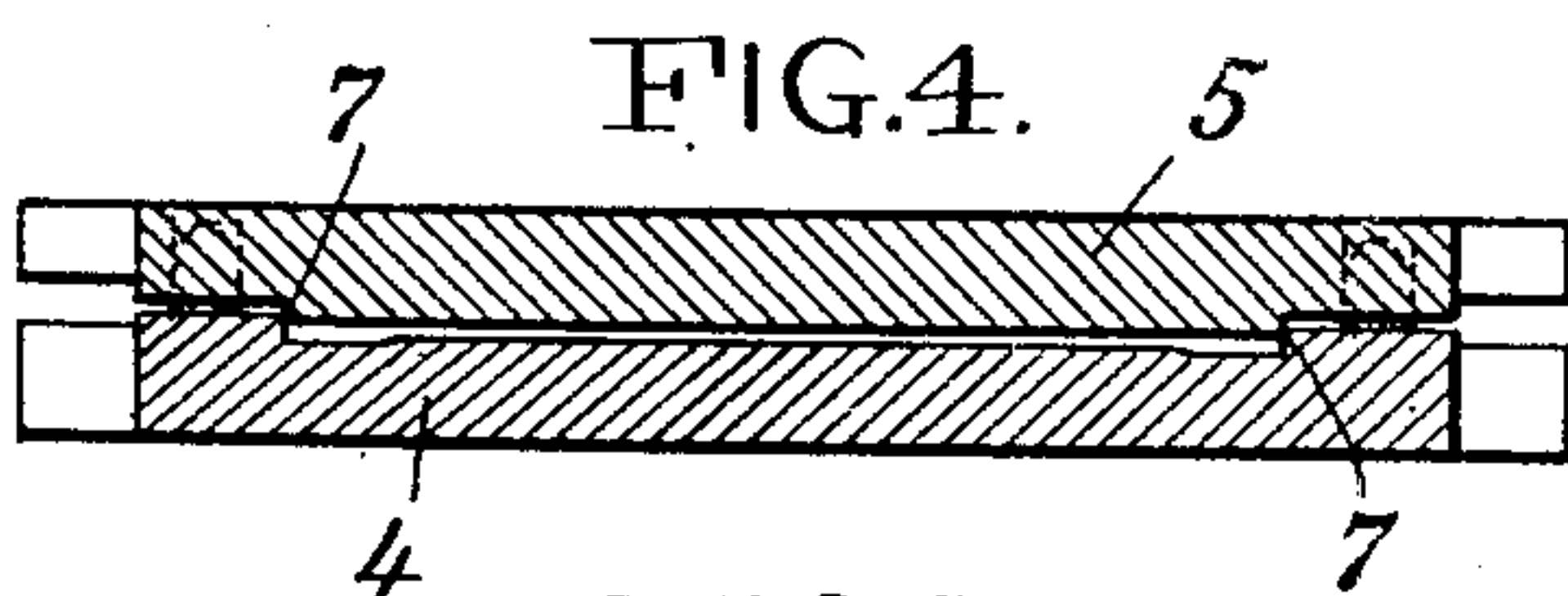
