

(No Model.)

G. GRAY.

BOTTLE NECK AND TOOL FOR THREADING SAME.

No. 509,525.

Patented Nov. 28, 1893.

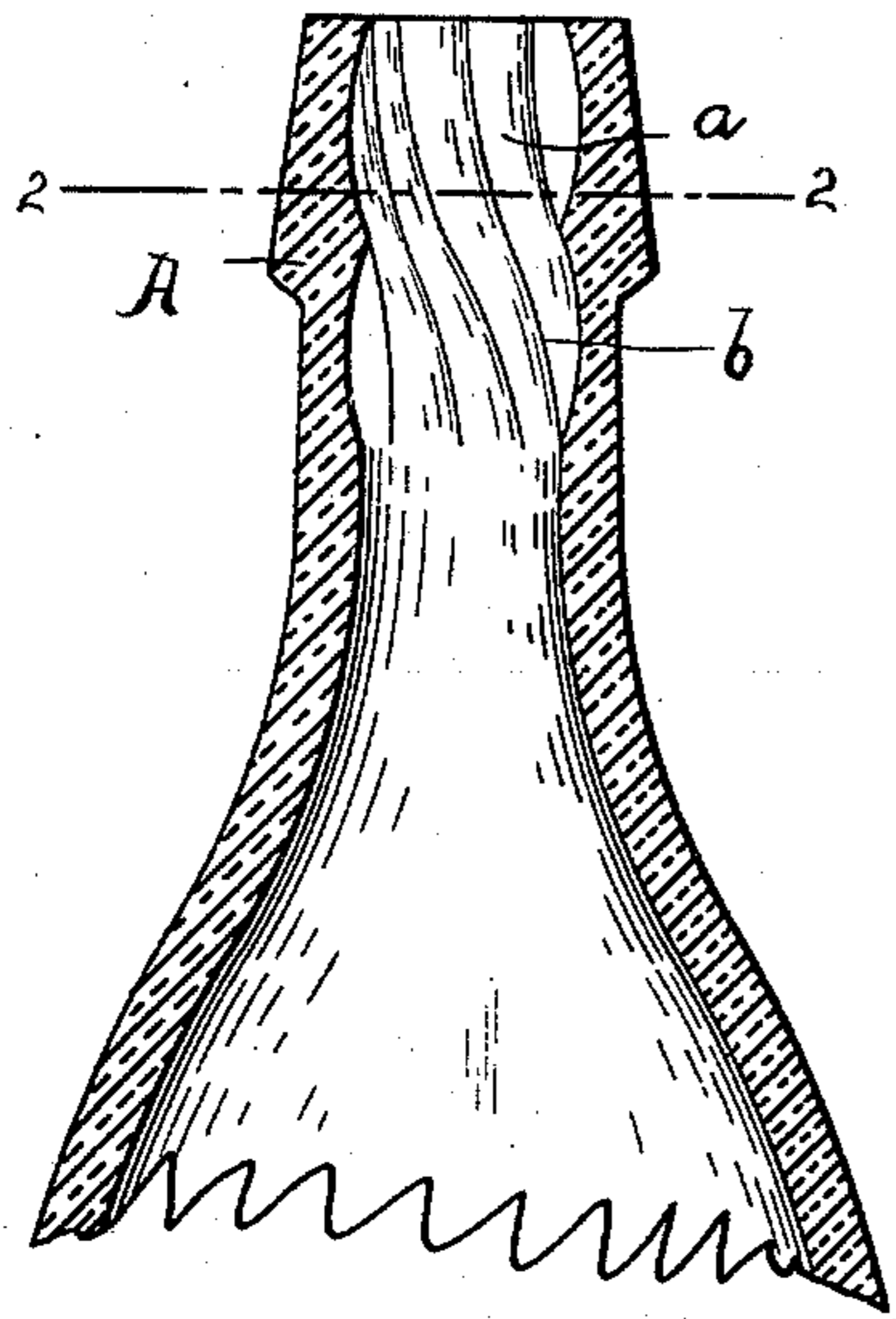


Fig. 1.

