

No. 742,312.

PATENTED OCT. 27, 1903.

W. R. GREEN.  
BOTTLE STOPPERING DEVICE.  
APPLICATION FILED MAR. 2, 1903.

NO MODEL.

Fig. 1.

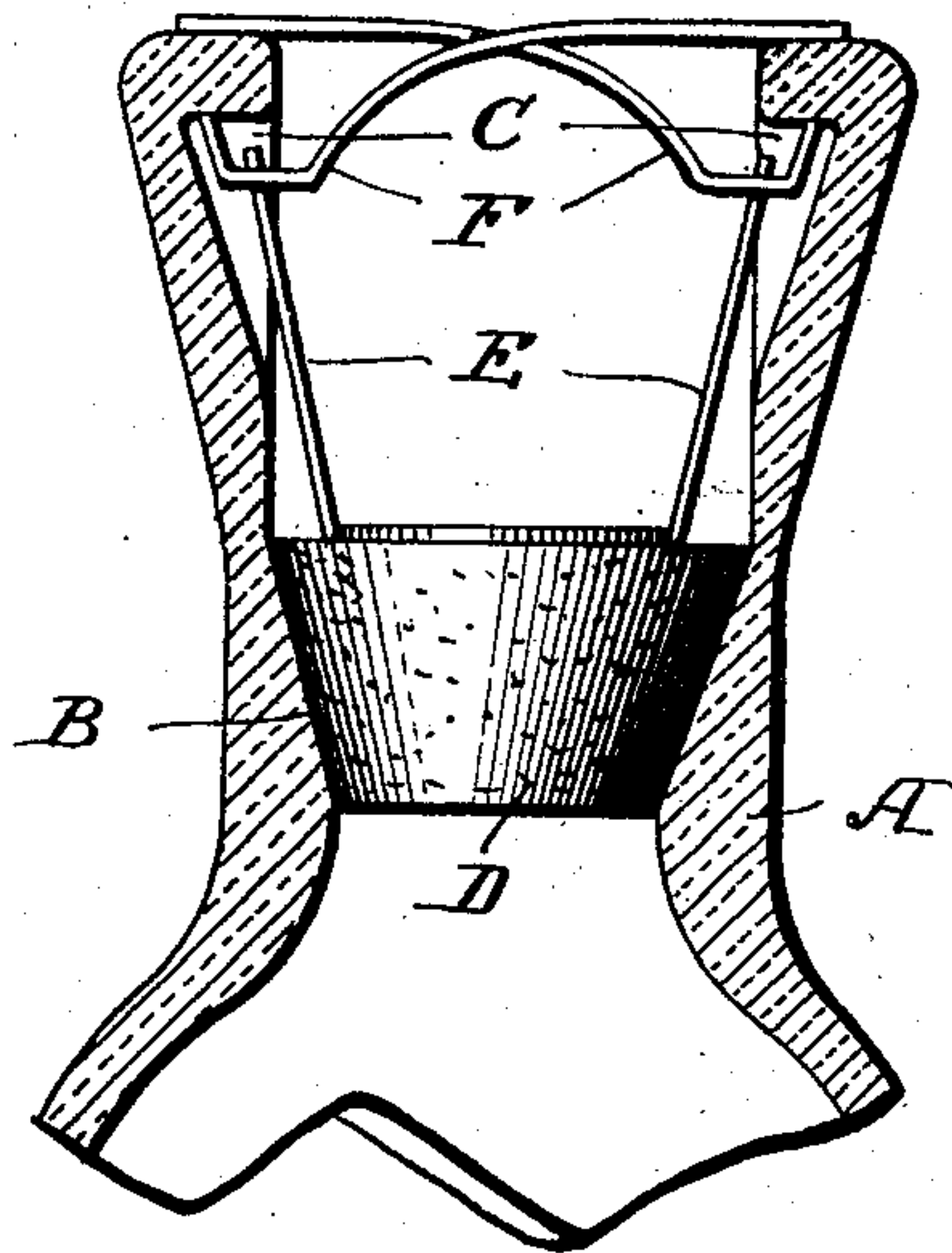


Fig. 2.

