

(No Model.)

L. G. LARSON & C. LUNDQUIST.  
NON-REFILLABLE BOTTLE.

No. 574,852.

Patented Jan. 5, 1897.

Fig. 1.

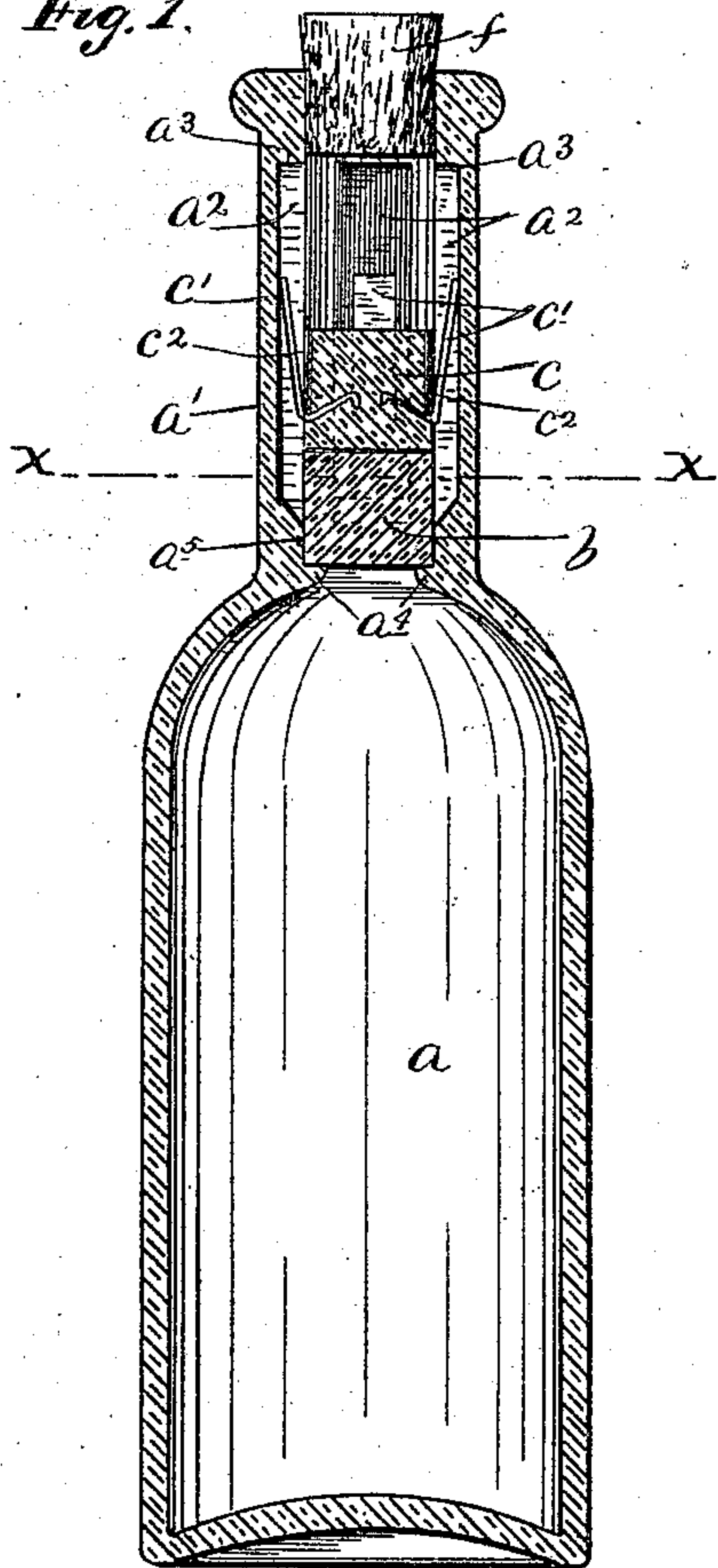


Fig. 3.

