

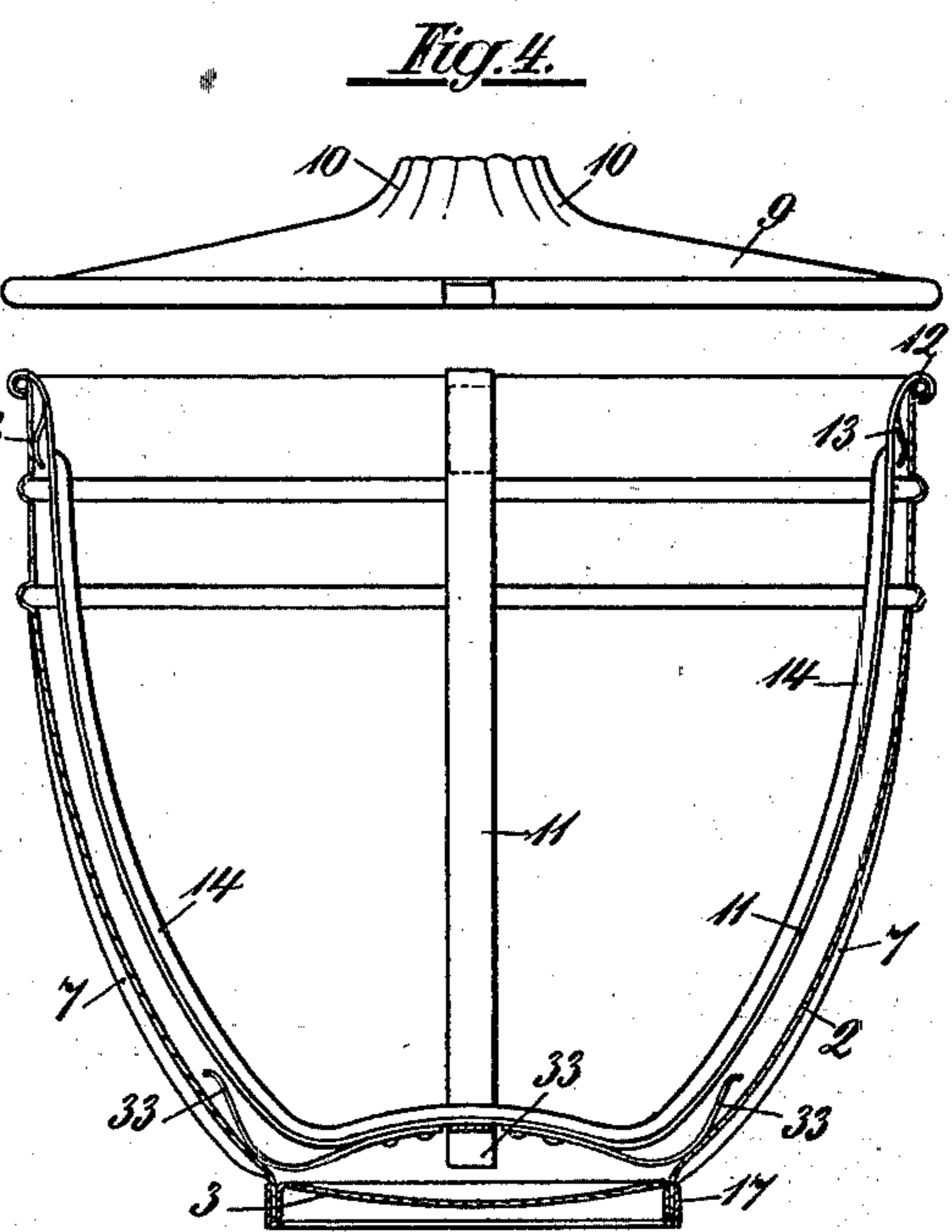
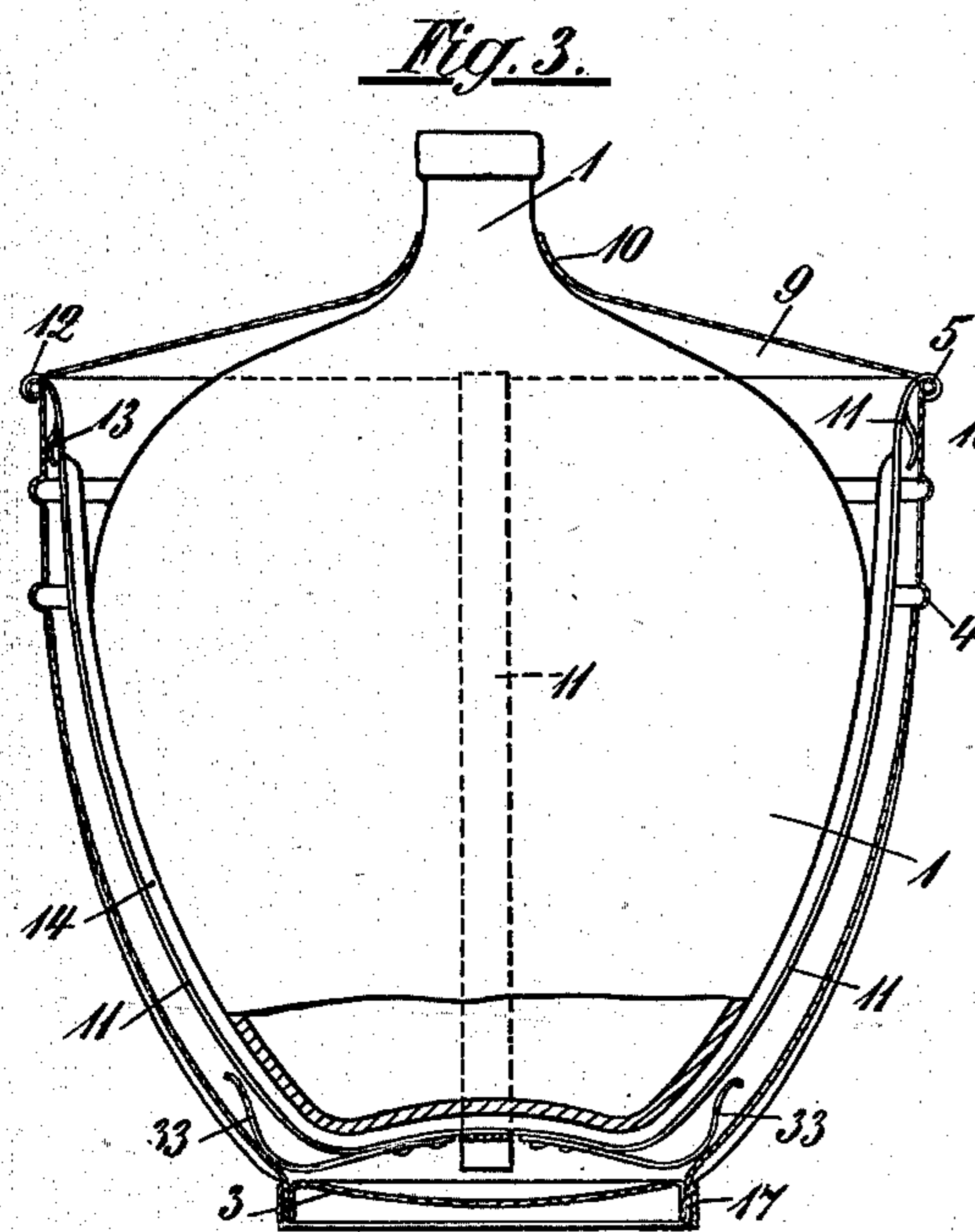