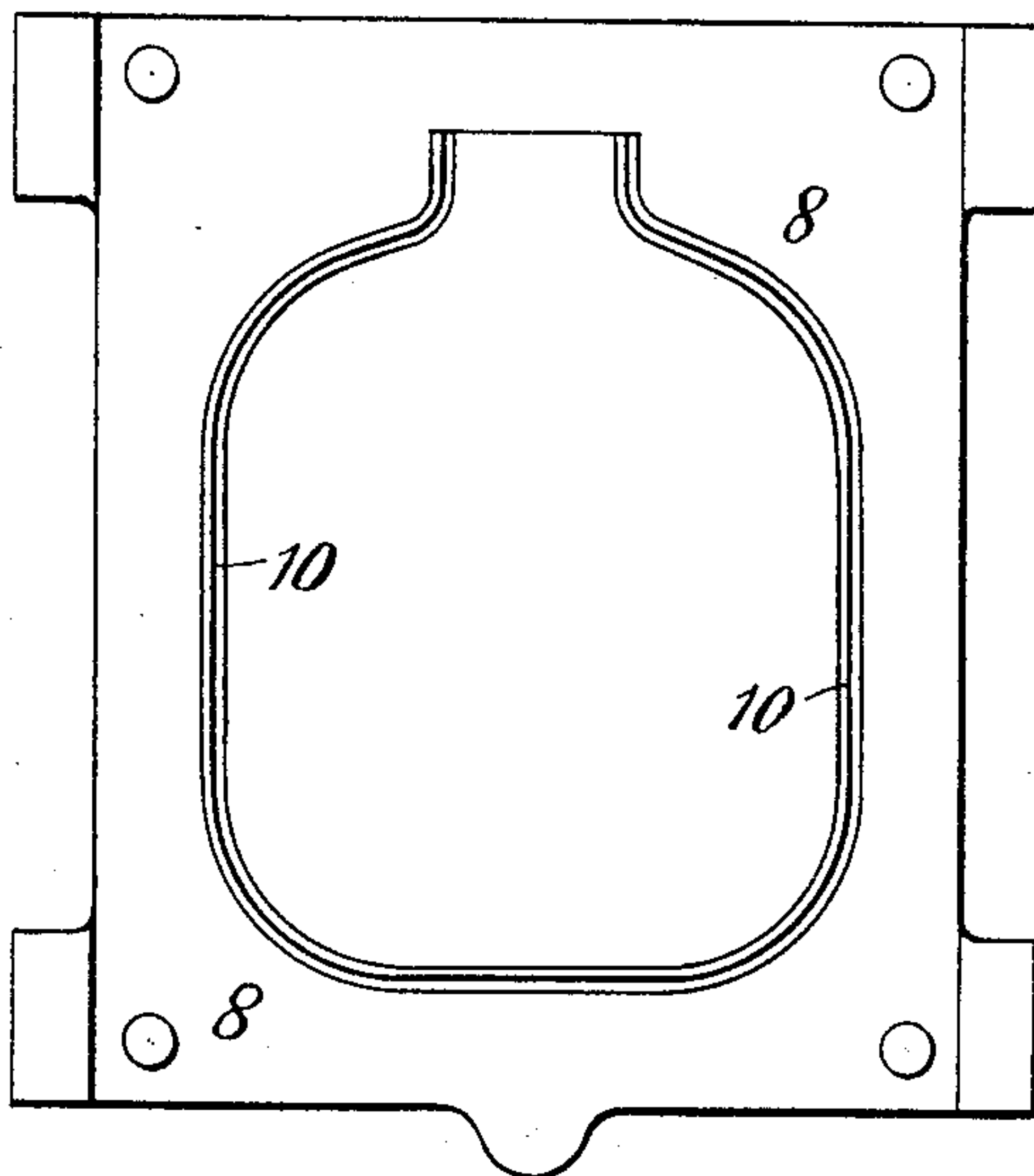
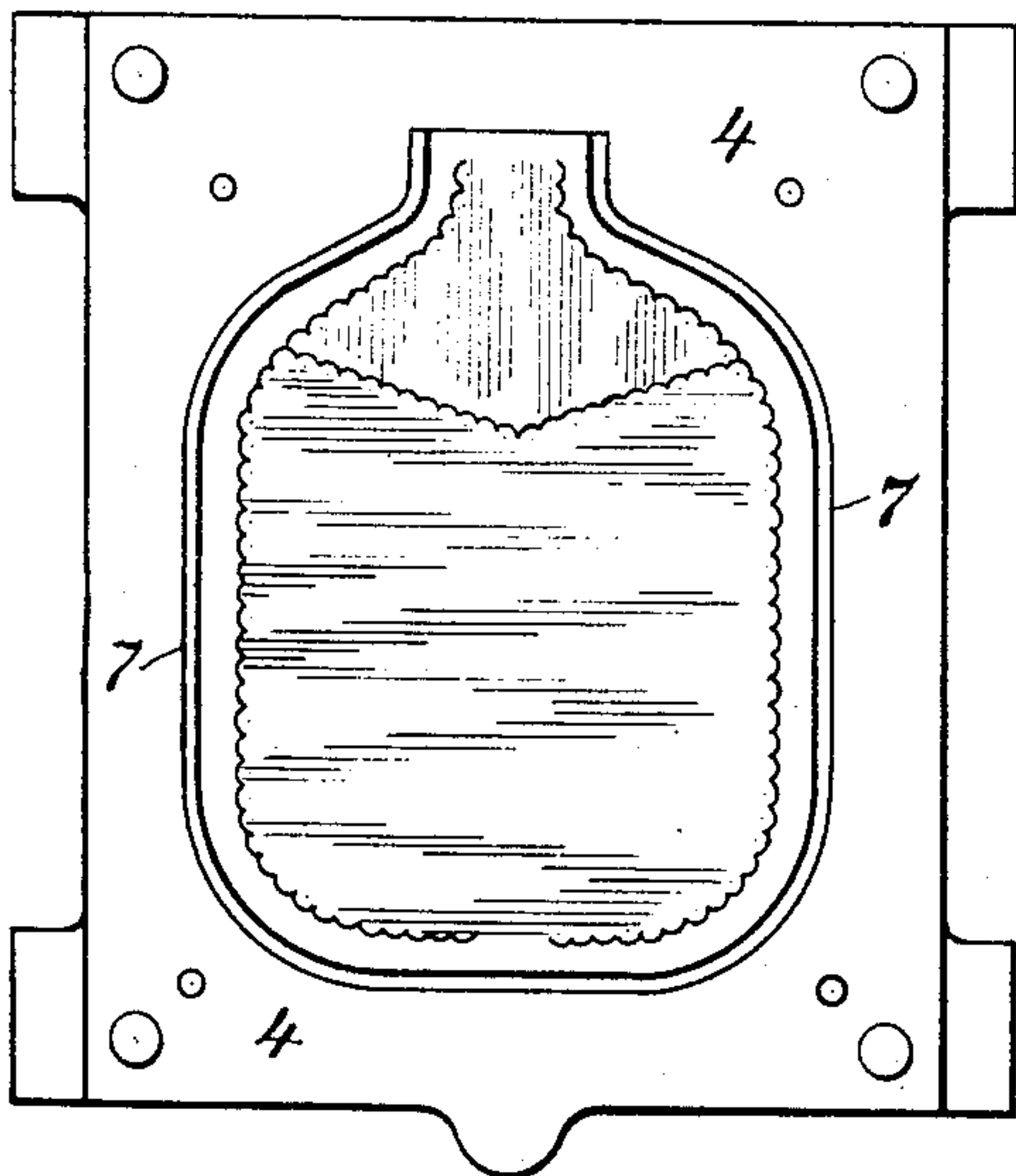