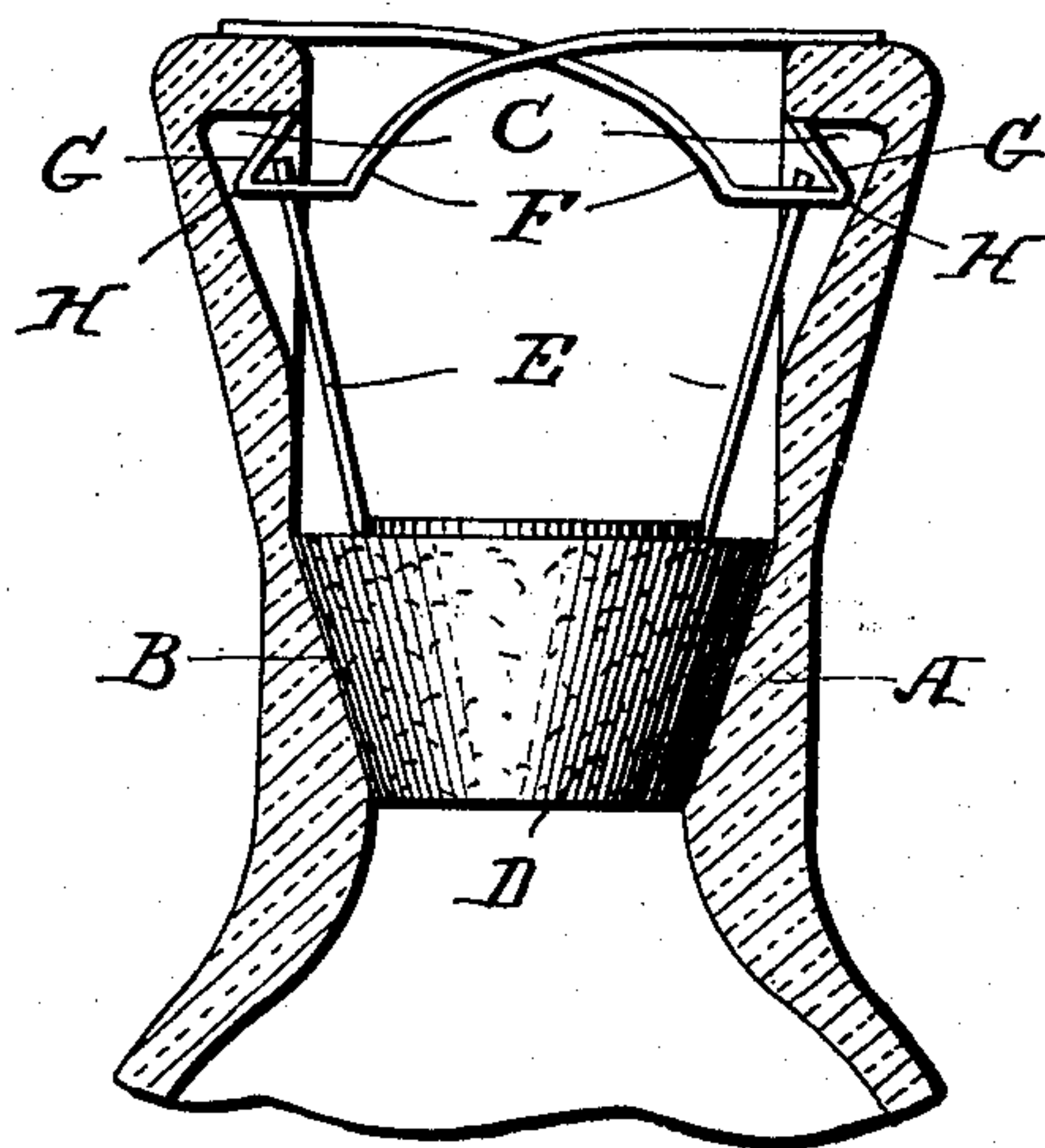


Fig. 3.