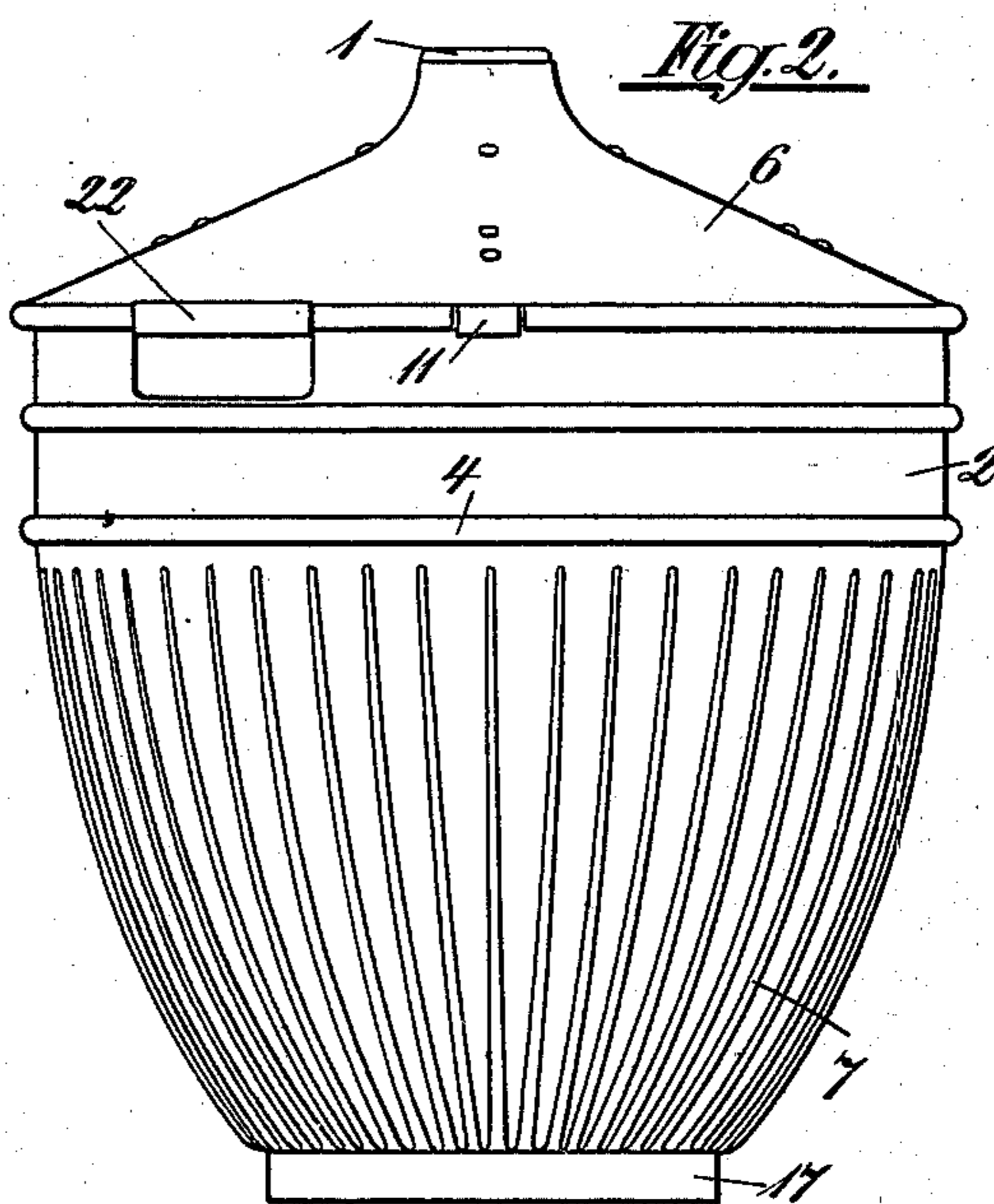
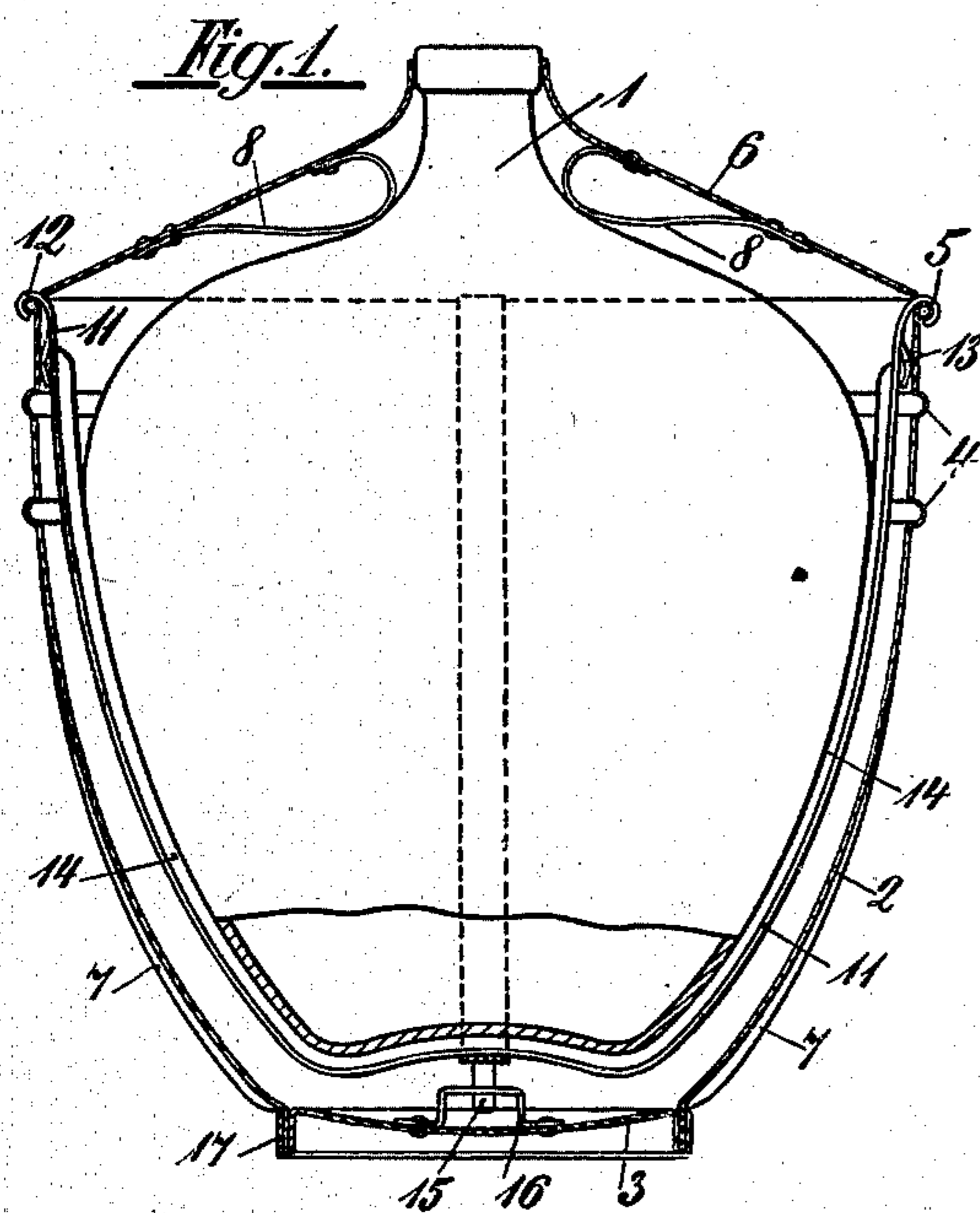
No. 723,174.

