

No. 615,951.

Patented Dec. 13, 1898.

J. C. BEAN.  
BOTTLE.

(Application filed Mar. 11, 1898.)

(No Model.)

3 Sheets—Sheet 1.

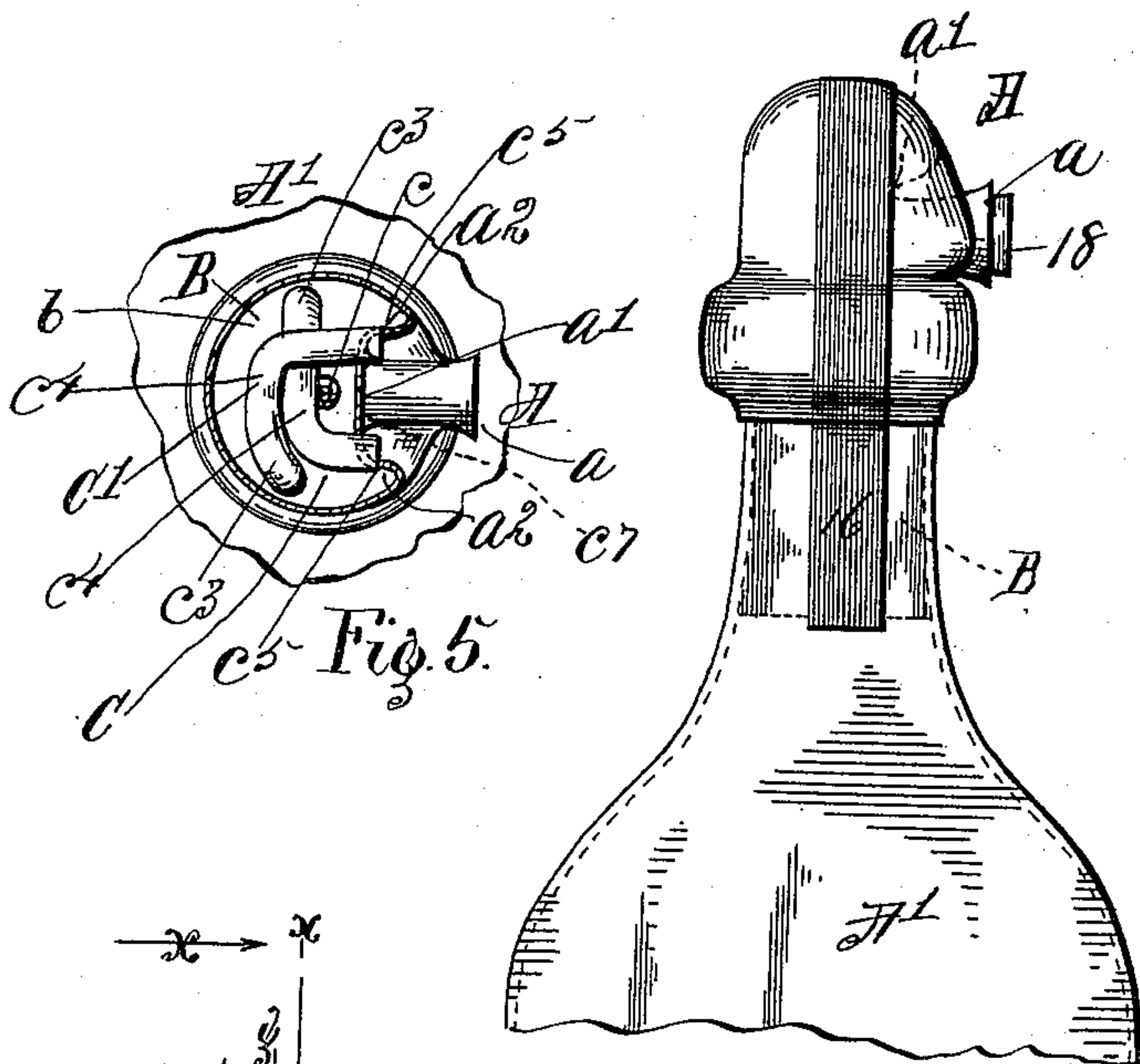


Fig. 1.

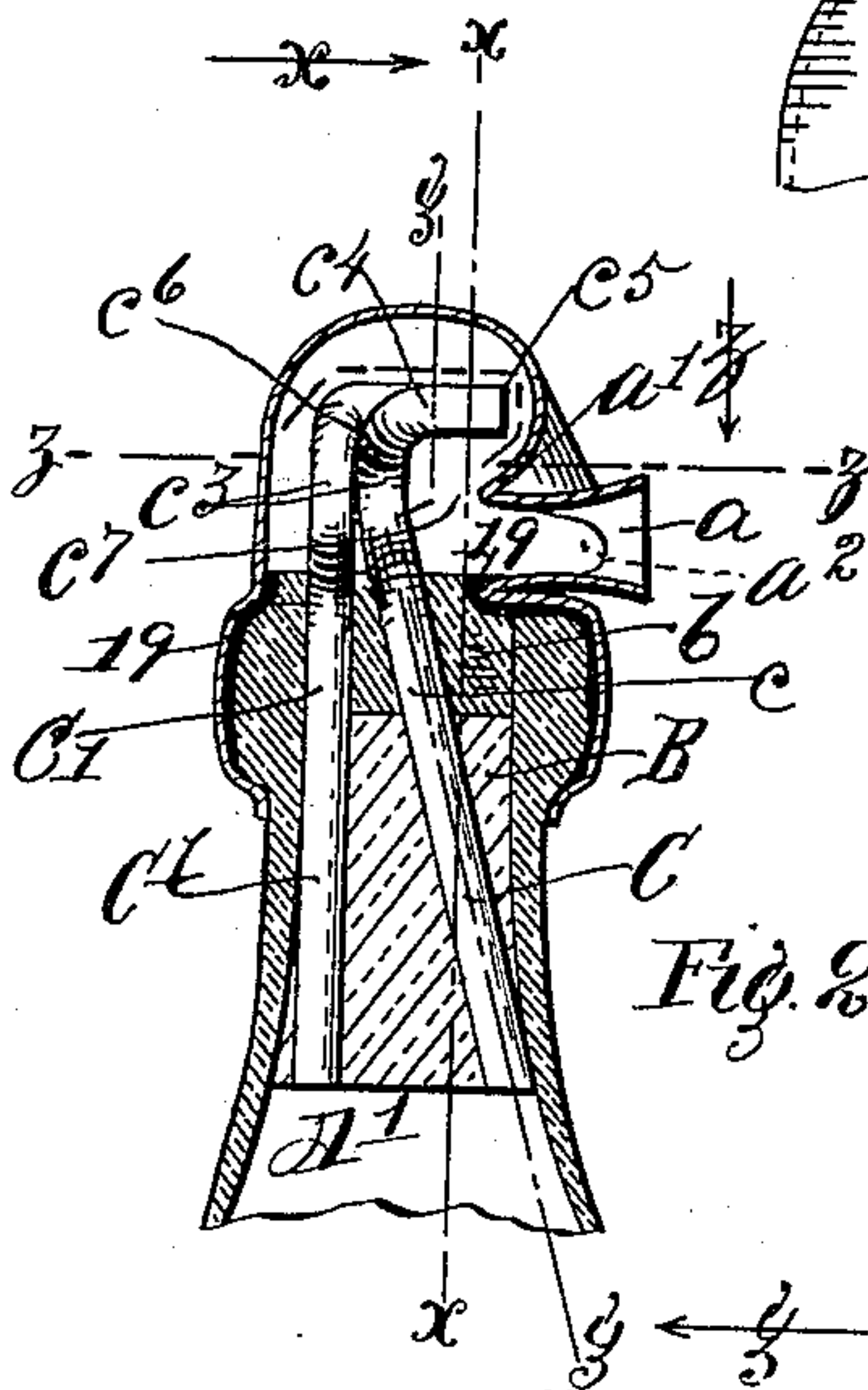


Fig. 2.