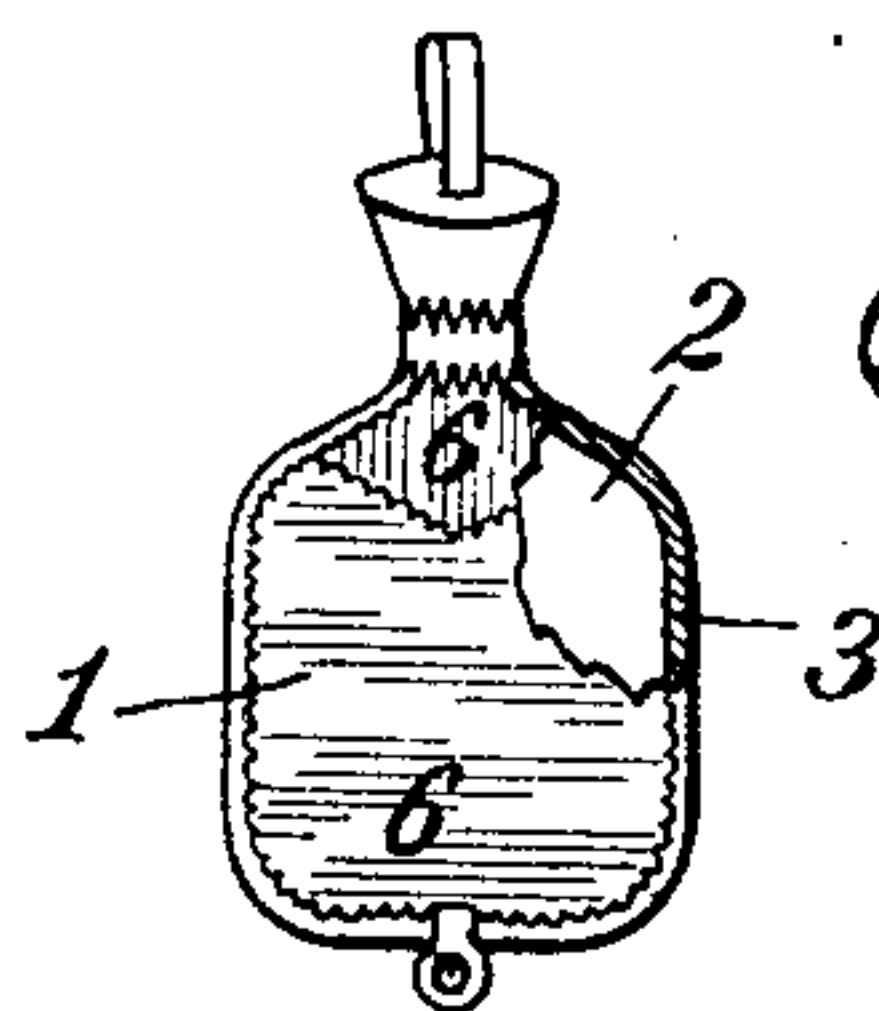