PATENTED MAR. 17, 1903.

A. MAUSER.
PACKING BOTTLES.
APPLICATION FILED JUNE 11, 1902.

NO MODEL.

3 SHEETS—SHEET 1.



Witnesses
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3 SHEETS—SHEET 2.

Fig. 5.

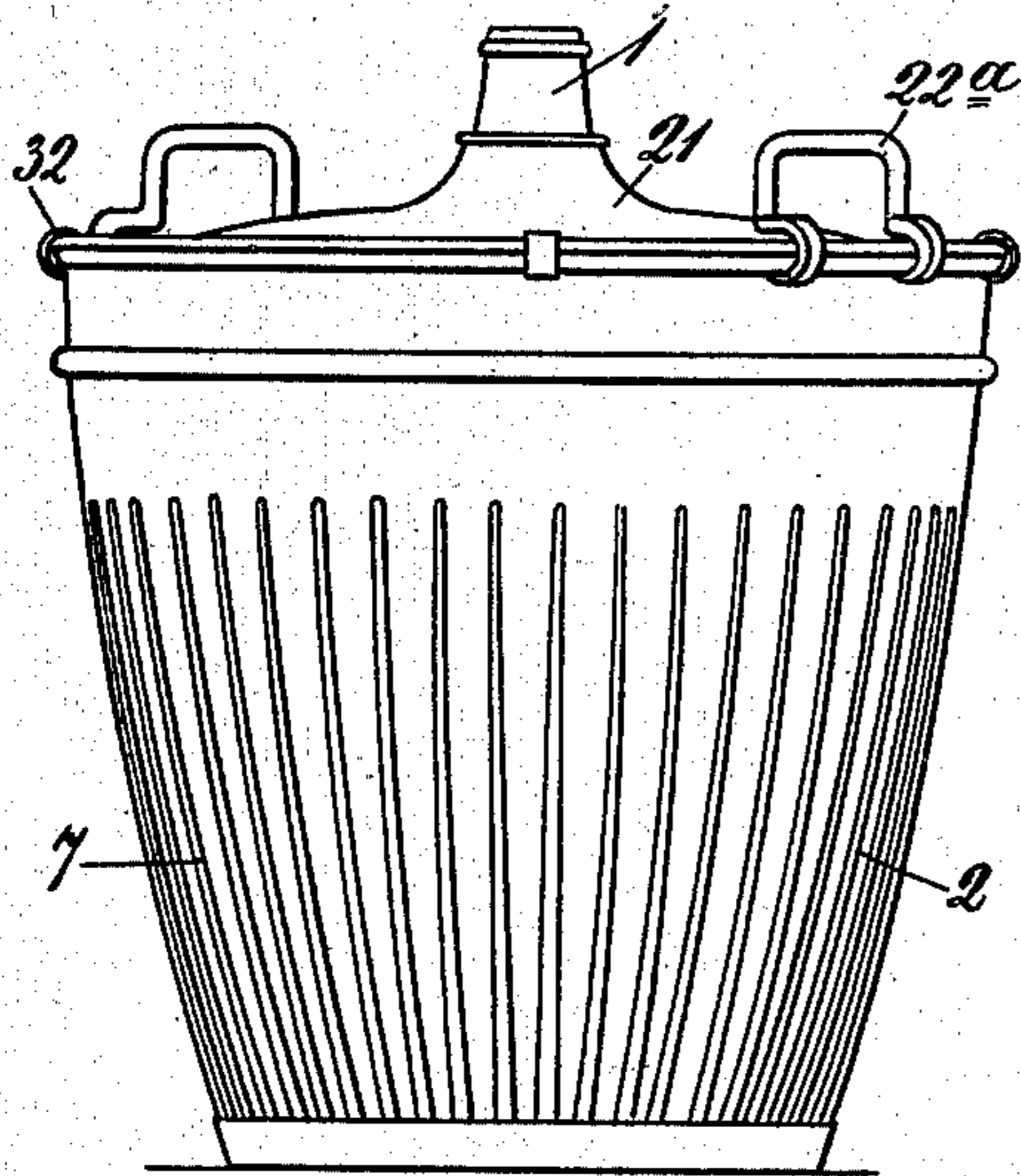


Fig. 6.