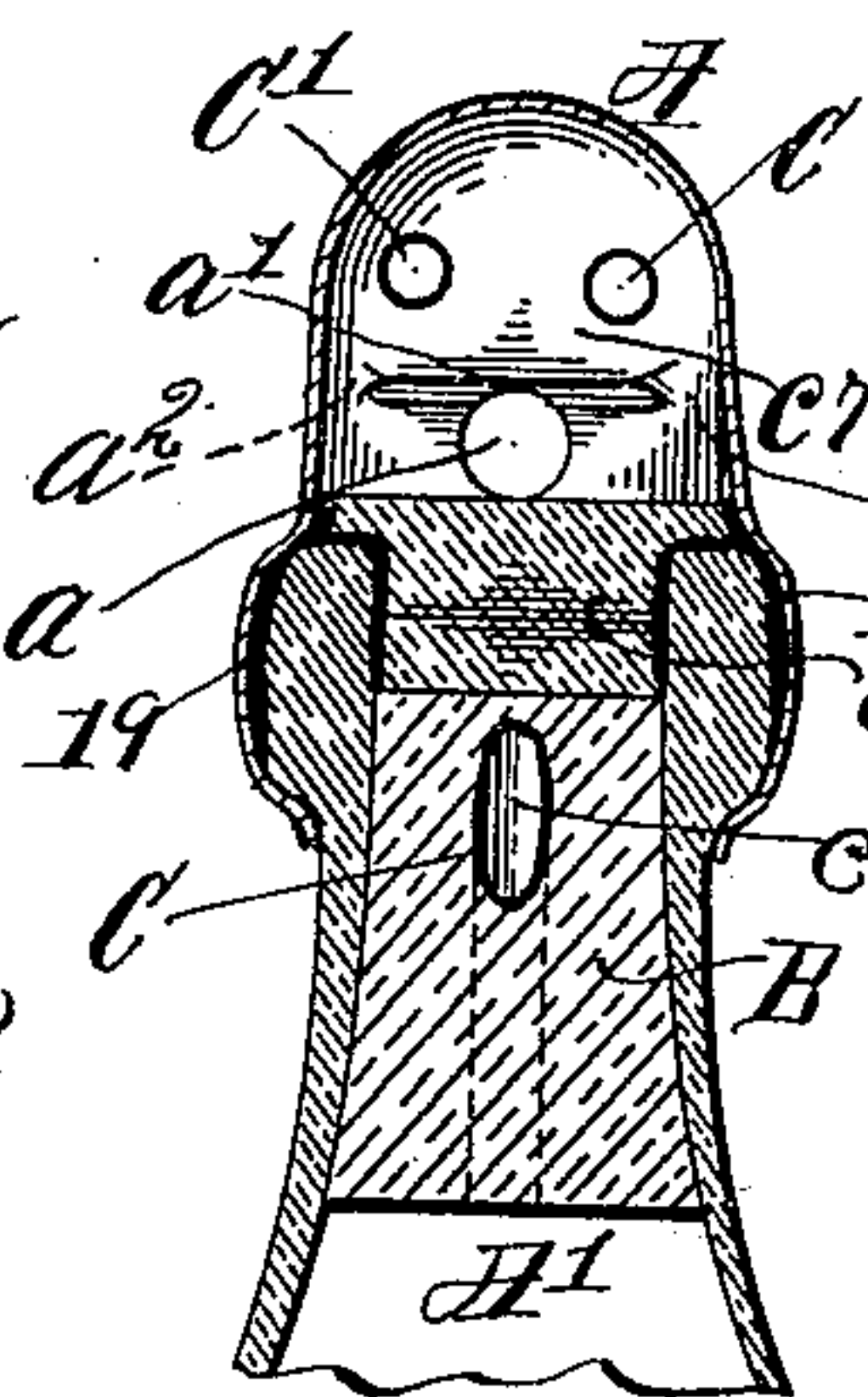


Fig. 3.

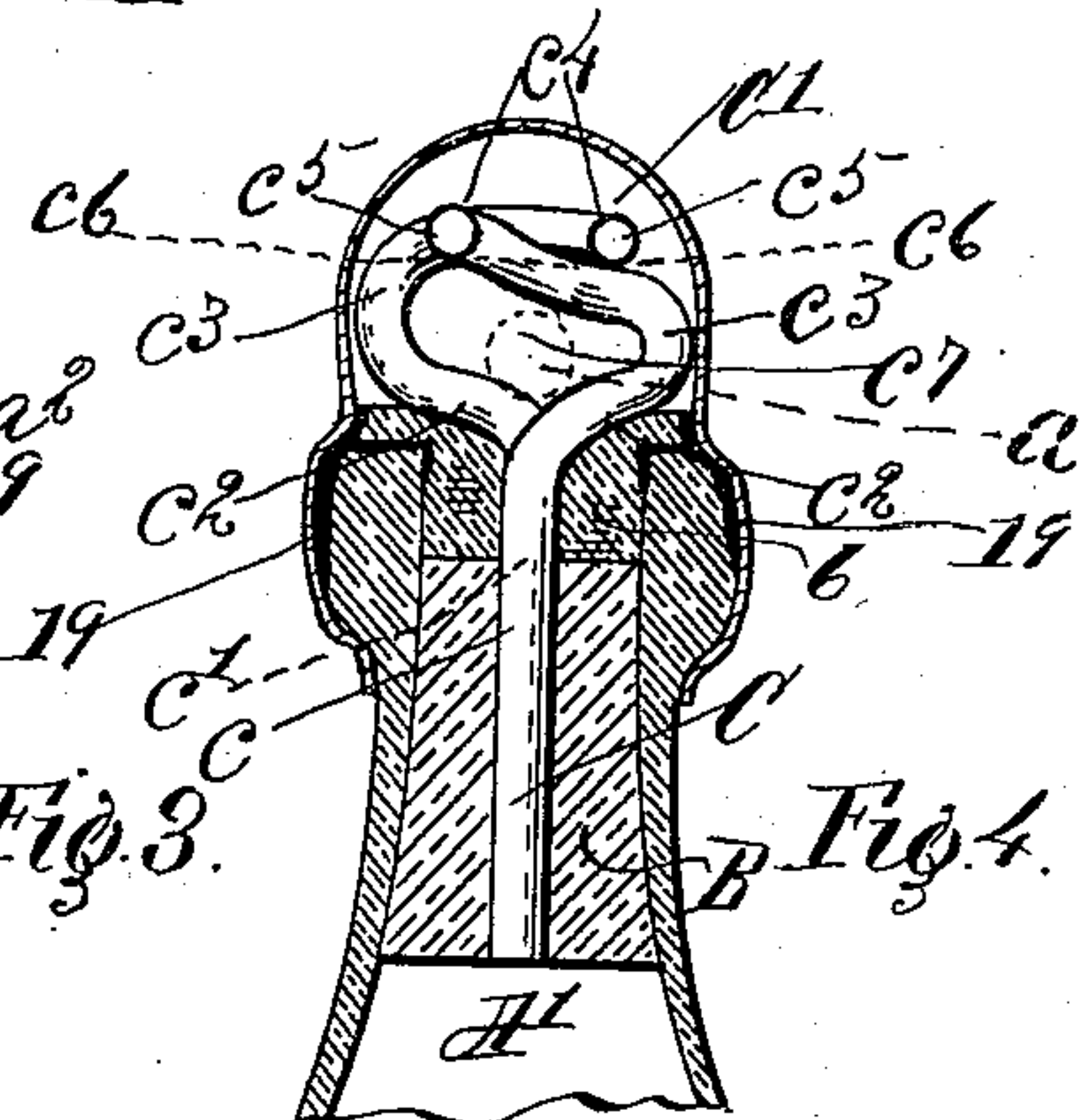


Fig. 4.