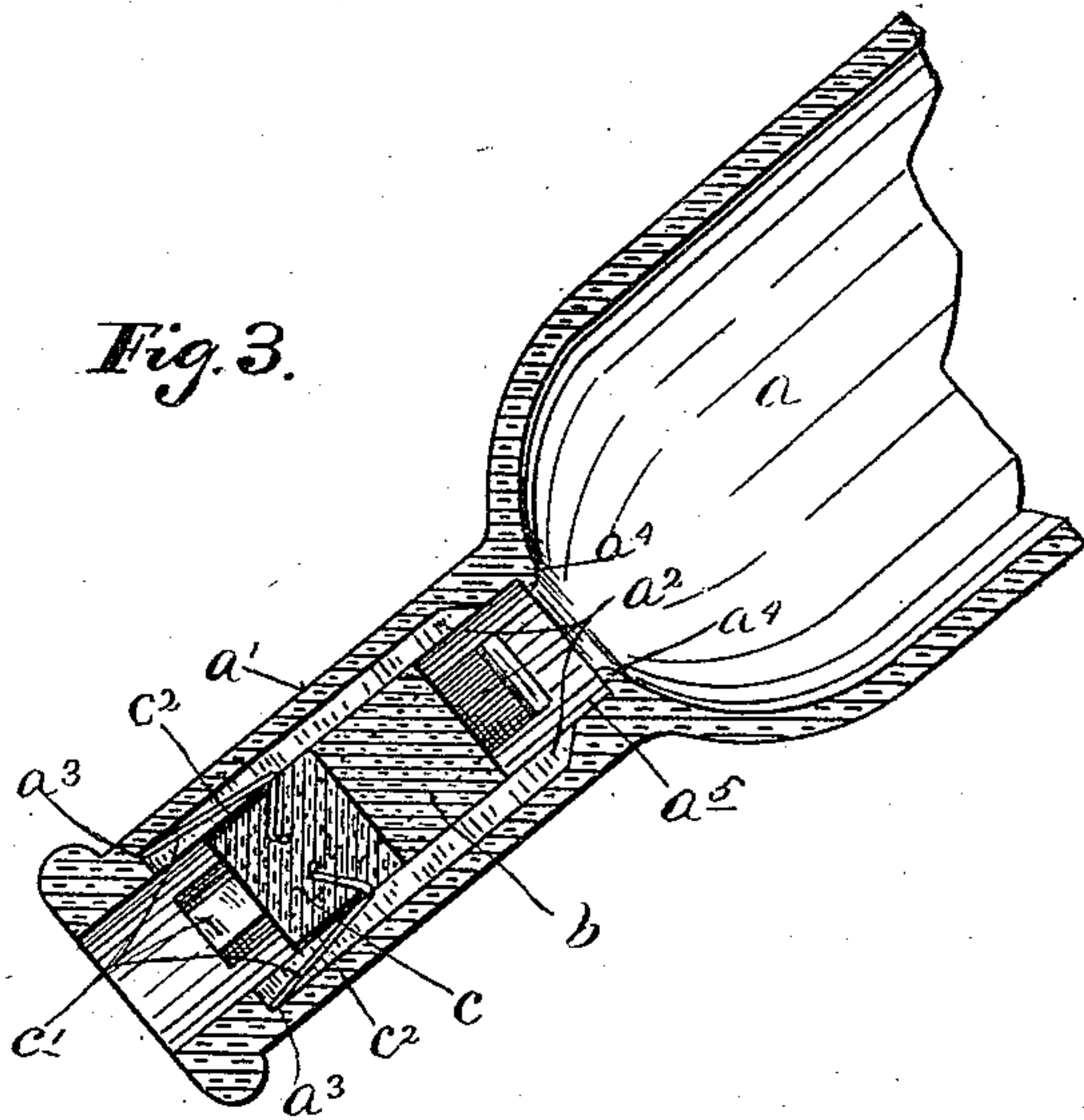


Fig. 4.

