

No. 624,384.

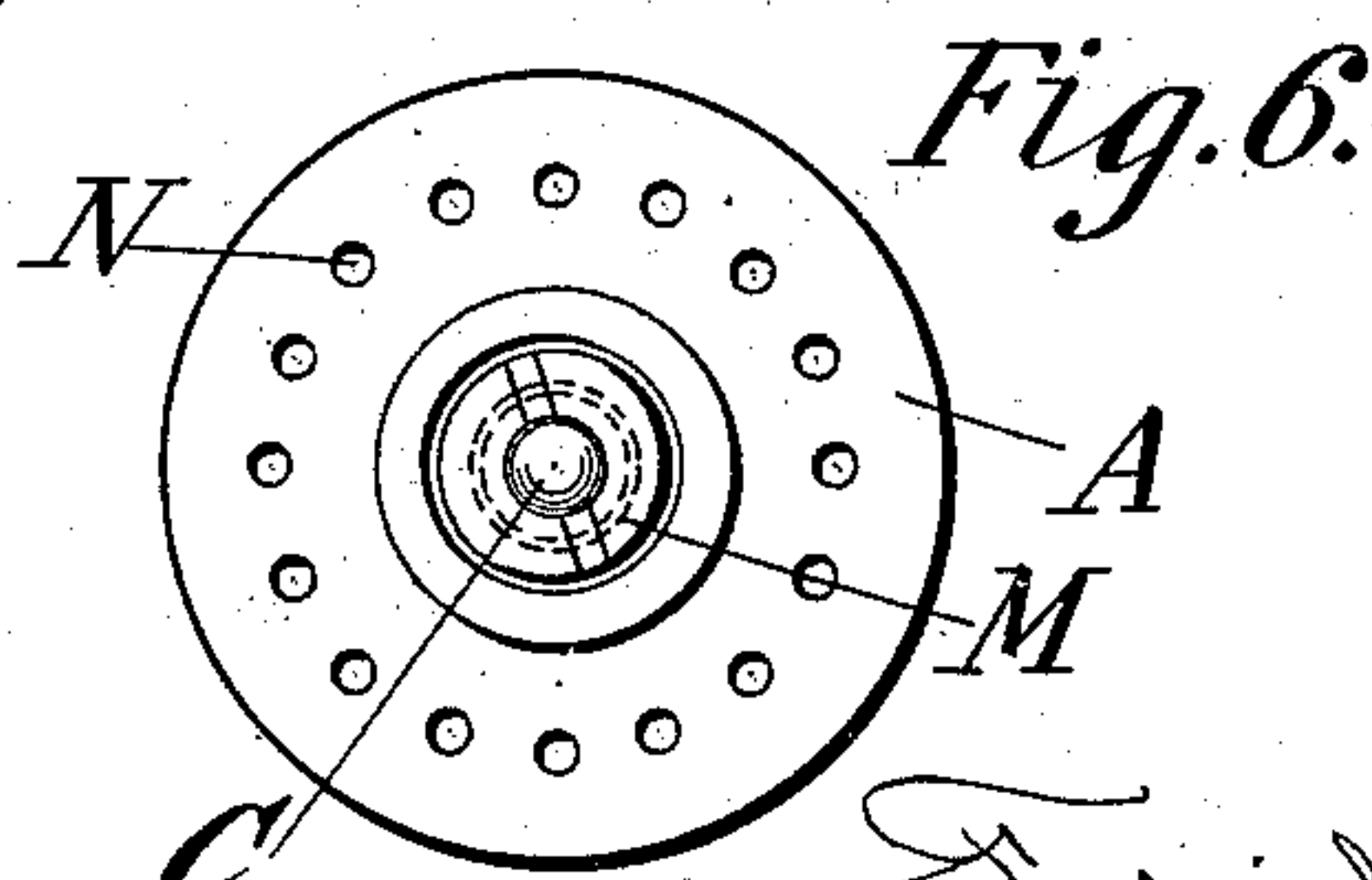