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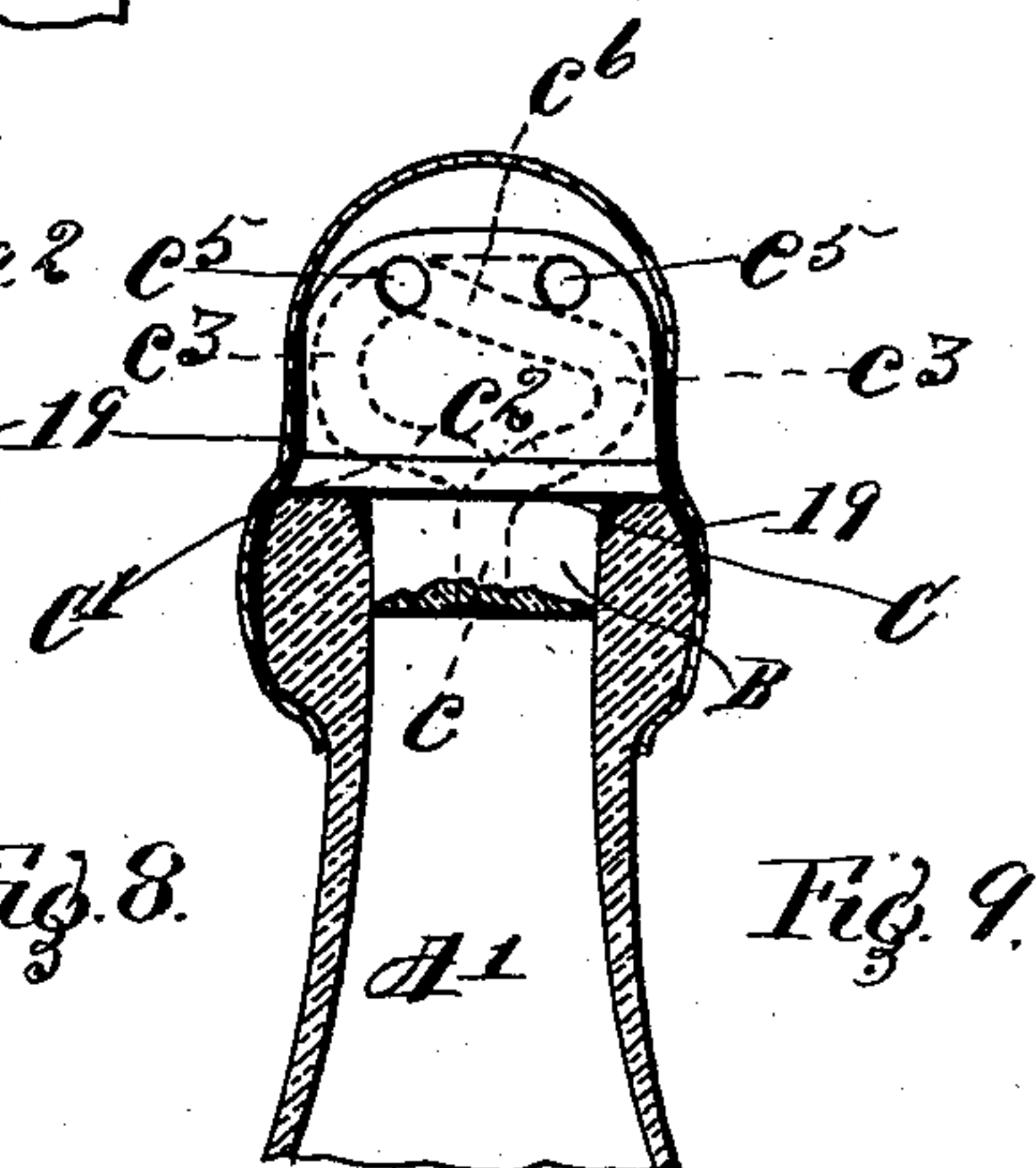
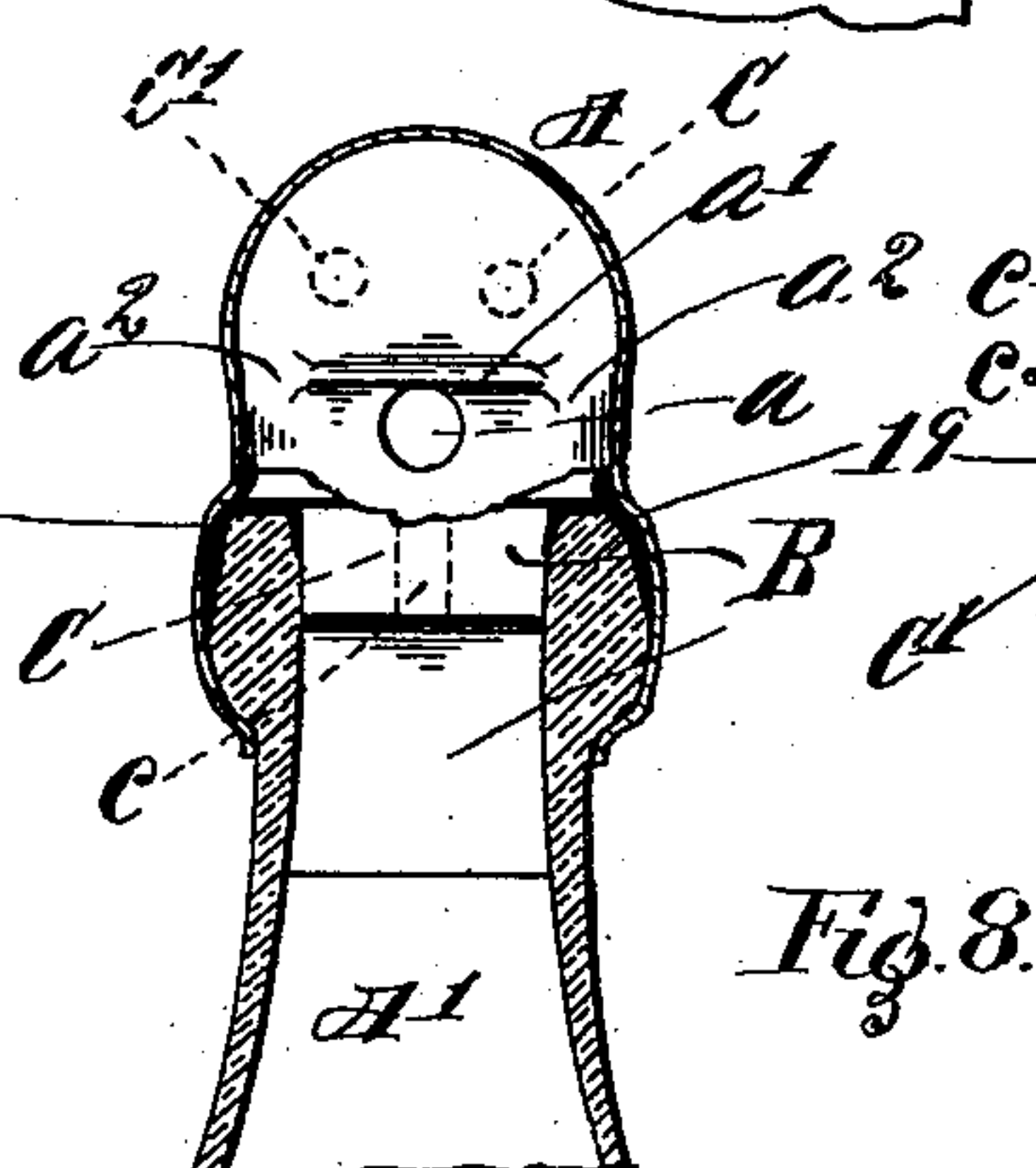