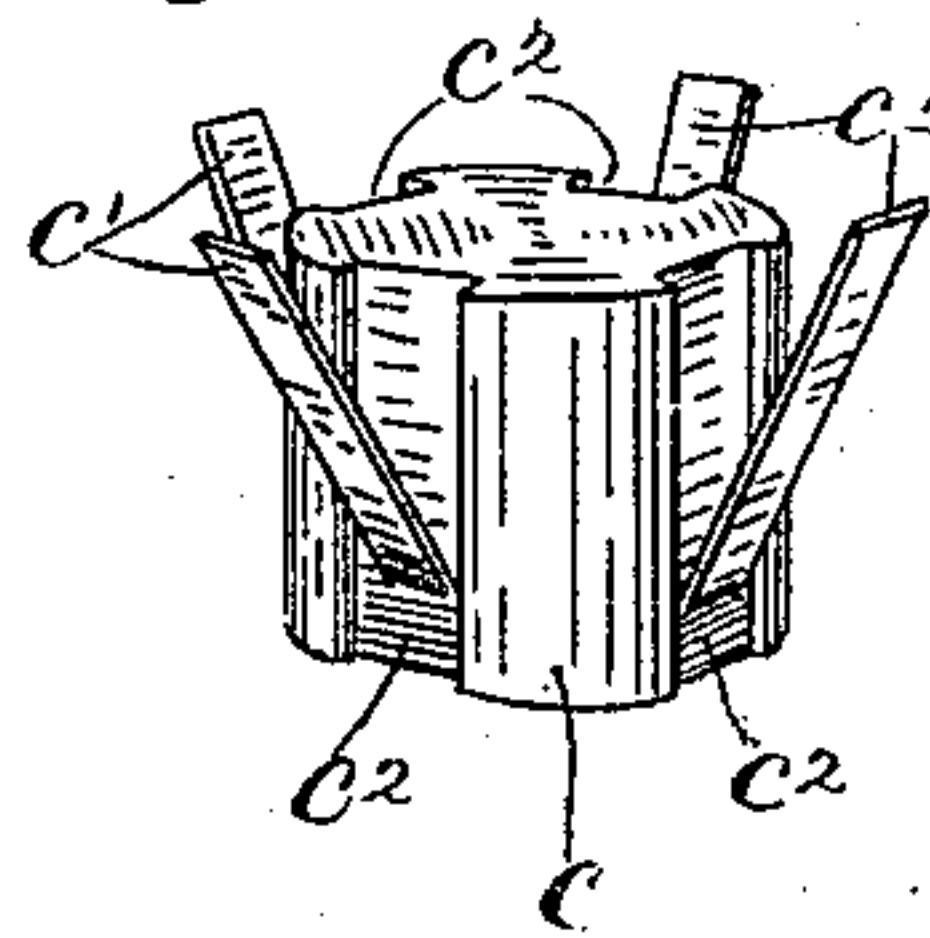
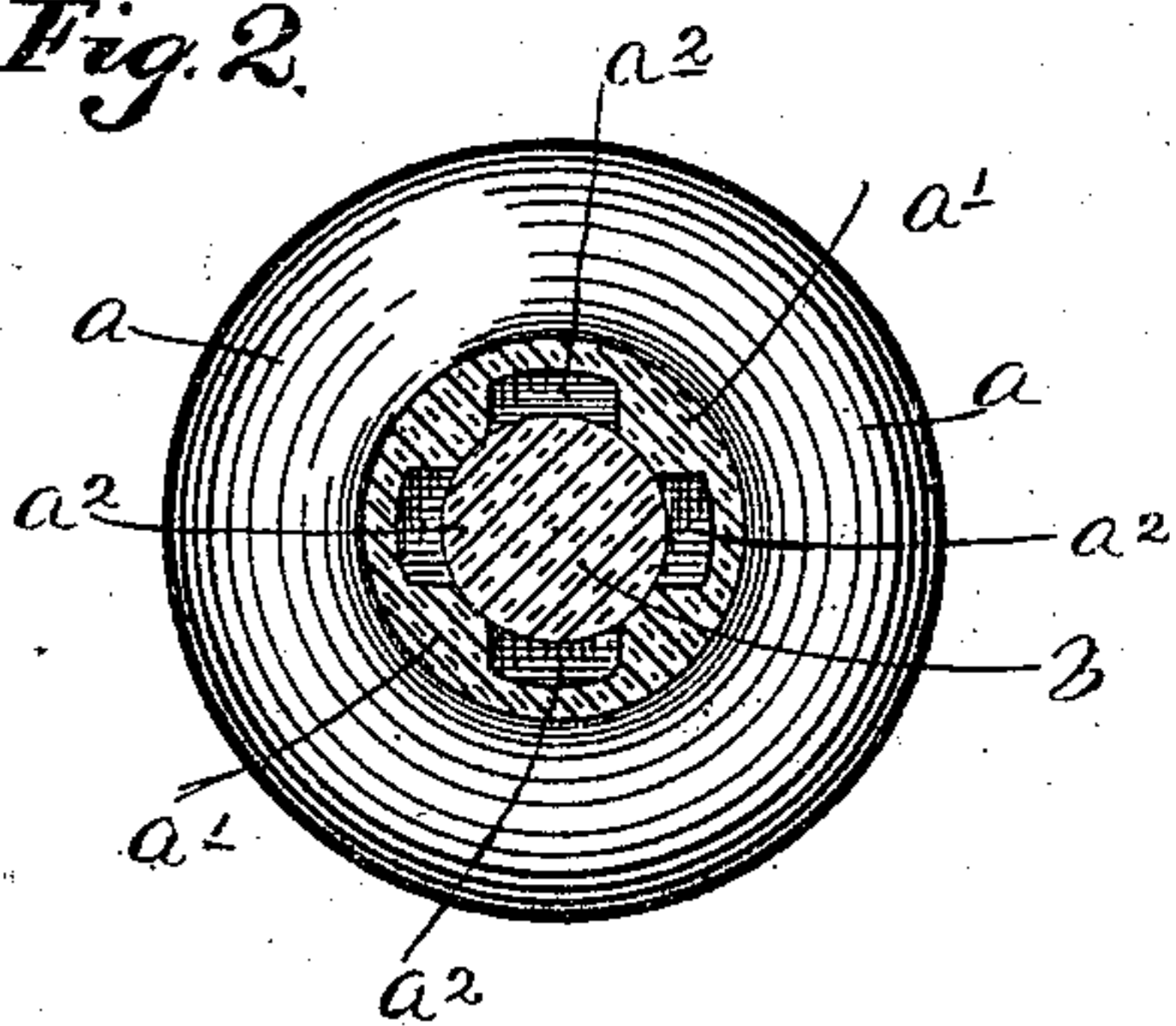