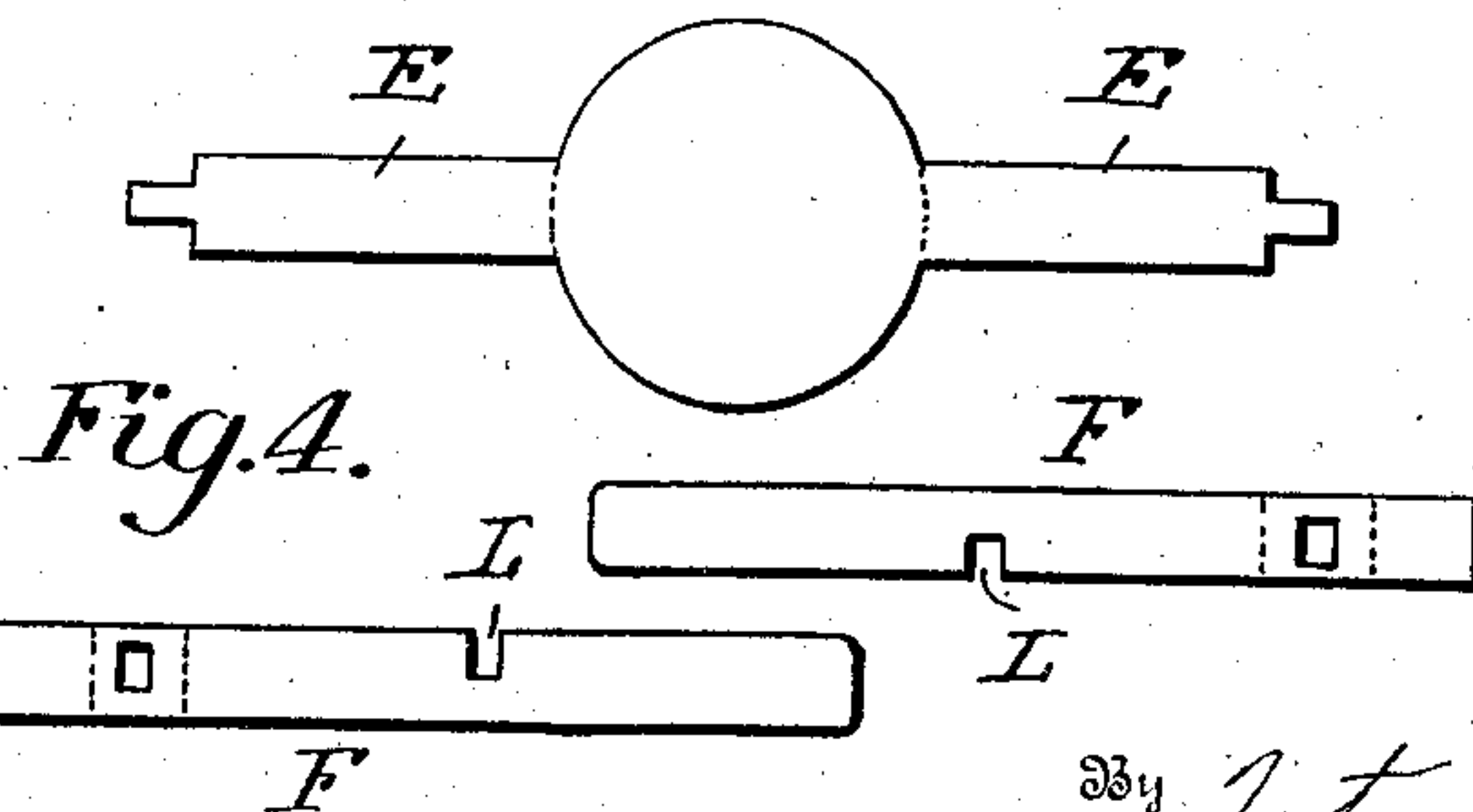