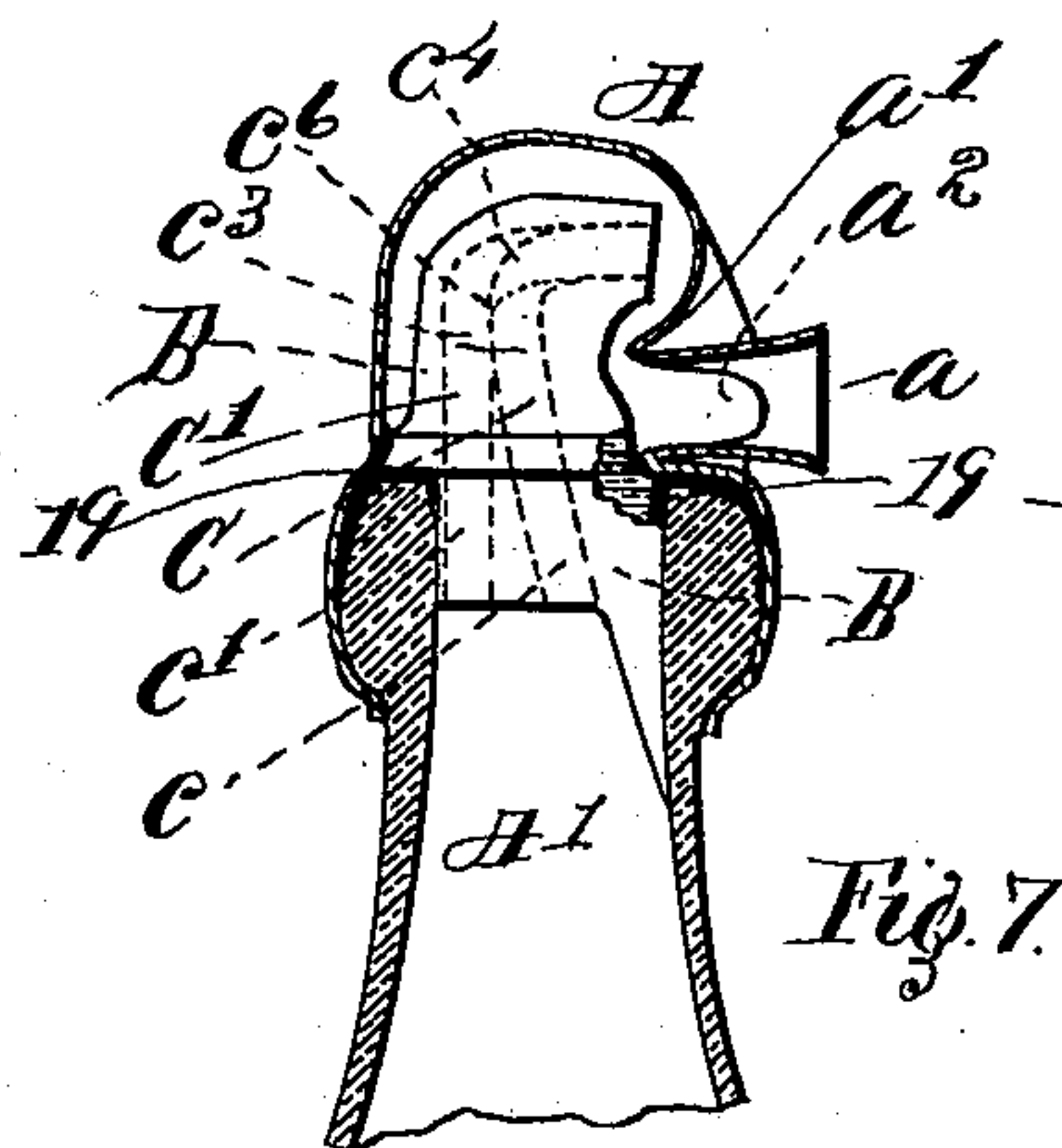
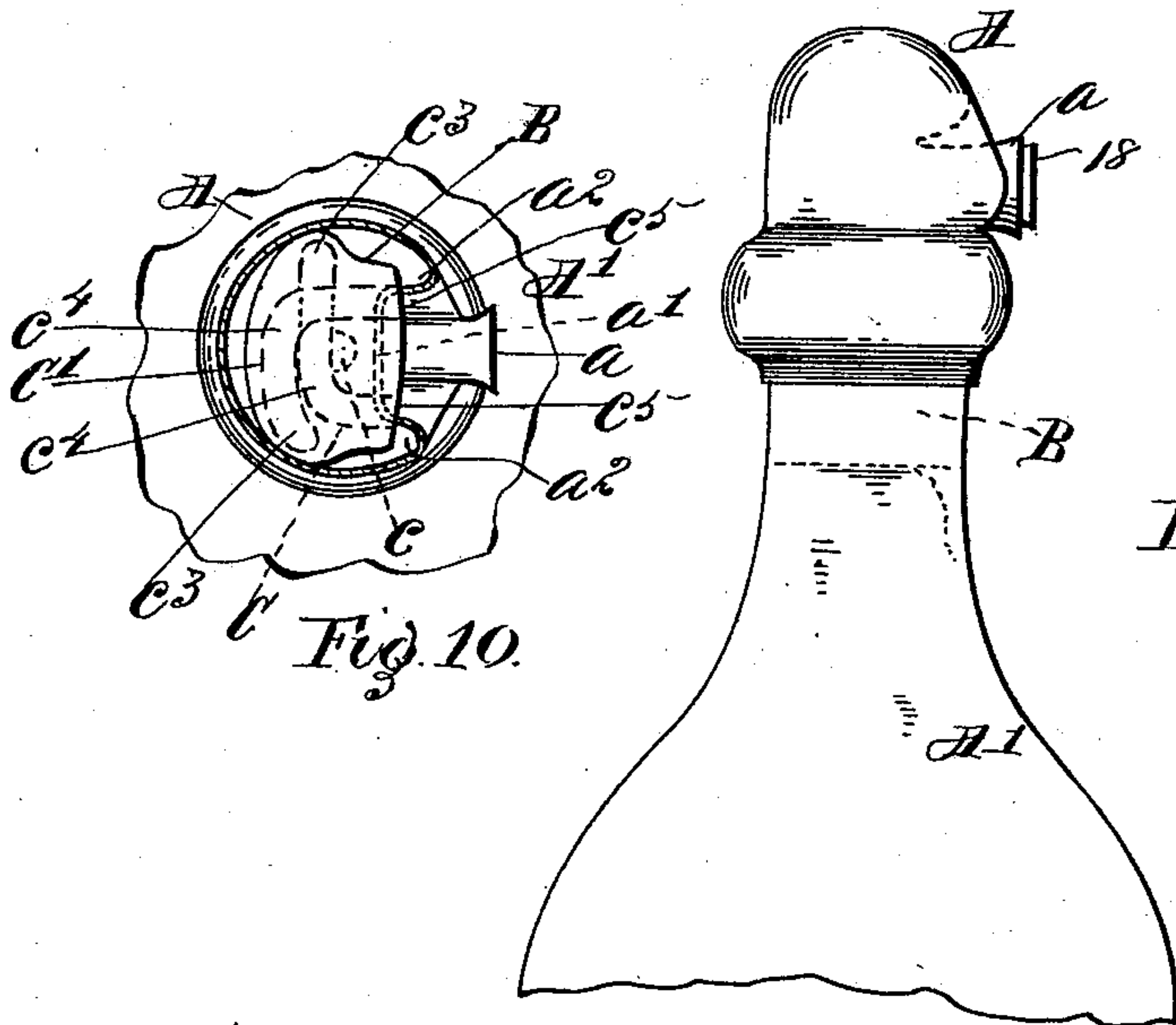
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3 Sheets—Sheet 2.