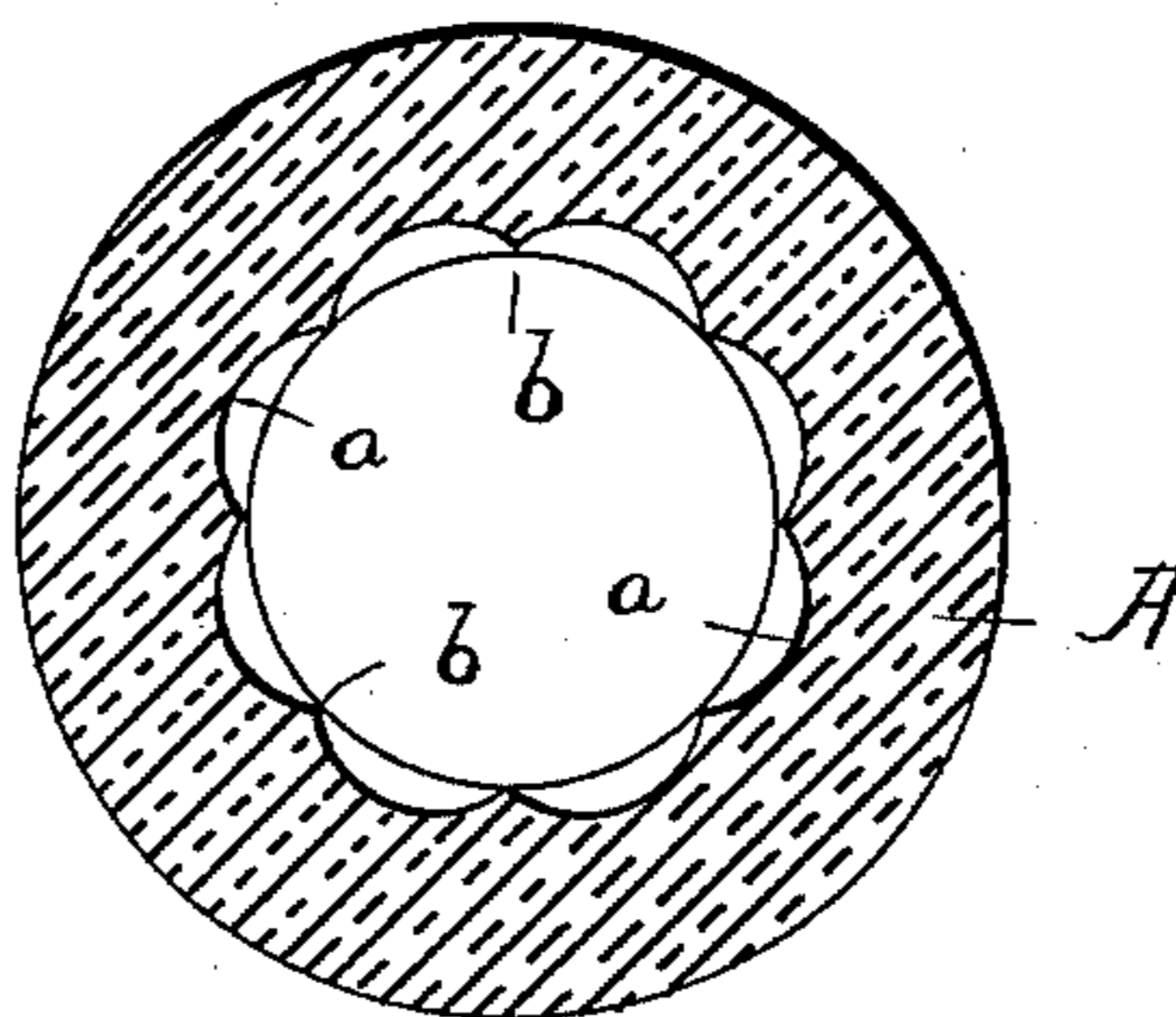


Fig. 2.