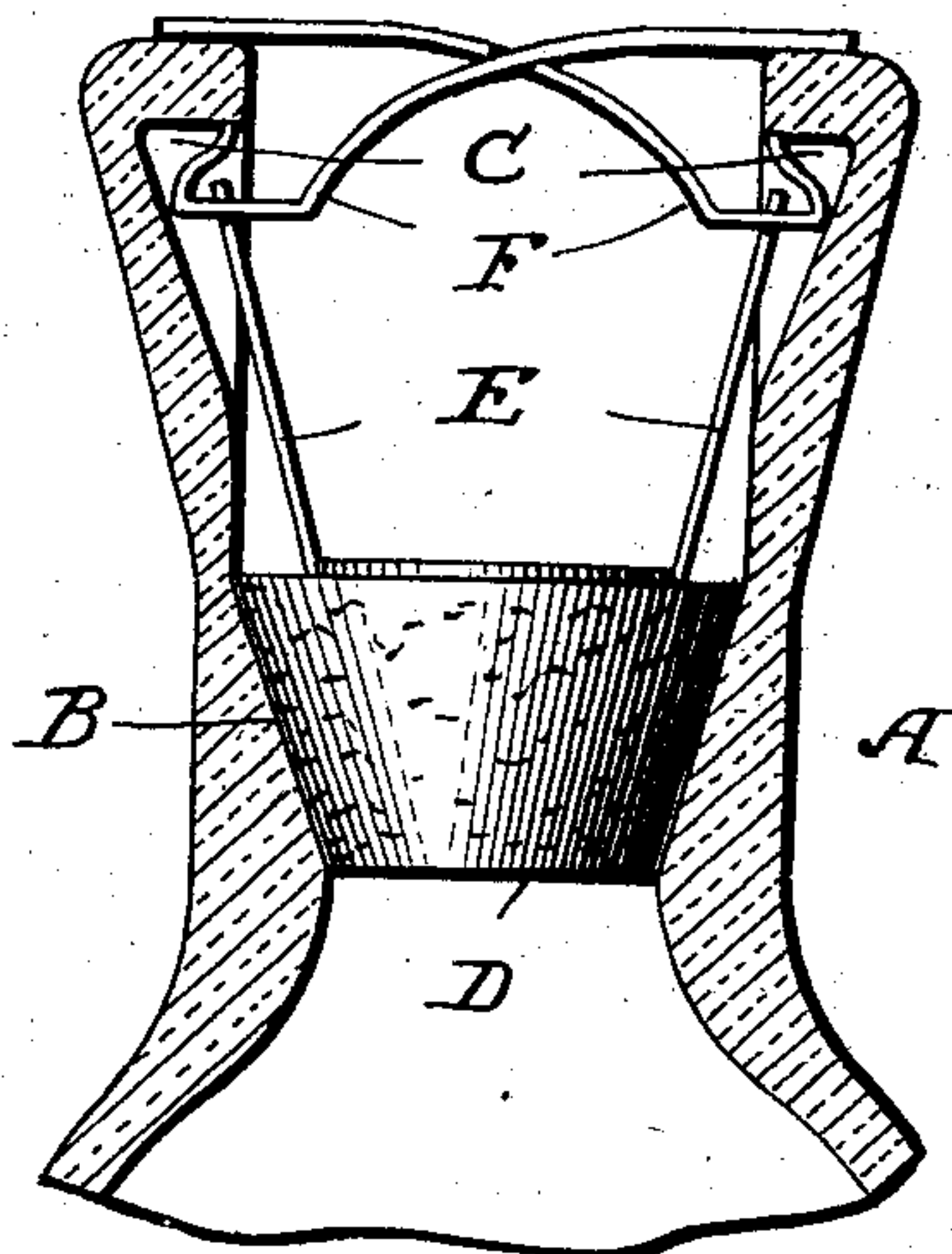