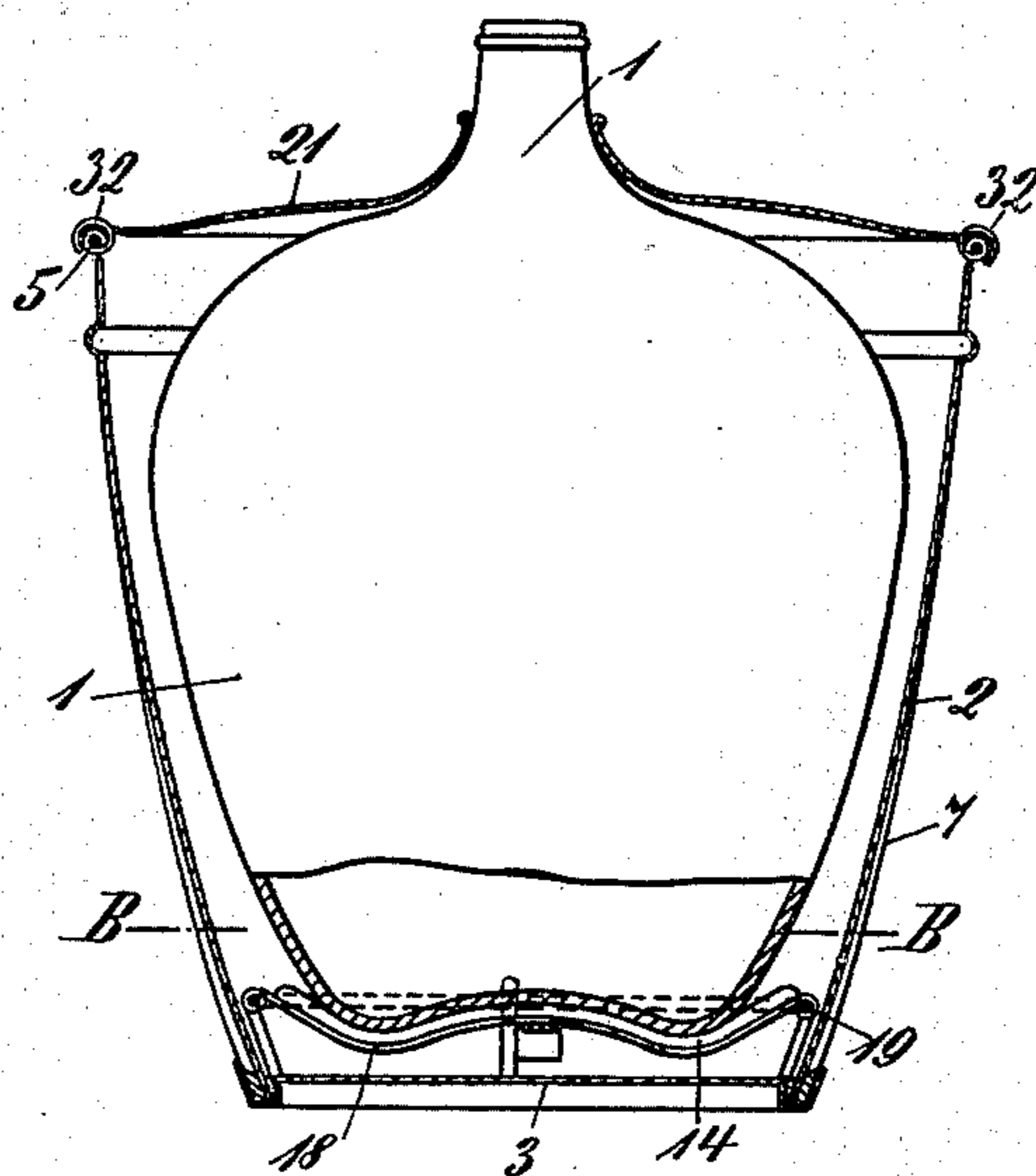


Fig. 7.