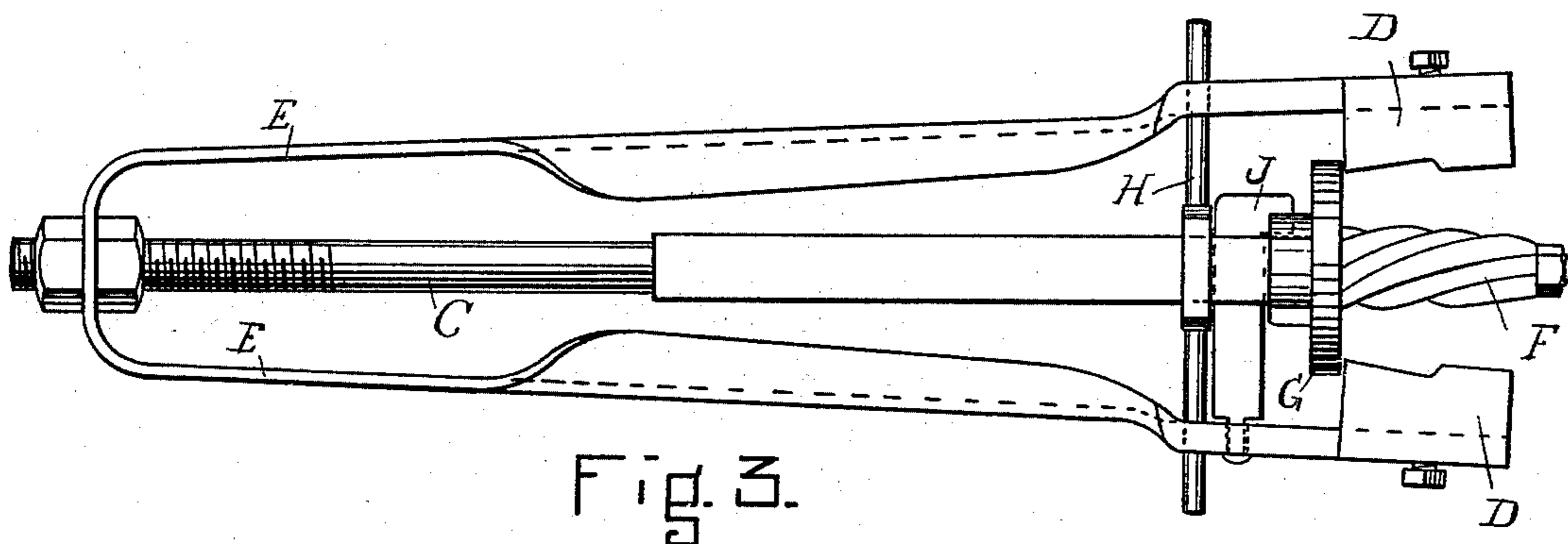


Fig. 3.