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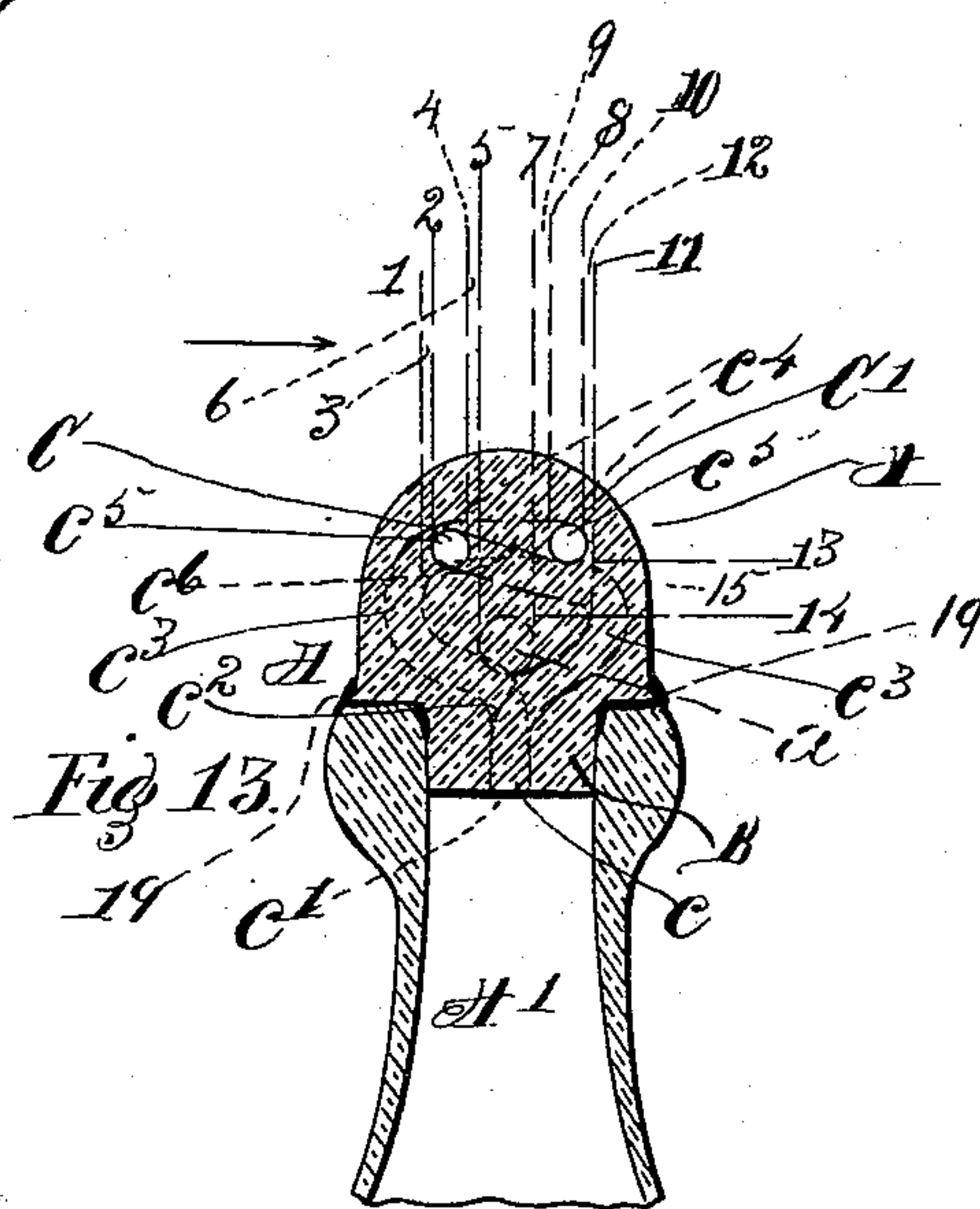
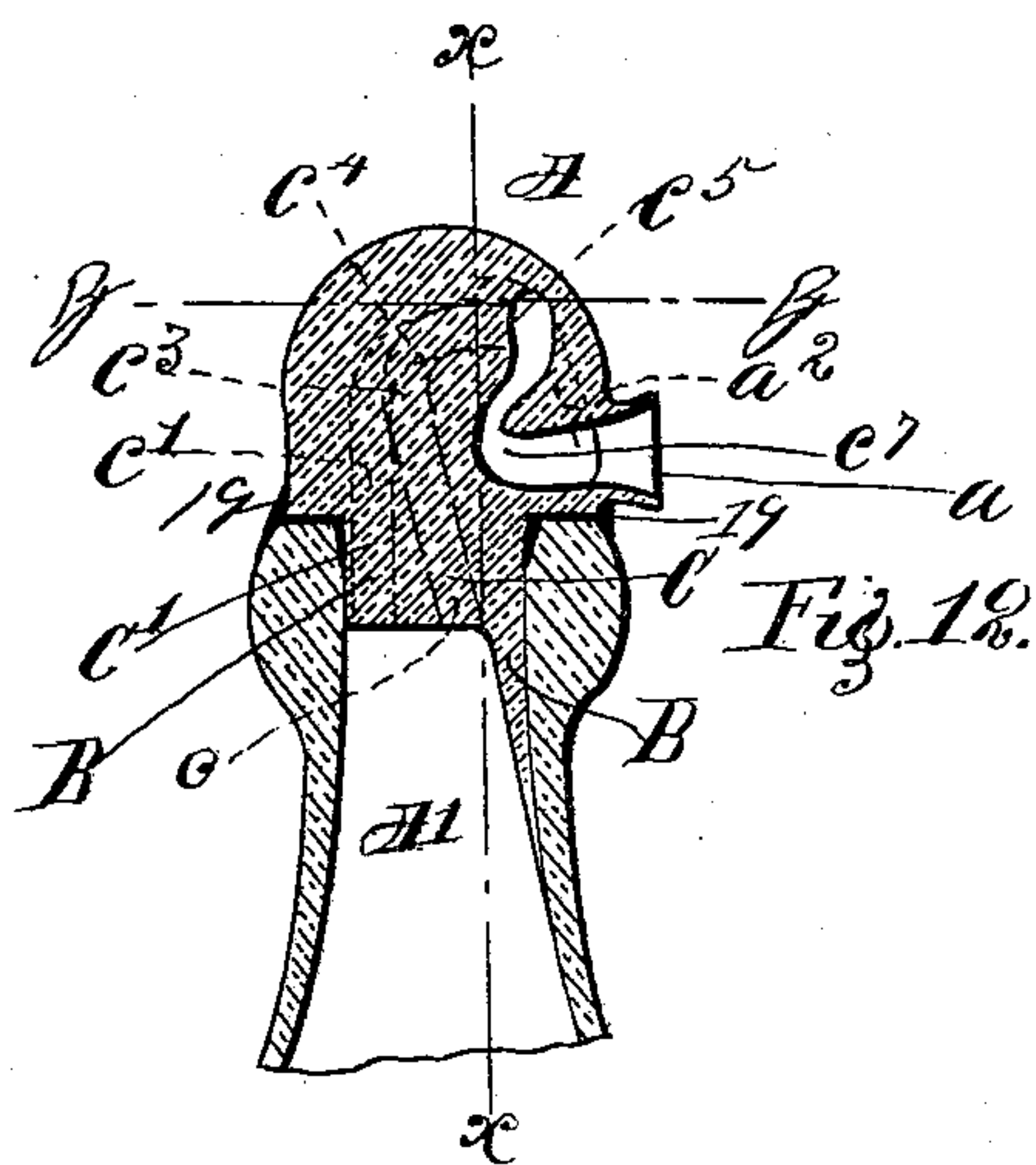
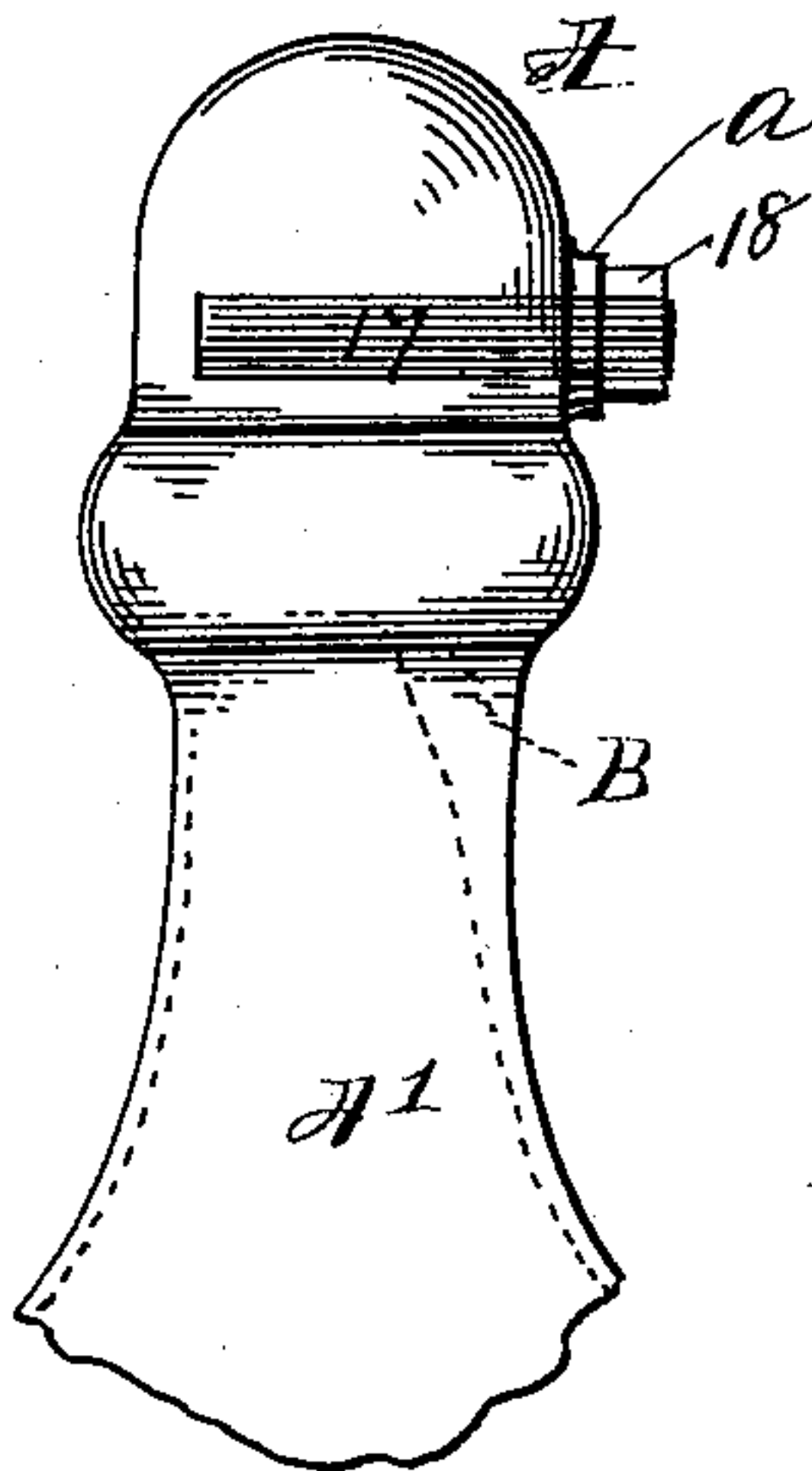
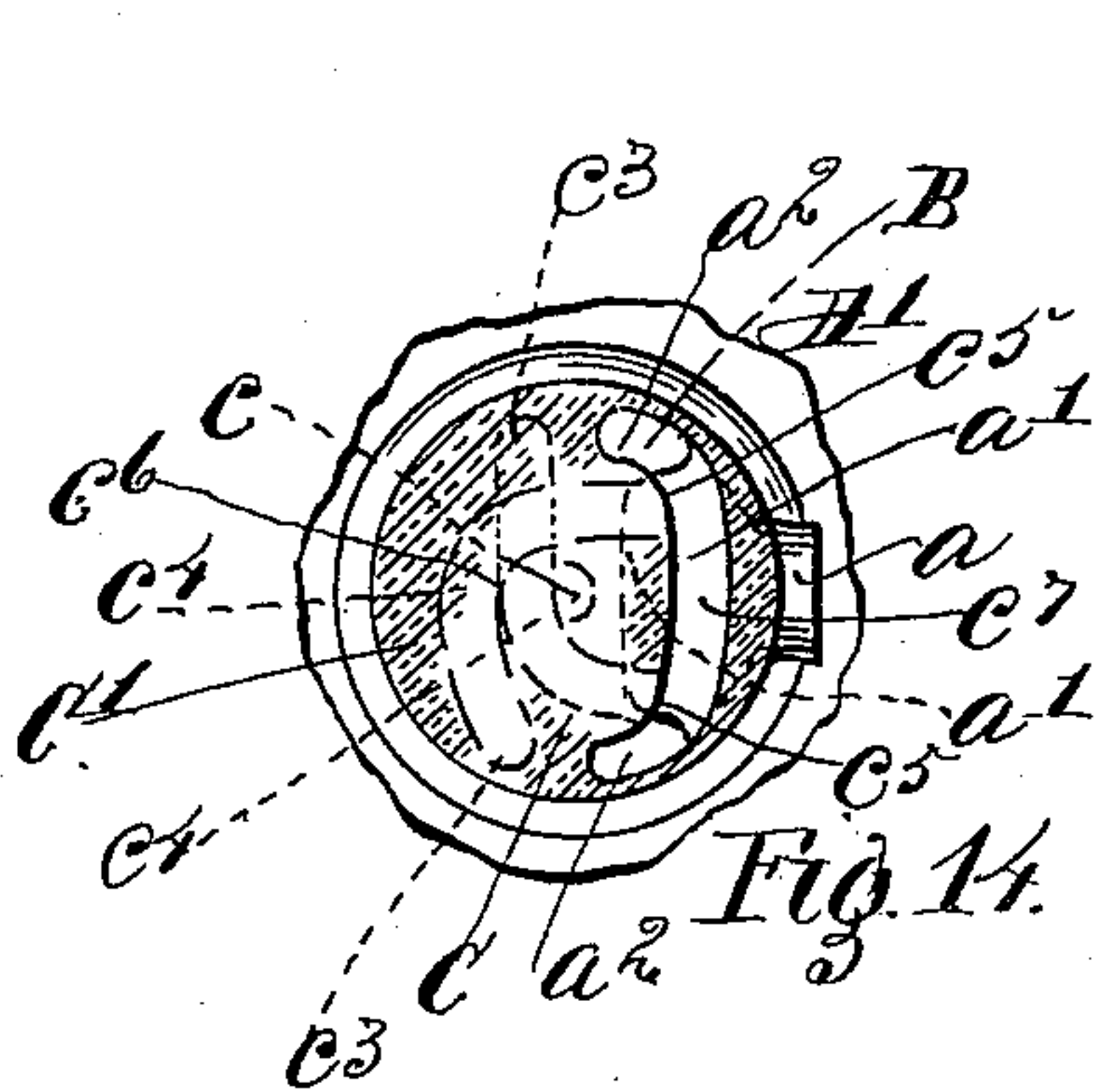
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3 Sheets—Sheet 3.