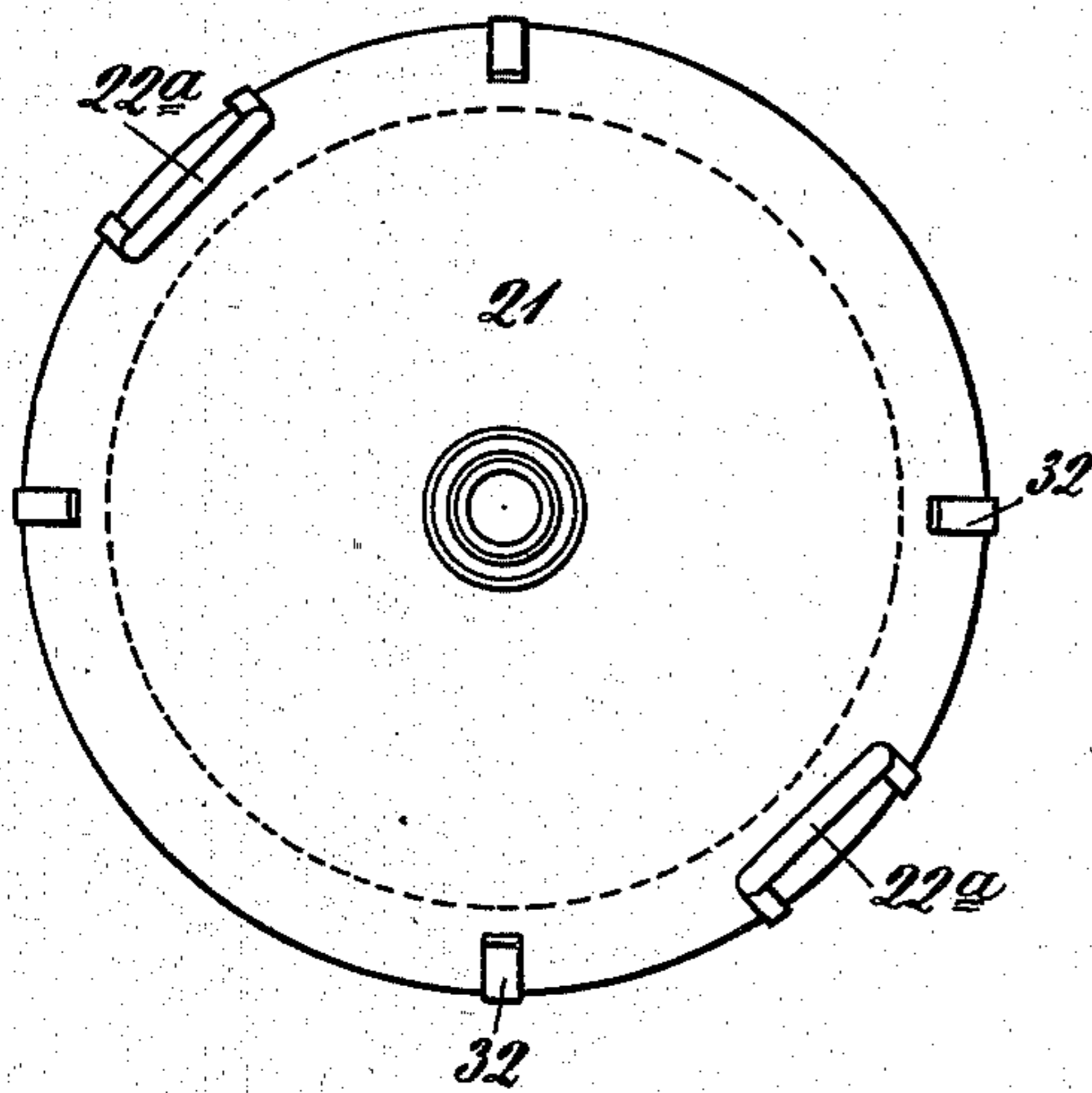
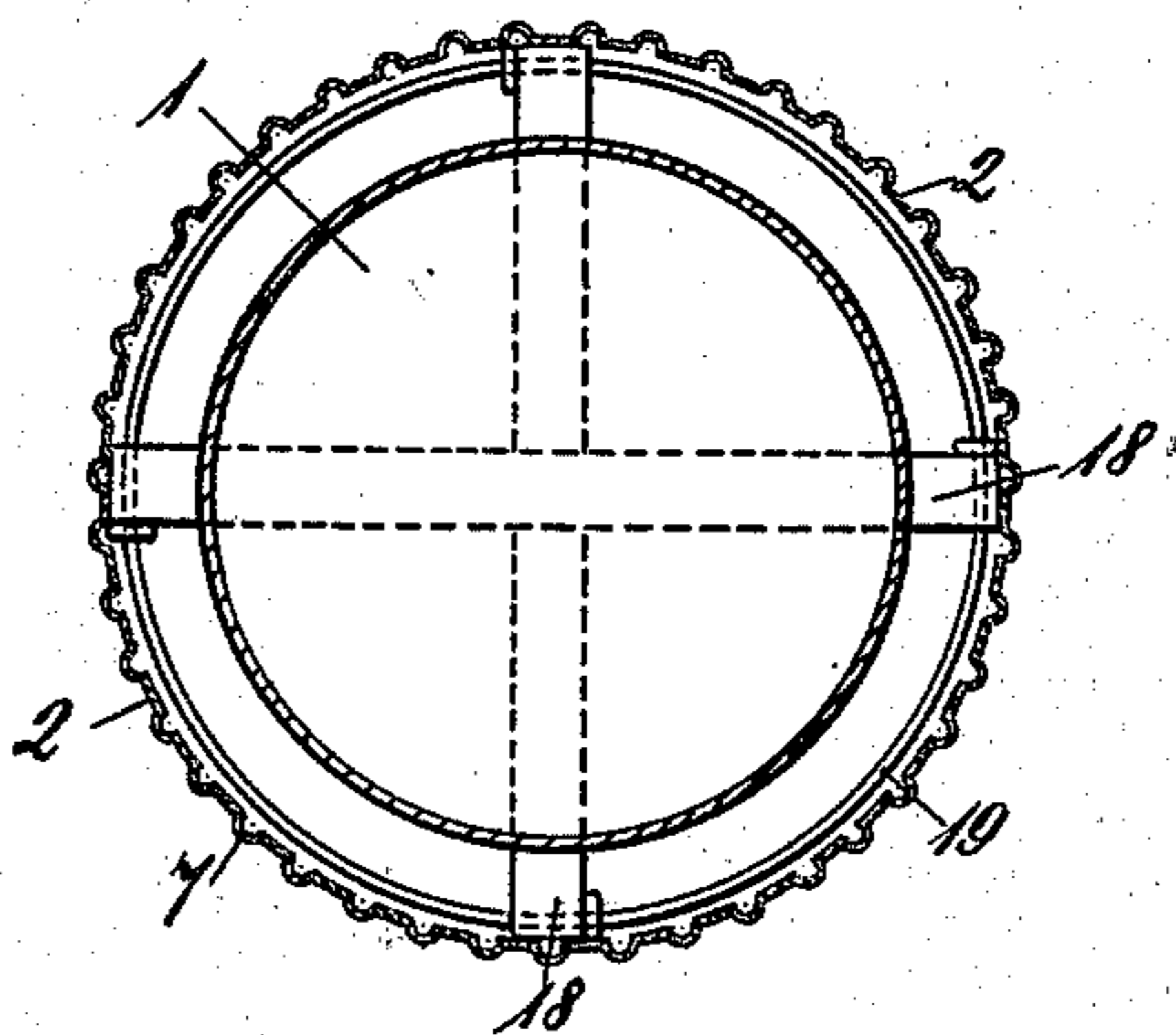


Fig. 8.
Section B-B.