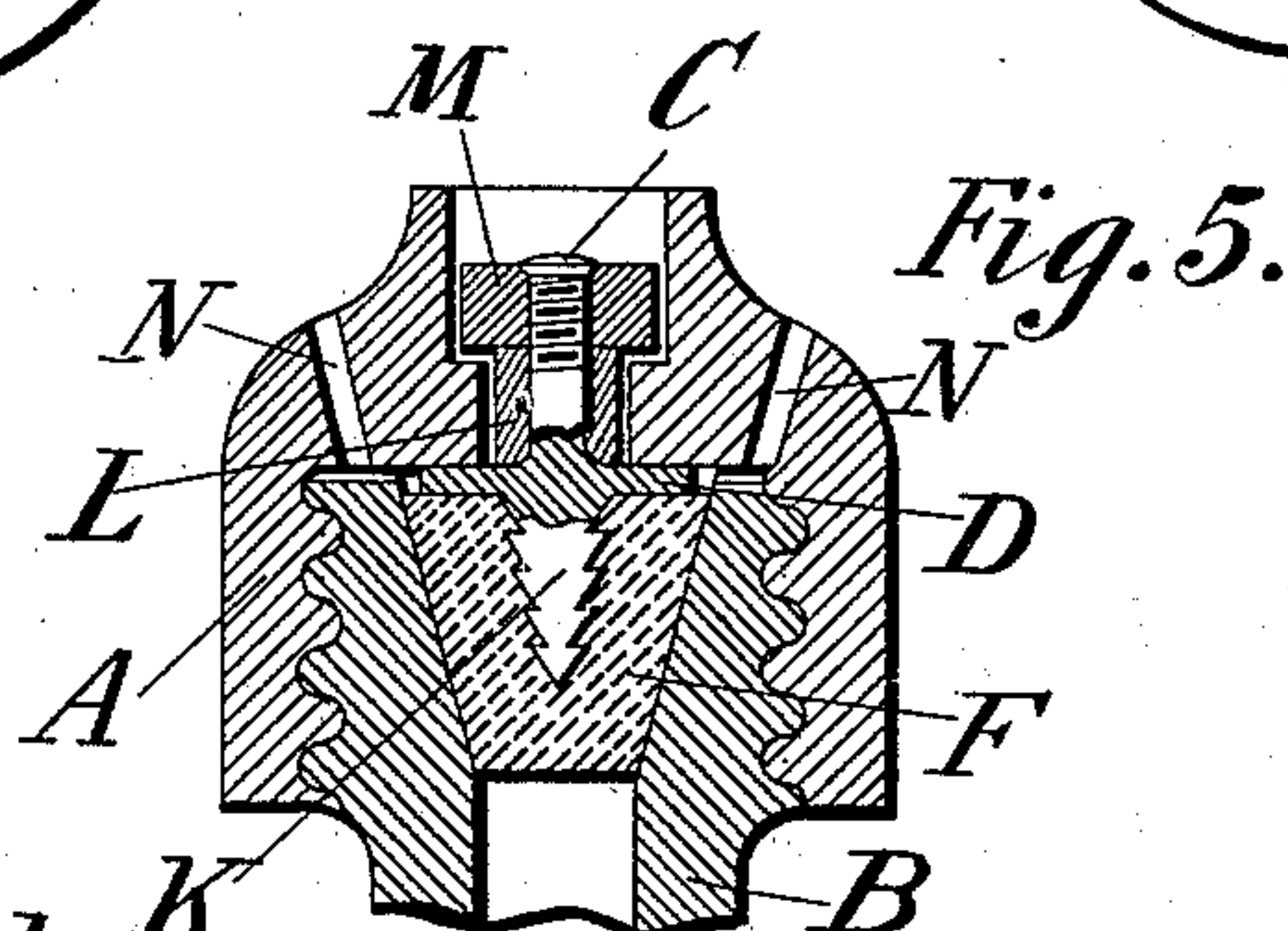