Fig. 2.



Witnesses.  
C. F. Kilgus  
Raaf Merchant.

Inventors  
Lars G. Larson  
Claus Lundquist  
By their Attorney  
Jas. F. Williamson.



# UNITED STATES PATENT OFFICE.

LARS G. LARSON AND CLAUS LUNDQUIST, OF MINNEAPOLIS, MINNESOTA,  
ASSIGNORS TO FREDERICK T. VANSTRUM, OF SAME PLACE.

## NON-REFILLABLE BOTTLE.

SPECIFICATION forming part of Letters Patent No. 574,852, dated January 5, 1897.

Application filed November 30, 1895. Serial No. 570,658. (No model.)

*To all whom it may concern:*

Be it known that we, LARS G. LARSON and CLAUS LUNDQUIST, citizens of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Non-Refillable Bottles; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention has for its object to provide an improvement in bottles and similar vessels whereby it is rendered impossible to refill the same after the original contents have been removed.

To this end our invention consists in the novel features of construction and combinations of parts hereinafter described, and defined in the claim.

The preferred form of our invention is illustrated in the accompanying drawings, wherein, like letters referring to like parts throughout the several views—

Figure 1 is a vertical central section through a bottle equipped with our invention, the bottle being shown in an upright position. Fig. 2 is a horizontal section taken through the bottle on the line  $xx$  of Fig. 1. Fig. 3 is a central section through the bottle, some parts being broken away, showing said bottle turned up as in the act of pouring out the contents; and Fig. 4 is a perspective view of the spring-locking guard-plug removed from the bottle.

$a$  indicates the body, and  $a'$  the neck portion, of the bottle. In the interior wall of the neck portion  $a'$  are formed one or more, as shown, four, longitudinal grooves or fluid-passages  $a^2$ , that run nearly the length of the neck but terminate short of both extremities of the same. These grooves  $a^2$  terminate at their outermost ends in abrupt shoulders  $a^3$ . The neck  $a'$  is formed at its bottom portion, just above the point where it merges into the body  $a$ , with an annular ledge  $a^4$ , which, together with that portion of the interior of the bottle-neck which intervenes between the same and the lower portions of the longitudinal grooves  $a^2$ , forms a valve-seat  $a^5$  for a

plug-valve  $b$ . This plug-valve  $b$  is seated for a limited longitudinal movement in the said bottle-neck.