In witness
Whereof
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NO MODEL.

3 SHEETS—SHEET 3.

Fig. 9.

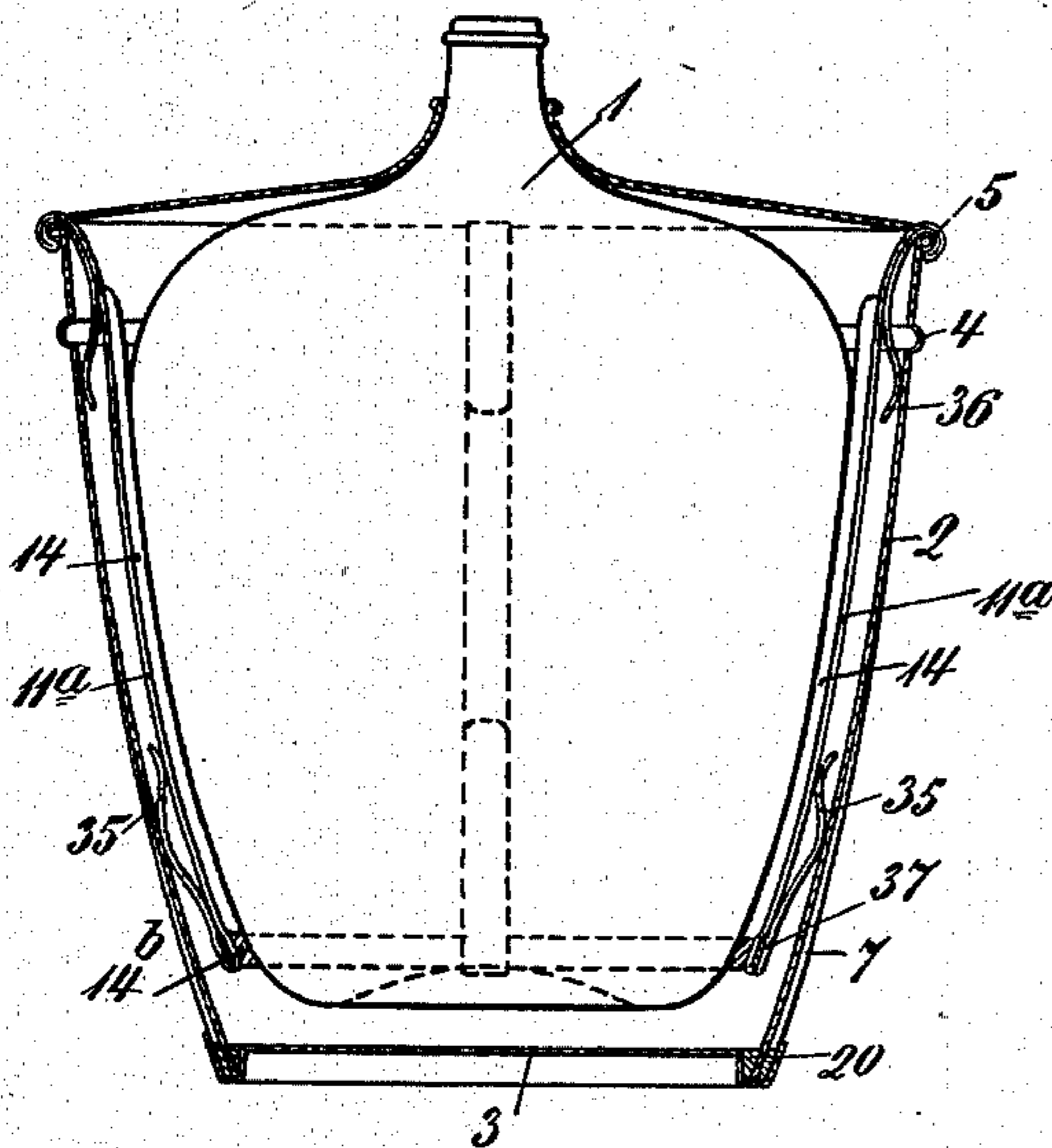
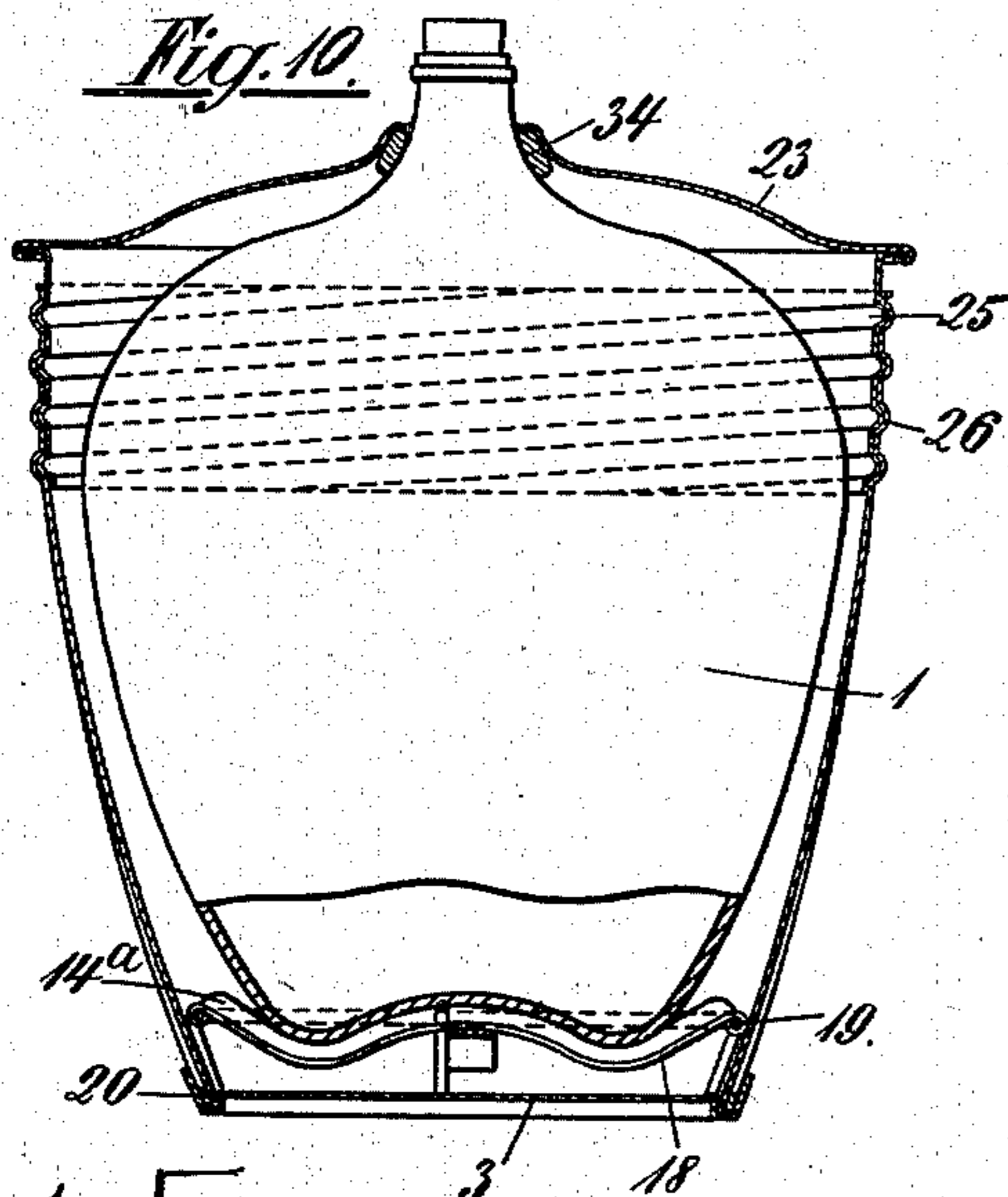