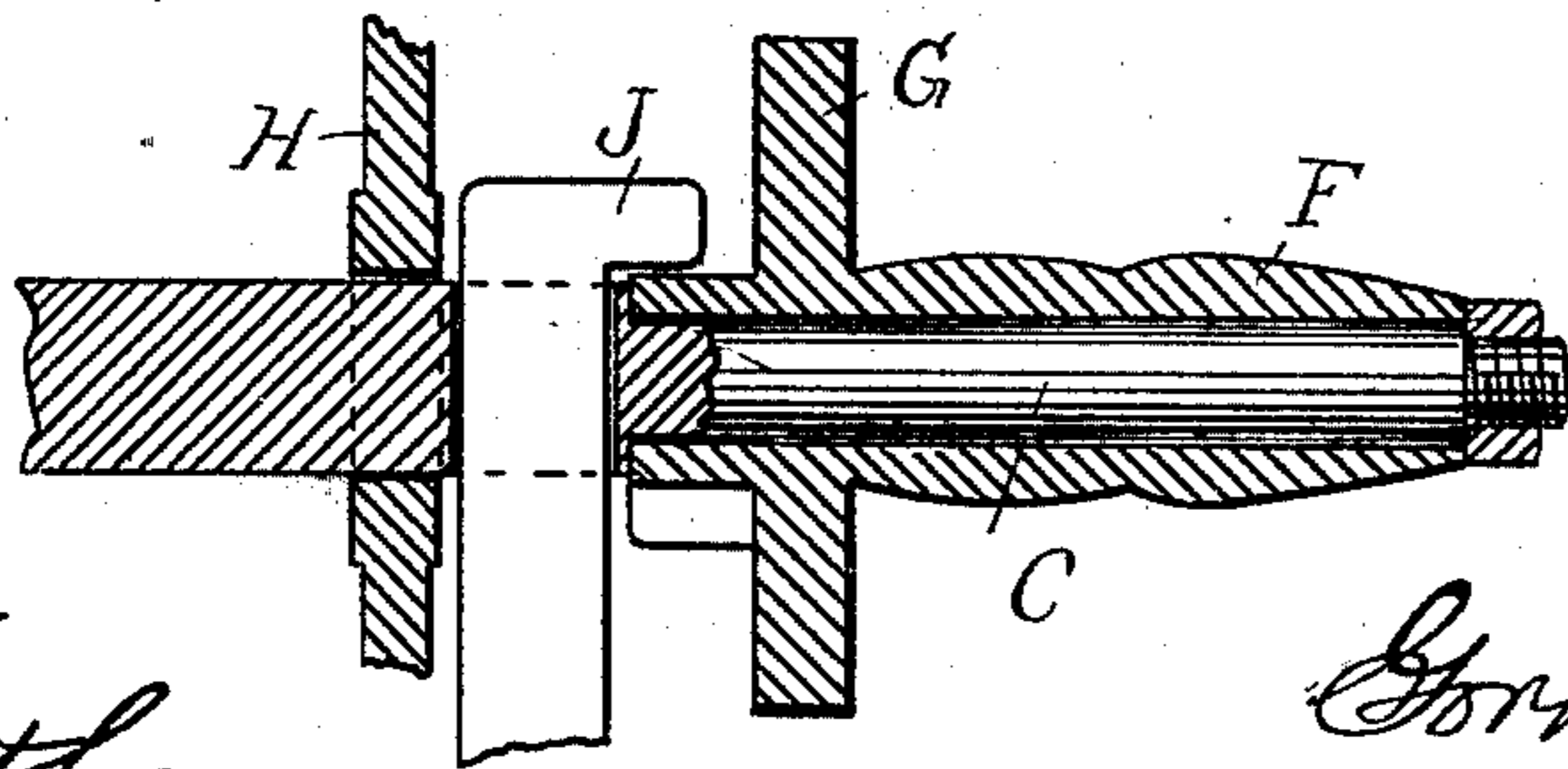


Fig. 4.

WITNESSES.

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BOTTLE-NECK AND TOOL FOR THREADING SAME.

SPECIFICATION forming part of Letters Patent No. 509,525, dated November 28, 1893.

Application filed September 9, 1892. Serial No. 445,402. (No model.)

To all whom it may concern:

Be it known that I, GORHAM GRAY, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Bottle-Necks and Tools for Threading the Same, of which the following taken in connection with the accompanying drawings, is a specification.

My improvements relate to the internal threading of the necks of bottles with a view to the more secure corking thereof, and my invention includes not only the peculiarly threaded neck shown and described, but also the tool or device by which such threading is performed.

My bottle neck is peculiar in having a plurality of internal smooth and unbroken spiral angular ridges of such sharp pitch that the cork can be driven into place by a quick blow or by the movement of a reciprocating plunger, the cork in such movement or under such blow making the partial rotation due to the sharp pitch of the threads, which must be at an angle to the axis not exceeding thirty-five degrees. With this pitch, adapting the bottle to the driving in of its cork, numerous short parallel threaders will be formed, in distinction from the single continuous spiral of the ordinary screw thread, into which the cork could not be driven by mere impact without mutilating its periphery. This internal threading is peculiar also in having, in cross section, a succession of broad, concave, spirally inclined panels separated by inwardly extending angular ridges, more or less acute, where the edges of such panels meet, such ridges forming threaders in the bottle neck to spirally indent the periphery of the cork, while the broad panels between them receive in their concave curves the body of the cork which can enter grooves of such character as it could not the abrupt grooves of an ordinary screw-thread.

Another feature of my invention is embodied in the peculiar tool by which I form these internal panels and ridges at the time the bottle neck is formed, and without a second handling. The novel portion of said tool is a spirally grooved core or former rotatably mounted on a central spindle between two

laterally movable jaws which externally seize the end of the bottle neck while said core or former extends axially into it, thereby forming within the neck the desired concave panels and angular ridges, the reverse of the peripheral formation of such core. The core has a broad collar or flange which bears against the upper end of the bottle neck to insure a square, smooth top. The core insures the proper internal form of the neck, with which it may revolve between the jaws while the exterior is being shaped; and when the jaws are retracted, by the action of the spring which connects them, the core will make a partial rotation as the bottle is drawn away from the tool.