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# UNITED STATES PATENT OFFICE.

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## BOTTLE.

SPECIFICATION forming part of Letters Patent No. 615,951, dated December 13, 1898.

Application filed March 11, 1898. Serial No. 673,431. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN C. BEAN, of Cambridge, in the county of Middlesex, State of Massachusetts, have invented a new and useful Bottle, of which the following is a specification.

The object of my invention is to attain a discharge-head of a bottle that will prevent the bottle being refilled after the contents have been poured out of the bottle, whether entirely or partially poured out, the purpose of which is to protect the liquid in the original package and to prevent other liquid being placed within in substitution, which I attain in the following manner:

Figure 1 is a portion of a bottle, showing my invention. Fig. 2 is a sectional view illustrating my invention. Fig. 3 is a sectional view on line  $x x$ , Fig. 2. Fig. 4 is a sectional view on line  $y y$ , Fig. 2. Fig. 5 is a transverse section on line  $z z$ , Fig. 2. Fig. 6 is a modification in the construction of my invention, and Figs. 7, 8, 9, and 10 are views showing same in detail. Fig. 11 is a modification of my invention, and Figs. 12, 13, and 14 are views illustrating same in detail.

A represents the cap or head of my bottle  $A'$ , which has the discharge passage-way  $a$  and the indented portion  $a'$ , which form the channels  $a^2$ . This cap or head is in design such as to present a round head and hug tight the customary head of a bottle, so as to prevent the cap being removed without destruction from off the head of the bottle in the manner as shown by the drawings, particularly Figs. 1 and 2, as well as the other views.

B denotes the cork stopper forced hard in the neck of the bottle, and  $b$  represents a filling within the neck of the bottle and on top of the cork stopper, which in substance may be either wax, cement, or glass-filling, or any other suitable substance or material, so as to effect an efficient sealing of the contents within the bottle and not affect the liquid contained within the bottle.

C represents a passage-way, and  $C'$  a similar passage-way, which pass through both the filling  $b$  and the cork B.  $C'$  is intended to be the air passage-way, and C is the liquid pas-

sage-way; but either one will act in the same capacity as the other. The first-mentioned use of the passage-ways is more satisfactory, as the last drop of the liquid in the bottle can be more conveniently poured out, as will be readily seen by observing the drawings and which will be fully described hereinafter. The passage-way C is shaped with the transversely-projecting curve  $c$  and has its discharge end turned so as to project approximately at right angles to the plane of the rest of the discharge passage-way, and the air passage-way is in shape and form identical with the passage-way C, the description of which I will now more minutely relate. Before I proceed with this description of the passage-ways I desire to state that there is one difference between the passage-ways, and that consists in the discharge passage-way having its vertical end  $c$  on a slight angle, while the vertical portion of the air passage-way  $c'$  is more near to being perpendicular, the purpose of which will be fully explained hereinafter. The vertical portions  $c$  and  $c'$  of my passage-ways turn about a right angle, as represented by  $c^2$ , and then turn a U-bend, as denoted by  $c^3$ , returning to a point above the first angle  $c^2$  and beyond the first angle to a certain point represented by  $c^4$ . At  $c^4$  it makes another U-bend, throwing the passage-ways respectively approximately into a position at about right angles to the plane of the respective passage-ways. The passage-ways in this last position described extend to a point denoted by the letter  $c^5$ . Attention is called to Fig. 13 to more fully understand the following description of my passage-ways: Figs. 2 and 4 illustrate the respective positions of the vertical portions  $c$  and  $c'$  to each other, the latter,  $c'$ , directly behind the former, as is shown clearly by Fig. 4, while Fig. 2 illustrates that the two passage-ways run very close to each other at the point represented by the letter  $c^6$ ; but in no position of the passage-ways do they become in circuit with each other other than each of the passage-ways at one and the same time and at the same point (denoted by the letter  $c^5$ ) respectively become in circuit with the interior space  $c^7$ . In other words, the point of end-



ing of the air passage-way in the space  $c^7$  is the same and equal to the point of ending of the discharge passage-way.