FIG. 9.



WITNESSES:

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IRWIN FLOYD KEPLER, OF AKRON, OHIO, ASSIGNOR TO THE B. F. GOODRICH COMPANY, OF OHIO, AKRON, OHIO, A CORPORATION OF OHIO.

RUBBER-BAG BODY.

SPECIFICATION forming part of Letters Patent No. 768,945, dated August 30, 1904.

Application filed August 31, 1903. Serial No. 171,382. (No model.)

To all whom it may concern:

Be it known that I, IRWIN FLOYD KEPLER, a citizen of the United States of America, and a resident of the city of Akron, county of Summit, and State of Ohio, have invented certain new and useful Improvements in Rubber-Bag Bodies, of which the following is a specification.

This invention relates to bag-bodies made mainly from sheet-rubber stock and of that class used in making hot-water bags and analogous hollow rubber articles.

The invention has for its object to provide a rubber-bag body or like hollow article which is stronger, more durable, and less expensive than such bodies or articles as heretofore produced.

The process of making my improved bag-body forms the subject-matter of my companion application, filed August 31, 1903, Serial No. 171,381.

The invention consists in a rubber-bag body or analogous article having a rubber-compound marginal reinforcing-strip integrally or homogeneously compressed between its opposite side walls prior to vulcanization, all as hereinafter described and claimed.

Reference is made to the accompanying drawings, forming part of this specification, and in which—

Figure 1 is a perspective view, partly broken away and in section, of a rubber-bag body made in accordance with my invention. Fig. 2 is a central longitudinal section of the body, taken on the line *xx* in Fig. 1. Fig. 3 is a face view of the bed-section of the cutting-die used in shaping the rubber-bag-body walls from sheet-rubber stock. Fig. 4 is a transverse section through both portions of said cutting-die. Fig. 5 is a face view of the bed-section of the finishing-die, and Fig. 6 is a cross-section through both portions of said die. Fig. 7 is a detail cross-section illustrating how the rubber-compound reinforcing-strip is laid between marginal portions of the uncured bag-body walls. Fig. 8 shows how the parts of Fig. 7 are integrally or homogeneously united by pressure of the finishing-die, and Fig. 9 is a partly-broken side view of a

complete vulcanized hot-water bag having an improved body provided with the interior marginal homogeneous reinforcing-strip.