$c$  is a guard or safety plug provided with expansible spring-prongs  $c'$ , which, as shown, are secured to said plug by having their fixed ends cast into the same. As shown and preferred, the spring-prongs  $c'$  are secured in longitudinal grooves or depressions  $c^2$ , formed in said plug  $c$ , so that the prongs when folded therein become flush with the periphery of said plug. In this particular case there are four of these spring-catches, corresponding to the number of grooves  $b^2$  in the bottle-neck. This guard-plug  $c$  may be readily inserted into its locked position (shown in Figs. 1 and 3) by forcing the same through the mouth of the bottle-neck in the proper direction to spring down the spring-prongs  $c'$ . In its locked position, as will be noted by reference to said Figs. 1 and 3, the spring-prongs  $c'$  have sprung outward into the grooves  $a^2$  and will now engage behind the shoulders  $a^4$ , formed at the outermost extremities of the grooves  $a^2$ , and prevent the removal of said guard-plug  $c$  from the bottle-neck. It will be noted, however, that the relative lengths of the grooves  $a^2$ , the plugs  $b$  and  $c$ , and the spring-prongs  $c'$  are such that both of said plugs  $b$  and  $c$  are free for a limited longitudinal movement in said bottle-neck under the action of gravity, and that the spring-prongs  $c'$  are projected upward beyond the plug  $c$ , so as to prevent said plug  $c$  from closing the upper extremities of the grooves  $a^2$  when the bottle is inverted.

Preferably the plugs  $b$  and  $c$  are formed from some hard impenetrable substance, such as glass.

$f$  is an ordinary cork or stopper adapted to be inserted into the mouth of the bottle in the customary way.

It will be understood, of course, that our improved stopper is applied after the bottle has been filled.

The action of our above described stopper is as follows: The cork  $f$  being first removed the contents of the bottle may be readily poured out by simply turning the bottle upside down,



in which position the plugs *b* and *c*, under the action of gravity, move toward the mouth of the bottle, as shown in Fig. 3, thus opening the grooves *a*<sup>2</sup> at both of their extremities and forming a by-pass for the outflow of the liquid. Evidently in this position of the parts the contents of the bottle will find ready egress from the bottle through the said grooves *a*<sup>2</sup>. In this pouring action the contents of the bottle will naturally flow through the lowermost grooves *a*<sup>2</sup>, while the uppermost grooves serve to permit the inflow of air to replace the outflowing contents of the bottle.

To fill a bottle, the same must of course be stood in substantially an upright position, mouth upward, for otherwise the air from the bottle will not flow out under the action of its own buoyancy; but when the bottle stands in the vertical position, (shown in Fig. 1,) or any other position in which the bottle is not turned upside down, the plug-valve *b* will be gravity-held in its seat *a*<sup>5</sup>, thereby preventing the refilling of the bottle. In this position the guard-plug *c* effectually prevents all access by tools or otherwise to the valve-plug *b*, and hence, even though means might be devised for drawing said guard-plug *c* slightly upward, said plug-valve *b* would remain

seated, thereby rendering refilling of the bottle impossible.

It will be understood, of course, that various alterations in the details of the construction as above set forth may be made without departing from the spirit of our invention.

What we claim, and desire to secure by Letters Patent of the United States, is as follows:

The combination with a bottle or similar vessel, having longitudinal grooves *a*<sup>2</sup> and valve-seat *a*<sup>5</sup> formed in the interior wall of its neck portion, of the loose sectional stopper in said neck portion, involving the plug-valve *b* and guard-plug *c*, provided with the spring-prongs *c*<sup>1</sup> engaging said grooves, said prongs being of such length that they will permit a limited longitudinal movement of said stopper-sections while at the same time holding said stopper-sections from displacement, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

LARS G. LARSON.  
CLAUS LUNDQUIST.

Witnesses:

JAS. F. WILLIAMSON,  
F. D. MERCHANT.