Fig. 10.



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UNITED STATES PATENT OFFICE.

ALFONS MAUSER, OF COLOGNE, GERMANY.

PACKING BOTTLES.

SPECIFICATION forming part of Letters Patent No. 723,174, dated March 17, 1903.

Application filed June 11, 1902. Serial No. 111,198. (No model.)

To all whom it may concern:

Be it known that I, ALFONS MAUSER, a citizen of the German Empire, residing at Cologne, Germany, have invented certain new and useful Improvements in Packing Bottles, of which the following is a description, reference being had to the accompanying drawings and to the figures of reference marked thereon.

The methods hitherto adopted of packing glass bottles or carboys filled with acid or the like in wicker-baskets, wood crates, or baskets of wire-netting with a lining of straw involve numerous drawbacks, which are particularly noticeable when it is a question of conveying or storing inflammable, corrosive, or particularly valuable liquids. These drawbacks are well-known; but nevertheless up to the present no other or better packing exists. Thus, for instance, the Deutsche Reichsversicherungsamt (German insurance office) by a publication in the German *Official Journal* (*Reichsanzeiger*) of the 31st of July, 1899, admits that hitherto for the conveyance of strongly-concentrated acids—such, for instance, as nitric acid and mixed acid and the like—there does not exist a less dangerous and at the same time equally convenient means for packing than the ordinary bottles or carboys inclosed in baskets with a straw lining, and therefore action can only be taken to mitigate the danger of such packing. For conveying particularly valuable liquids—such, for instance, as ethereal oils—carboys have hitherto been practically inapplicable on account of the great danger of breakage, while in such cases the use of vessels formed of other materials than glass leads to many inconveniences and objections—for instance, owing to action upon or damage to the liquids or the receptacles and to increased expenses and the like.

The main drawbacks of the packings at present employed consist in, first, the rapid consumption or wearing away of the packing; second, in the inflammability of the packing material itself, and consequently in the easy transmission of fire to adjoining baskets or other goods; third, the danger of breakage from outside influences to which the packing opposes a small resistance and which danger is increased by careless or defective packing;

fourth, the want of protection against the consequences of spontaneous bursting of the bottles or carboys, which not infrequently occurs, for instance, by reason of internal strains on the glass or by the influence of foreign bodies even after long and tested use of the carboys.

Now this invention has for its object a packing for glass bottles (carboys) which while removing all the drawbacks hereinbefore mentioned is quite as handy and light as the present form of packing and considerably exceeds the latter in durability and in the smallness of cost of maintenance, and, further, reduces to a minimum the danger of fire and fracture and affords protection against the consequences of fracture and possesses other considerable advantages.

This improved packing consists, essentially, in the use of a water-tight packing-case secured against the action of acids, fire, and the like and made for the sake of lighter weight and cheapness of thin sheet metal strengthened by grooves or ribs in which the carboy is elastically held in all directions and may be adjusted or suspended or packed separately by means of non-inflammable packing.

Some forms of construction of the object of the invention which will be hereinafter described are shown in the accompanying drawings, in which—

Figure 1 is a vertical section of a packing vessel with my improvements applied. Fig. 2 is a side elevation thereof. Fig. 3 is a vertical section of a vessel having a modified form of packing. Fig. 4 is a similar view with the cover raised and in side elevation. Figs. 5 and 6 are respectively a side elevation and section showing further modifications. Fig. 7 is a plan of the vessel shown in Fig. 5. Fig. 8 is a section on line B B, Fig. 6. Fig. 9 is a vertical section of a vessel containing a further modified form of packing, and Fig. 10 is a similar view showing a still different construction.

I have already applied for patents for the packing vessel shown as an example in all these forms of packing and made in such a way of thin sheet metal that by rolling or impressing grooves of prolonged varying depth in the wall of the packing vessel the latter is stiffened, and thereby also a form is im-

parted to it tapering to one end which is better suited to the outer form of the carboy 1.

Of course the conical form of packing vessels, although preferable, is not absolutely necessary, and they may have a cylindrical or other suitable form.

In the packing vessel of conical shape formed by the impression of grooves of varying depth in the wall of the vessel the lower edge of the vessel has a wave or corrugated shape and the bottom 3 has a U-shaped circular groove for the insertion of the edges of the casing, in which groove the casing may be tightly fastened after being inserted by means of rivets or the like or by means of a suitable material—such, for instance, as metal cement. The corrugated edge of the casing may, if desired, be flattened so far as it is inserted in this circular groove in the bottom 3, as shown in the vessels illustrated in Figs. 1 to 4, and it may be held fast between the vertical edge of the bottom and a separate ring 17 of angular cross-section. The tight joint may also be formed directly by the packing material.