Referring first to Figs. 1 and 2 of the drawings, it will appear that this improved bag-body is made with two opposing side walls 1 2, which are cut, preferably, by dies from uncured sheet-rubber stock, and an interior marginal reinforcing-strip 3, which may have any desired cross-sectional form and is first laid as an independent rubber-compound strip between the two body side walls 1 2, except where the bag mouth or opening is to be formed, and said marginal strip then is integrally united to or homogeneously incorporated with the side walls by direct pressure, which preferably is die-pressure, as hereinafter more fully explained.

Fig. 3 of the drawings is a plan view of the bed-section 4 of the cutting-die, both sections 4 5 of which appear in cross-section in Fig. 4 of the drawings. The face of the bed-die 4 is indented or serrated to produce surface ornamentation 6 of the bag-body wall by final movement of the plunger-die 5 after said wall has been marginally cut out by the shearing edges 7 of the die.

Fig. 5 of the drawings is a plan view of the bed-section 8 of the finishing-die, both portions 8 9 of which are shown in cross-section in Fig. 6 of the drawings, which more clearly illustrates the raised shearing edges 10 of this die, which marginally compress and trim the bag-body.

After the two opposite side walls 1 2 of the bag-body are cut out and also face-ornamented by the cutting-die 4 5 the rubber-compound reinforcing-strip 3 is laid marginally between the two sheet-rubber-bag walls 1 2, substantially as in Fig. 7 of the drawings, such disposal of parts being made, preferably, while placing them upon the bed-section 8 of the finishing-die, whereupon the plunger-section 9 of said die is brought down and intimately or integrally joins by pressure the side walls 1 2 and marginal reinforcing-strip 3, and at the same time the finishing-die trims off surplus rubber material all around the margin of the bag-body. The finishing-die thus leaves

the parts 1 2 3 homogeneously joined together practically as one integral jointless bag-body structure, as will be understood from the sectional marginal view of the body shown in 5 Fig. 8 of the drawings, wherein the integral or homogeneous portion (marked 3^a) represents the former separately-applied reinforcing-strip 3 of Fig. 7 of the drawings. After the bag-body thus is formed the screw- 10 neck, funnel, and suspension-straps or other necessary adjuncts are supplied to it, and the whole then is vulcanized to form the complete hot-water bag, (shown in Fig. 9 of the drawings,) or it may be any other hollow rubber article or structure adapted to contain air 15 or fluid.

It is obvious that a rubber-bag body or analogous article made as above described has a heavily beaded or reinforced edge which is 20 jointless and homogeneous, and in consequence much stronger and more durable than a bag-body, made by marginally overlapping opposite sheet-rubber side walls and then applying a reinforcing-strip across the lapped 25 joint at the outside and cementing the joints, as formerly has been done. Furthermore, in practicing my invention there is no waste because of imperfect junction of parts of the bag-body as an intimate, integral, and

homogeneous union of the bag side walls 1 2 30 and interposed marginal reinforcing-strip 3 always is assured by directly-applied pressure, which preferably is obtained by using the finishing-die, as hereinbefore explained. Finally, in view of the above-named elimina- 35 tions of waste due to imperfect lap-joints of bag-bodies as formerly made, and also in view of the greater ease and speed of manipulating parts of bag-bodies made in accordance with my invention, I am able to produce a much 40 stronger and more durable bag-body and finished bag or analogous hollow rubber article at a much reduced cost.

I claim as my invention—

1. A vulcanized rubber seamless bag or like 45 article having its marginal sections denser than the other portions of its body.

2. A vulcanized rubber seamless bag or like article having its edges thicker and denser 50 than the other portions of its body.

3. A vulcanized rubber seamless bag or like article having its marginal sections integral with and denser than the other portions of its body.

IRWIN FLOYD KEPLER.

Witnesses:

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