The line 1 represents the right-hand edge 5 of the passage-way  $C'$  at the point  $c^3$  in its circuit, and the line 2 denotes the left-hand edge of the passage-way  $C$  at the point  $c^5$  in its circuit, which establishes or makes the space 3. This space 3 is one of the essential 10 features of this my invention in that it determines the position that the bottle must be immersed in liquid—namely, over the point in the passage-way  $C'$  indicated by the line 1—in order to permit the liquid to pass through 15 the passage-way  $C'$  into the bottle, which the liquid cannot do, for the reason that the passage-way  $C$  has its discharge end completely immersed, and by a further reason that the educt of the bottle (represented by  $a$ ) is also 20 immersed, which prevents the air in the bottle having a discharge out of the bottle in order for the fluid or liquid to enter the bottle in this manner. Assuming that the line 1 is the 25 level of the liquid desired to be put in the bottle in this manner, looking in the direction denoted by the arrow, it will be seen that the passage-ways end and the educts are all three immersed.

Line 4 denotes the right-hand edge of the 30 passage-way  $C$ , and the line 5 represents the left-hand edge of the educt  $a$ , which two points create the space 6, which is another essential feature of my invention in that this space 6 makes it necessary to immerse the 35 educt passage-way in order to permit the liquid to pass through the passage-way  $C$  in order to enter the bottle, which the liquid cannot do, for the reason that the air in the bottle has no way to discharge out of the bottle, 40 thus preventing the liquid from entering the bottle.

The lines 7 and 8 respectively indicate the right-hand edge of the educt passage-way and the left-hand edge of the passage-way 45  $C'$ , which forms the space 9 that attains the same results as the spaces 3 and 6 when the bottle is immersed in liquid on its opposite side and in the same relation to the water or liquid desired to be entered into the bottle 50 in this manner, and the lines 10 and 11 respectively indicate the right-hand edge of the passage-way  $C'$  and the left-hand edge of the passage-way  $C$ , the former edge being at the extreme of the passage-way as it enters into 55 the space  $c^7$ , as represented by  $c^5$ , and the latter edge being at the point in this passage-way's circuit, (denoted by  $c^3$ ), which creates the space 12, another essential feature of this my invention, which attains the same result 60 as that described of space 3 when the bottle is positioned in liquid, as mentioned of space 9.

The lines 13 and 14 respectively represent 65 the bottom edges of the respective passages  $C$  and  $C'$  and the upper edge of the educt passage-way  $a$ , which determines the space 15 between the two edges, which is another essential feature of my invention in that this space makes

the bottle have to be immersed in the liquid, so as to cut off all vent of air through the educt before the liquid is allowed to enter 70 through the passage-ways  $C$  and  $C'$ , that arrest the flow of the liquid through the passage-ways or either of them, as to prevent the liquid from entering the bottle when the bottle is immersed in the liquid in a vertical or per- 75 pendicular position.

The dotted circle drawn on Figs. 4 and 13, representing the educt, is merely so drawn on said views for the purpose of clearly designating the relative position of the educt 80 with the passage-ways  $C$  and  $C'$  and is not intended to represent an opening in the back of the surface in front, but should be understood to have no other purpose than to give the relative position, as just mentioned. 85

It will be seen that it does not matter in what position my bottle is immersed in liquid, that at all times and in any position the air-vent of my bottle is first cut off completely before the liquid has arrived at that 90 point to permit it to flow through the passage-ways or either of them into the bottle, which is the most important feature of my invention attained by my peculiar passage-ways and educt-passages, as herein described, and 95 to be more fully mentioned.

Referring to the indention or inwardly-projecting portion  $a$  of the cap or head of the bottle  $A$ , this projection is to prevent the insertion of a device to reach the respective 100 ends of the passage-ways  $C$  and  $C'$ , so as to direct the flow of liquid down one of the passage-ways without interrupting the other passage-way so as to permit the discharge of air out of the bottle by passing through 105 the passage-way not interfered with and the educt-passage not wholly closed by either the device or the inflowing liquid or fluid.

The numerals 16, 17, and 18 respectively represent trade-mark seals that may be applied 110 either over the head or cap of my bottle, as shown by Fig. 9, or over the cork and on the head, as shown by Fig. 11, and the cork just mentioned. This vertical portion  $c$  of the passage-way  $C$  is designed on an angle, as 115 illustrated, for the purpose of effecting a discharge of the liquid within so as to conveniently pour out the last drop contained within the bottle and as to not require the bottle to be inverted to pour out the contents from the 120 ordinary inclination now required in the use of ordinary bottles.

The educt  $a$  determines in what position the bottle is to be held in order to effect a satisfactory discharge from the bottle, which 125 position in its turn determines which passage-way is the air passage-way, as represented by  $C'$ , before mentioned, as the lower passage-way  $C$  will take the lead in the discharge of the liquid, owing to its lower position, while the upper passage-way, by reason 130 of its position, will permit the air to be drawn therethrough from the outside of the bottle through the educt into the interior of the bot-



tle, owing to the suction caused by the discharge of the liquid or fluid through the lower passage-way C and out through the educt. This educt is made in diameter sufficient to efficiently discharge the outpouring liquid and at the same time permit air to pass through the educt into the space  $c^7$  to be drawn through the passage-way C' into the interior of the bottle, and thus attain an efficient discharge of the liquid within the bottle. When the liquid is being discharged, it will flow down the channels  $a^2$  more directly than any other way, as the inward projection  $a'$  will so direct the liquid, which is so designed as to attain an immediate discharge of the liquid discharged out of the discharge passage-way C.

The cap or head of my bottle may consist of any suitable metal, such as lead or brass, stamped to shape and efficiently fitted on the head of the bottle in such a manner as to be destroyed when removed, as represented by Fig. 1 and its detail views.

Fig. 6 and its detail views show that the passages C and C' may be cast in the stopper B, making one piece of these parts, while Fig. 11 and its detail views illustrate that the metallic cap can be dispensed with, and the passage-ways C and C', the space  $c^7$ , the channels  $a^2$ , the inward projection  $a'$ , the educt  $a$ , and the head and the stopper portion B may be cast in one piece without changing my invention in one essential particular.

The dark portion (indicated by the numeral 19) represents cement or glass filling or glazing used to efficiently attach the head to the bottle so as to prevent it being removed without being destroyed, and thus destroying the bottle. This cementing of the head to the neck of the bottle effects an efficient sealing of the bottle as to their relation to each other, while the manipulating-cork seals the bottle as to its relation therewith.

18 is the manipulating-cork referred to.

In order to fill my bottle, it is necessary to do it before the head portion or portions are fitted in and onto the neck of the bottle and fixedly united thereto as to become a whole, as is customary to fill ordinary bottles before the bottle is sealed by the customary insertion of an ordinary cork. After the bottle is filled and the head portion has been efficiently united to the body of the bottle and the manipulating-cork has been inserted in the educt of my bottle and sealed in the bottle, as is customary with those who use bottles to sell their liquids or fluids, all that is necessary to discharge the contents of the bottle is to break the seal on the manipulating-cork and extract the cork in the usual manner and incline the bottle, as is customary, and that contained within the bottle will pour out, but cannot be poured back, the object of my invention.

Having described my invention, I claim—

1. A bottle consisting of a containing-receptacle portion, a discharge-head portion, such discharge-head portion being made separate, and designed to efficiently engage the dis-

charge end of the containing-receptacle portion, and being fixedly united to the discharge end of the containing-receptacle portion of the bottle, two passage-ways in circuit with the containing-receptacle of the bottle, beginning at a point directly opposite to each other, and respectively in close relation to the respective inner sides of the discharge end of the containing-receptacle portion, the passage-ways passing upward through the fixed discharge-head in a vertical direction, one of the passage-ways verging toward the other from its point of beginning until in close relation to the opposite passage-way, the two passage-ways turning an approximate right-angle bend at this point of close relation to each other so as to respectively point in opposite directions, the two passage-ways then making a U-bend and pointing toward each other, then running transversely past each other so as to approach the other's U-bend, and to a point between where the passage-ways made the respective first approximate right-angle bend and the inner edge of the inner extreme point in their respective U-bend, the two passage-ways then turning an approximate right-angle bend to the plane of their respective course, the passage-ways then running in this direction for a distance, and entering a space within the discharge-head portion at a point equal to each other, the point in the respective course of the passage-ways where they respectively make a first approximate right-angle bend being the central point of the respective passage-ways' courses from that point until they become in circuit with the space in common to both just mentioned, the common space in circuit with both the passage-ways, an inwardly-projecting portion of the discharge-head portion, such projecting portion in close opposite relation to the two passage-ways' ends that become in circuit with the one common space within the discharge-head portion, and such inwardly-projecting portion extending forward within the common space and under that portion of the two passage-ways where they extend forward after making an approximate right-angle turn to their transverse running-plane, an educt-passage in the discharge-head portion, such discharge educt-passage being below the inwardly-projecting portion, in circuit with the interior common space, and being in diameter sufficient to efficiently discharge the liquid permitted to enter the common space from the passage-ways, and to permit air to pass through the educt at the same time to enter the common space, and pass through the passage-ways into the containing-receptacle portion of the bottle, and being designed to efficiently receive a sealing and manipulating cork, substantially as, and for the purpose described.