In the drawings, Figure 1 is a vertical section through the bottle neck threaded according to my invention, and Fig. 2 an enlarged transverse section on the line 2—2 of Fig. 1. Fig. 3 is a plan of the tool employed to shape the upper end of the bottle neck, and Fig. 4 is an enlarged longitudinal section through the rotatable grooved former and adjacent parts.

The internal threading peculiar to my invention is well represented in Figs. 1 and 2, the inclined concave panels *a* being separated by the angular threaders *b* formed by the lateral junction of adjacent panels. These threaders show the sharp pitch desired for successful driving of the cork, each forming a third or a fourth part of a complete convolution, and each indenting the periphery of the cork while the body thereof, between such indented lines, swells outwardly into the concave panels of the bottle neck. By this construction ready driving and secure corking are attained without requiring any wires, strings or other external fasteners. In order to produce this internal threading when the bottle is formed I have devised the tool shown in Figs. 3 and 4. The spindle *C* is held from rotation between the jaws *D, D*, which are mounted at the free ends of spring arms *E* and shape the outside of the bottle neck *A* in a manner well known, while its interior is formed with the described threading by means of the peculiar core or former *F*. The former *F* is rotatable upon the cylindrical tip

of the spindle C, and its body portion is grooved or threaded spirally in a form the converse of that desired within the bottle-neck, that is, with convex inclined panels separated by sunken angular grooves. The head of the former is provided with a broad flange or collar G, against which the end of the bottle-neck bears while being formed. The plastic material is pressed by the jaws D D toward and around the former, filling its indented grooves and shaping itself internally to the form of the core, the jaws being free to be turned about the exterior of the bottle neck and to press upon all sides of it while the core or former is not disturbed in the glass in which it is embedded until the material is fully hardened. When the spring arms are released they open out to about the position shown in Fig. 3. The cross piece H forms a guide for the spindle, and the latch J may form a lock for the former by entering a notch in its hub when the jaws are retracted.

I am aware of the patent to Young, dated March 27, 1877, No. 189,007, for "cork-fastening bottle-neck," which describes and shows a bottle-neck having a series of sharply inclined, outwardly-extending grooves broken by one or more transverse grooves which cross all of the inclined grooves. This construction is the reverse of mine. In my bottle the sharply inclined ridges or threaders are smooth and unbroken, and their angular edges extend inwardly so as to indent the cork in spiral lines, while the convex cork-body fills out naturally into the concave spaces between the threaders, as it will not fill into narrow and narrowing crevices or grooves, since the nature of the material forbids it. I thus secure immunity from leakage and do not mutilate the cork by breaks in the thread caused by transverse grooves. Cork is too frangible and not sufficiently plastic to enter gas-tight into acutely-terminating grooves, and on removal from such grooves will leave

broken off crumbs or cork-dust which will mingle with the liquid when poured.

I claim as my invention—

1. A bottle having within its neck a plurality of longitudinally-inclined, continuous and unbroken, parallel ridges having angular edges projecting inwardly from the inner wall of the neck, said ridges being separated by parallel, depressed panels and passing partly around the neck in an elongated spiral curve, substantially as set forth.

2. A bottle having within its neck a series of longitudinally-inclined, parallel, concave or outwardly-curved, continuous panels, separated by parallel, inwardly-extending, continuous, angular ridges formed by the abutting edges of such panels, said ridges passing partly around the inner wall of the neck in an elongated spiral curve, and adapted to indent the periphery of the cork, substantially as set forth.

3. The described tool for internally threading bottle-necks, consisting of a pair of spring-pressed jaws and a core-supporting spindle between them, in combination with a rotatable core mounted on said spindle and provided with a plurality of parallel, longitudinally-inclined, sunken, peripheral grooves passing partly around said cord in an elongated spiral curve, said grooves being separated by parallel spaces convex in cross-section, adapting said core to form in the bottle-neck corresponding partially-spiral, inwardly-projecting ridges having angular edges and separated by parallel, concave panels, substantially as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 27th day of August, A. D. 1892.

GORHAM GRAY.

Witnesses:

A. H. SPENCER,
CHARLES G. KEYES.