In the arrangement shown in Figs. 1 to 4 the carboy is packed in a rigid or resilient frame 11, suspended in a suitable manner in the packing-case 2. If hoop-iron, for instance, be employed for the frame, it is bent over at the top to form a hook 12, by means of which it may be suspended on the upper edge 5 of the vessel 2, which upper edge is strengthened by a wire insertion. If iron supporting-bands 11 be employed, they are wrapped with asbestos cord 14, impregnated straw bands, or other suitable material, and they are provided at their point of crossing with a depending pin 15, which fits in a bent piece 16, fixed on the bottom 3 of the vessel 2 with the object of preventing lateral oscillations of the lower part of the carboy. The supporting-bands have springs 13 at the top, with which they pass laterally against the walls of the vessel. At the top the bottle is held fast either by means of separate springs 8, Figs. 1 and 2, attached beneath the conical lid 6, or where the lid 9 is practically flat, Figs. 3 and 4, by means of spring-tongues 10, formed by slitting the inner edge of the lid. Instead of guiding the hanging frame 11 by means of pins 15 engaging in a bent piece 16 springs 33 may also be provided at the bottom of the frame, which springs bear laterally on the inner walls of the casing and elastically absorb side shocks on the packing vessel, Figs. 3 and 4. Instead of crossing the support bands 11 beneath the glass bottle or carboy they may be fixed below on a ring 37, Fig. 9, provided on its inner side with a covering 14^b, and the bottles are then hung in this ring 37 and the carrying-bands 11^a. The bands 11^a then have springs 35 and 36 below and above, with which they rest against the inner walls of the vessel and elastically absorb side shocks. In all these methods of suspension the carboy is

retained in an insertion which hangs in the vessel and has a spring action in all directions, and all damage to the carboy or transport-bottle is thereby excluded. The springs 8 and spring-tongues 10, respectively, of the lid, which press on the bottle or carboy from above, are preferably wrapped at the places at which they rest on the glass bottle or carboy with soft material, such as asbestos cord or the like, in order to avoid any sharp pressure on the bottle.

In another form of construction of packing (shown in Figs. 5, 6, 8, and 10 by way of example) the bottle is loosely seated on a spring insertion 18, coated with resilient material 14^a and separately inserted in the packing vessel, which insertion 18 is fixed in a stiffening-ring 19, loosely laid in the vessel 2 and adjustable in width. The vessel is preferably closed above by means of a lid, which engages over the bottle-neck and is fixed thereto by means of tongues 32 engaging over the edge 5 of the vessel 2, which edge is strengthened with a wire insertion.

The vessel 2 may also be provided above with a spiral groove 26, Fig. 10, which serves to stiffen the vessel, and the cover 23 may have a corresponding threaded groove 25, which fits in the groove 26 in such a way that the cover or lid may be screwed on. Preferably a ring 34, of soft material, (asbestos cord or the like,) is laid between the lid 23 and the bottle-neck, by means of which ring the bottle is held elastically on all sides above. As the vessel and the lid are made of very thin sheet metal, the impressing of the threaded grooves is very easily effected.

Handles 22, Fig. 2, are formed in a simple manner by partially stamping out a portion of the vessel-casing and bending over the stamped-out part in order to allow of the more convenient carrying of the packing vessels and their contents, these handles being provided on diametrically opposite sides, as shown. Of course separate handles 22^a, as shown, for instance, in Figs. 5 and 7, may also be employed, the bent-down ends of these handles engaging from above over the edge 5 of the closing-cover of the vessel and holding fast thereon.

The form of the packing vessel may be otherwise selected, and its resistance may be further increased by the formation of grooves, rims, borders, and the like. The essential feature is merely that the weight of the same in spite of its great power of resistance must be kept as small as possible. The vessel may also be pressed or drawn in one piece, or, if desired, may be formed of several pieces suitably put together. As, however, the screws, rivets, flaps, or the like necessary for closing the seams have but little hold in thin sheet metal, as is well known, and as experience has shown are rapidly destroyed in damp rooms or places charged with acid vapors, the packing-case, or rather at least its outer casing, is preferably formed in one piece and

strengthened in the manner hereinbefore specified.

The usual form of the carboys or glass bottles affords especially great resistance to pressure in a vertical direction—that is to say, between the belly and the domed annular bottom of the carboy, and these parts also possess quite sufficient rigidity to hold the bottle fast in a horizontal direction. Experiments have shown that where the bottle or carboy is packed with a spring-packing in a suspended or bottom frame its firmness is sufficiently great to prevent any breakage of the filled bottle even with the greatest shocks so long as the springs are of sufficient strength and act simultaneously vertically and horizontally. For the sake of security the springs before being inserted in the packing-case are tested at an increased spring-pressure where the spring-packing of the bottles is adopted. It is evident without further explanation that this method of packing affords the greatest security, owing to its being possible to examine the bottles as to their condition after the packing has been completed.

Glass bottles or carboys packed in the manner hereinbefore described are accepted for conveyance on board ship, and thereby trade in corrosive, inflammable, or specially valuable liquids is considerably facilitated.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. The combination with the outer case, of a yielding framework for the bottle within

the casing, and a non-corrosive wrapping or covering for said framework.

2. The combination with the outer vessel or casing of its apertured cushioned cover, of a framework suspended within the vessel and springs between the framework and the vessel.

3. The combination with the outer vessel or casing, of a framework suspended within the vessel to receive the bottle and springs between the framework and the vessel.

4. The combination with the outer vessel of a cushioning-framework suspended within the vessel to receive the bottle, a pin on the lower end of the framework, an apertured plate or step in the bottom of the vessel engaged by said pin.

5. The combination with the outer vessel, of a cushioning-framework suspended within the frame and provided at its lower end with a pin stepped in the bottom of the vessel, and a centrally-apertured cover having springs to engage the bottle.

6. The combination with the outer vessel, of a cushioning-frame formed of crossed strips having hooks on their upper ends engaging the upper edge of the vessel, springs between the strip and the vessel and a centrally-apertured cover having springs to engage the bottle.

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

ALFONS MAUSER.

Witnesses:

CHARLES LESIMPLE,
CARL SCHMITT.