2. In a bottle, the combination with an ordinary bottle, of a discharge-head portion designed to efficiently engage the discharge end of the bottle, and being fixedly connected to



the discharge end of the bottle, two passage-ways in circuit with the containing-receptacle of the bottle, beginning at a point directly opposite to each other, and respectively in close relation to the respective inner sides of the discharge end of the bottle, the passage-ways passing upward through the fixed discharge-head in a vertical direction, one of the passage-ways verging toward the other from its point of beginning until in close relation to the opposite passage-way, the two passage-ways turning an approximate right-angle bend at this point of close relation to each other so as to respectively point in opposite directions, the two passage-ways then making a U-bend and pointing toward each other, then running transversely past each other so as to approach the other's U-bend, and to a point between where the passage-ways made the respective first approximate right-angle bend and the inner edge of the inner extreme point in their respective U-bend, the two passage-ways then turning an approximate right-angle bend to the plane of their respective course, the passage-ways then running in this direction for a distance, and entering a space within the discharge-head portion at a point equal to each other, the point in the respective course of the passage-ways where they respectively make a first approximate right-angle bend being the central point of the respective passage-ways' courses from that point until they become in circuit with the space in common to both just mentioned, the common space in circuit with both the passage-ways, an inwardly-projecting portion of the discharge-head portion, such projecting portion in close opposite relation to the two passage-ways' ends that become in circuit with the one common space within the discharge-head portion, and such inwardly-projecting portion extending forward within the common space and under that portion of the two passage-ways where they extend forward after making an approximate right-angle turn to their transverse running-plane, an educt-passage in the discharge-head portion, such discharge educt-passage being below the inwardly-projecting portion, in circuit with the interior common space, and being in diameter sufficient to efficiently discharge the liquid permitted to enter the space from the passage-ways, and to permit air to pass through the educt at the same time to enter the common space, and pass through the passage-ways into the containing-receptacle portion of the bottle, and being designed to efficiently receive a sealing and manipulating cork, substantially as described.

3. A discharge-head portion designed to efficiently engage the discharge end of a bottle, and to be fixedly united to the discharge end of a bottle in such a manner as to effect an entirety, having two passage-ways in circuit with the containing-receptacle of a bottle when affixed thereto beginning at a point directly opposite to each other, and designed

to be respectively in close relation to the respective inner sides of the discharge end of the bottle, the passage-ways passing upward in a vertical direction, one of the passage-ways verging toward the other from its point of beginning until in close relation to the opposite passage-way, the two passage-ways turning an approximate right-angle bend at this point of close relation to each other so as to respectively point in opposite directions, the two passage-ways then making a U-bend and pointing toward each other, then running transversely past each other so as to approach the other's U-bend, and to a point between where the passage-ways made the respective first approximate right-angle bend and the inner edge of the inner extreme point in their respective U-bend, the two passage-ways then turning an approximate right-angle bend to the plane of their respective course, the passage-ways then running in this direction for a distance, and entering a space within the discharge-head portion at a point equal to each other, the point in the respective course of the passage-ways where they respectively make a first approximate right-angle bend being the central point of the respective passage-ways' courses from that point until they become in circuit with the space in common to both just mentioned, the common space in circuit with both the passage-ways, an inwardly-projecting portion of the discharge-head portion, such projecting portion in close opposite relation to the two passage-ways' ends that become in circuit with the one common space within the discharge-head portion, and such inwardly-projecting portion extending forward within the common space and under that portion of the two passage-ways where they extend forward after making an approximate right-angle turn to their transverse running-plane, an educt-passage in the discharge-head portion, such discharge educt-passage being below the inwardly-projecting portion, in circuit with the interior common space, and being in diameter sufficient to efficiently discharge the liquid permitted to enter the space from the passage-ways and to permit air to pass through the educt at the same time to enter the common space and pass through the passage-ways into the containing-receptacle portion of a bottle, and being designed to efficiently receive a sealing and manipulating cork, substantially as, and for the purpose described.

4. In a bottle, the receptacle-body portion of a bottle A', the cork-stopper portion B, such fixedly fitted in the neck of the receptacle-body portion below the horizontal edge of the discharge end of the receptacle-body portion, the filling-stopper portion b, the passage-ways C and C', such passing through the stopper and stopper-filling portions, and extending out of the stopper and above the top surface of the stopper, the two passage-ways in circuit with the containing-receptacle of the bottle, beginning at a point directly opposite to



each other, and respectively in close relation to the respective inner sides of the discharge end of the containing-receptacle portion of the bottle, the passage-ways passing upward one in a perpendicular direction, and the other verging toward the other from its point of beginning until in close relation to the opposite passage-way, the two passage-ways turning an approximate right-angle bend at this point of close relation to each other so as to respectively point in opposite directions, the two passage-ways then making a U-bend and toward each other, then running transversely past each other so as to approach the other's U-bend, and a point between where the passage-ways made the respective first approximate right-angle bend and the inner edge of the inner extreme point in their respective U-bend, the two passage-ways then turning an approximate right-angle bend to the plane of their respective course, the passage-ways then running in this direction for a distance above the top surface of the filling portion of the stopper, and ending at a point equal to each other, the point in the respective course of the passage-ways where they respectively make a first approximate right-angle bend being the central point of the respective passage-ways' courses from that point until they become in circuit with a space in common to both hereinafter set forth, the cap A, the inwardly-projecting portion  $a'$ , and the discharge-educt  $a$ , the cap being made of suitable material, and being fixedly connected to the neck of the bottle, and inclosing the passage-ways, and the inwardly-projecting portion being in close opposite relation to the two passage-ways' ends above the top filling-surface of the stopper, and extending forward within the space created by the cap being connected to the neck of the bottle, and under that portion of the passage-ways where they extend forward after making an approximate right-angle turn to their transverse running-plane, and the educt in the cap being below the inwardly-projecting portion of the cap, and above the top surface of the stopper-filling portion, and being designed to receive a manipulating-cork, substantially as described.

5. In a bottle, the combination of an ordinary bottle, a stopper having the two passage-ways C and C', such stopper entering the neck of the bottle, and being fixedly united thereto, the two passage-ways in circuit with

the interior of the bottle, beginning at a point directly opposite to each other, and respectively in close relation to the inner sides of the neck of the bottle, the passage-ways passing upward, one in a perpendicular direction, and the other verging toward the other from its point of beginning until in close relation to the opposite passage-way, the two passage-ways turning an approximate right-angle bend at this point of close relation to each other so as to respectively point in opposite directions, the two passage-ways then making a U-bend and pointing toward each other, then running transversely past each other so as to approach the other's U-bend, and a point between where the passage-ways made the respective first approximate right-angle bend and the inner edge of the inner extreme point in their respective U-bend, the two passage-ways then turning an approximate right-angle bend to the plane of their respective course, the passage-ways then running in this direction for a distance, and ending at a point equal to each other, the point in the respective course of the passage-ways where they respectively make a first approximate right-angle bend being the central point of the respective passage-ways' courses from that point until they become in circuit with a space in common to both hereinafter set forth, the cap A, the inwardly-projecting portion  $a'$ , and the discharge-educt  $a$ , the cap being made of suitable material, and being fixedly united to the neck of the bottle, and inclosing the stopper with its passage-ways, and the inwardly-projecting portion being in close opposite relation to the two passage-ways' ends, and extending forward within the space created by the cap being connected to the neck of the bottle, and under that portion of the stopper where the passage-ways extend forward after making an approximate right-angle turn to their transverse running-plane, and the educt in the cap being below the inwardly-projecting portion of the cap, and above the neck end of the bottle, and being designed to receive a manipulating-cork, substantially as described.

In testimony whereof I have set my hand to this my application this 1st day of March, A. D. 1898.

JOHN C. BEAN.

Witnesses:

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LORING W. BARNES.