Fig. 4.

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## UNITED STATES PATENT OFFICE.

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## BOTTLE-STOPPERING DEVICE.

SPECIFICATION forming part of Letters Patent No. 742,312, dated October 27, 1903.

Application filed March 2, 1903. Serial No. 145,781. (No model.)

*To all whom it may concern:*

Be it known that I, WILLARD R. GREEN, a citizen of the United States, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Bottle-Stoppering Devices, of which the following is a specification.

Among other objects this invention has for its purpose to provide simple and positive means for effectively placing and retaining in position a seal or stopper within the neck of a bottle or other vessel and which means may be placed or contained within the neck of such vessel, whereby it is not subject to disturbance from outside or accidental influences. The efficiency of seals or stoppers of this description depends upon the facility with which the seal is made to forcibly and positively take its place with sufficient force to establish an efficient seal and to resist accidental movements as well as the pressure of the contents within said vessel, and the value of such seal and mechanism depends upon the certainty and the positive action of the seating and retaining mechanism, which latter has heretofore been generally cumbersome and costly as well as inefficient. This invention accomplishes a positive and adjustable downward thrust or pressure upon the seal to seat and retain the same, and the mechanism for producing this may be adjusted to be very powerful and positive and may also be used to release and withdraw the seal.

An embodiment of the invention is illustrated in the drawings accompanying this specification, of which—

Figure 1 represents an elevation, partly in section, of a bottle-neck containing a seal with attached mechanism. Figs. 2 and 3 show modified forms of the same. Fig. 4 shows the parts in detail.

Referring to the drawings, Fig. 1, A represents a bottle having in the neck thereof a seat B. D represents a stopper of the valve type adapted to cooperate with and form a seal in combination with the seat B. At or near the upper extremity of said bottle-neck are bearing-surfaces C, which may be either projections on said bottle-neck or, as shown, recesses or indentations in the material of

said neck. E E represent arms connected with and extending upward from the valve D and which arms are not sufficient in length to reach the entire distance to the bearing-surfaces C. F F represent levers operatively connected with the upper extremities of the arms E and formed and adapted to take a bearing with their inner ends upon the surfaces C and to exert pressure upon being depressed upon the ends of the arms E.

It is obvious that the efficiency of the seal depends upon the production of a downward pressure upon the valve and that in an elevated position of the upper or outer extremities or free ends of the levers F they will be out of operative contact and in a position to be freely passed through the neck of the bottle and to carry with them the valve and other attached portions; also that when said lever-arms are depressed the inner ends thereof will make contact with the surfaces C and the levers will transmit a downward thrust upon the ends of the arms E, acting as the lever-fulcrum, and that by proportioning the several parts any desired throw and leverage may be obtained. It is also evident that the proportions and the strength of material may be disposed as desired for given purposes and be such as to produce a maximum pressure. It will also be seen that the free ends of the lever F may be of any length and that they may be shortened, so as to fold upon themselves within the bottle-neck, and may, if desired, interlock or cross each other, and thereby cooperate to maintain any given position, or that they may be prolonged to extend beyond the neck of the bottle, and may, if desired, conform to the exterior of the neck and may be wired or tied against it.

Fig. 2 represents a modified form of the levers F. In this embodiment of the invention the ends G of said levers are bent at the angles H to return to some extent in plane with the longitudinal extent of the lever F, whereby the end of the lever engages the surface C at a point between the line of thrust of the arms E and the handle of the lever F or past the dead-center of said lever's action, whereby a downward tendency of the handles of said levers is produced (by the resilience of the parts) after passing said dead-center and the parts cooperate to retain themselves in



applied position. By this arrangement the desired tendency may be produced to retain the parts in position without other means and to resist independent or outside influences to impair the seal. Also, if desired, the levers F may be notched or otherwise locked against each other, as shown at L. At the same time the said parts are accessible and efficient for releasing and removing said seal and which may be produced without the intervention of any independent means except the hand. It will be seen that the form of the ends of said lever may be curved, if desired, as shown in Fig. 3.

All of the valve-retaining parts shown may be simply and cheaply made by stamping them from sheet metal and bending to the required forms, and details of the several parts are shown in Fig. 4. The form and application of the invention may be varied and modified without departing from the principles of the invention, and any desired strength of materials and power may be obtained; also the parts of the vessel may be likewise varied and the seat or mouth of the bottle-neck may be given any angle, taper, or form, and a seal or stopper of ordinary form may be used.

What I claim is—

1. In a bottle-seal, the combination with a bottle having a seat within the neck thereof and having bearing-surfaces at or near the

mouth of said neck, of a seal or stopper adapted to make a sealing contact with said seat, arms connected to and extending upward from said seal, with levers operatively connected with the upper extremities of said arms and their inner ends adapted to engage said bearing-surfaces, and operating when their outer ends are depressed to produce a downward pressure upon said seal, substantially as set forth.

2. In a bottle-seal, the combination with a bottle having a seat within the neck thereof and having bearing-surfaces at or near the mouth of said neck, of a seal or stopper adapted to make a sealing contact with said seat, arms connected to and extending upward from said seal with levers operatively connected with the extremities of said arms and their inner ends bent upward and back and adapted to engage said bearing-surfaces at points within the lines of thrust of said levers, or past their own dead-centers, and operating when their ends are depressed to produce a downward pressure upon said seal, substantially as set forth.

In testimony whereof I have signed my name to this specification.

WILLARD R. GREEN.

Witnesses:

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