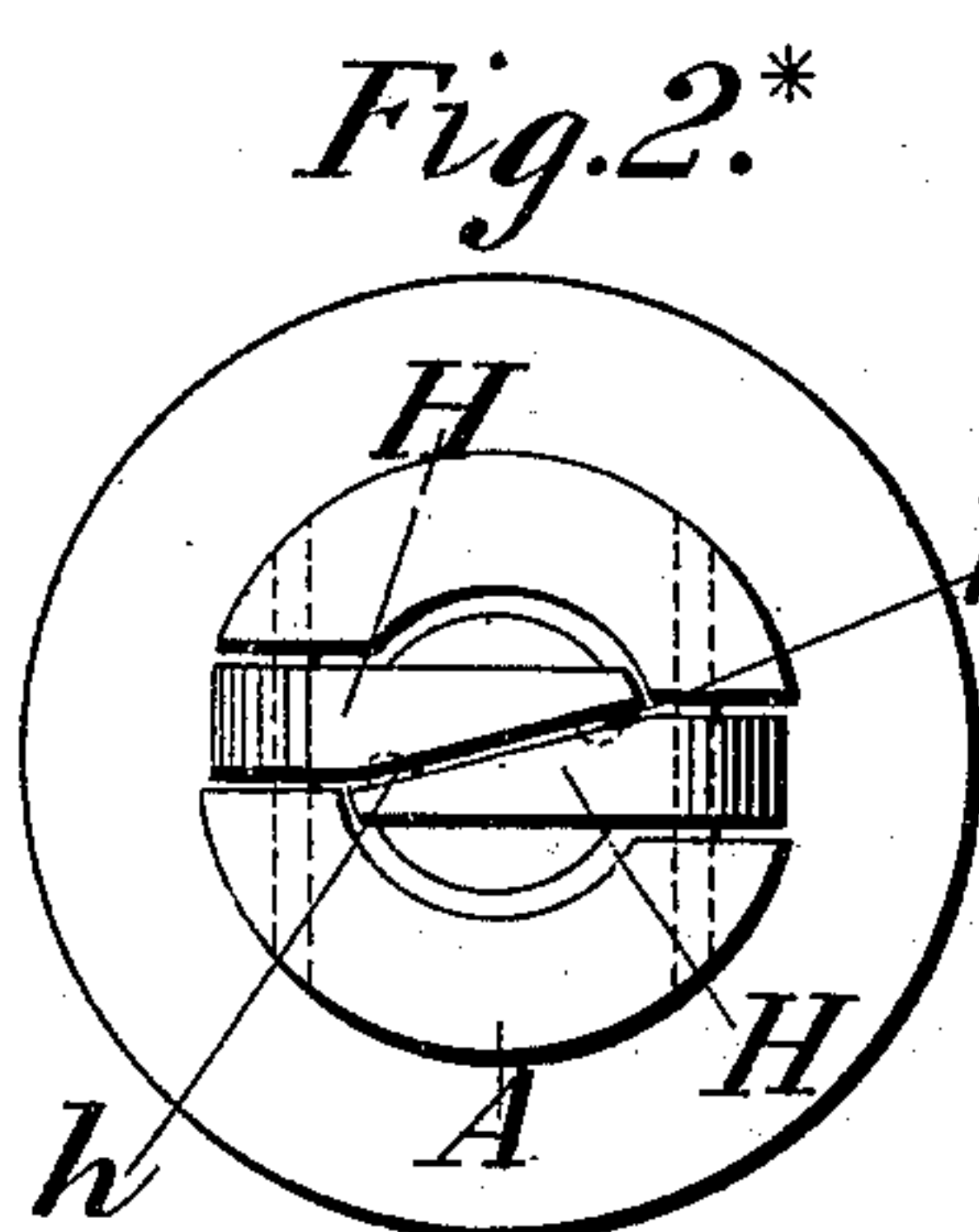
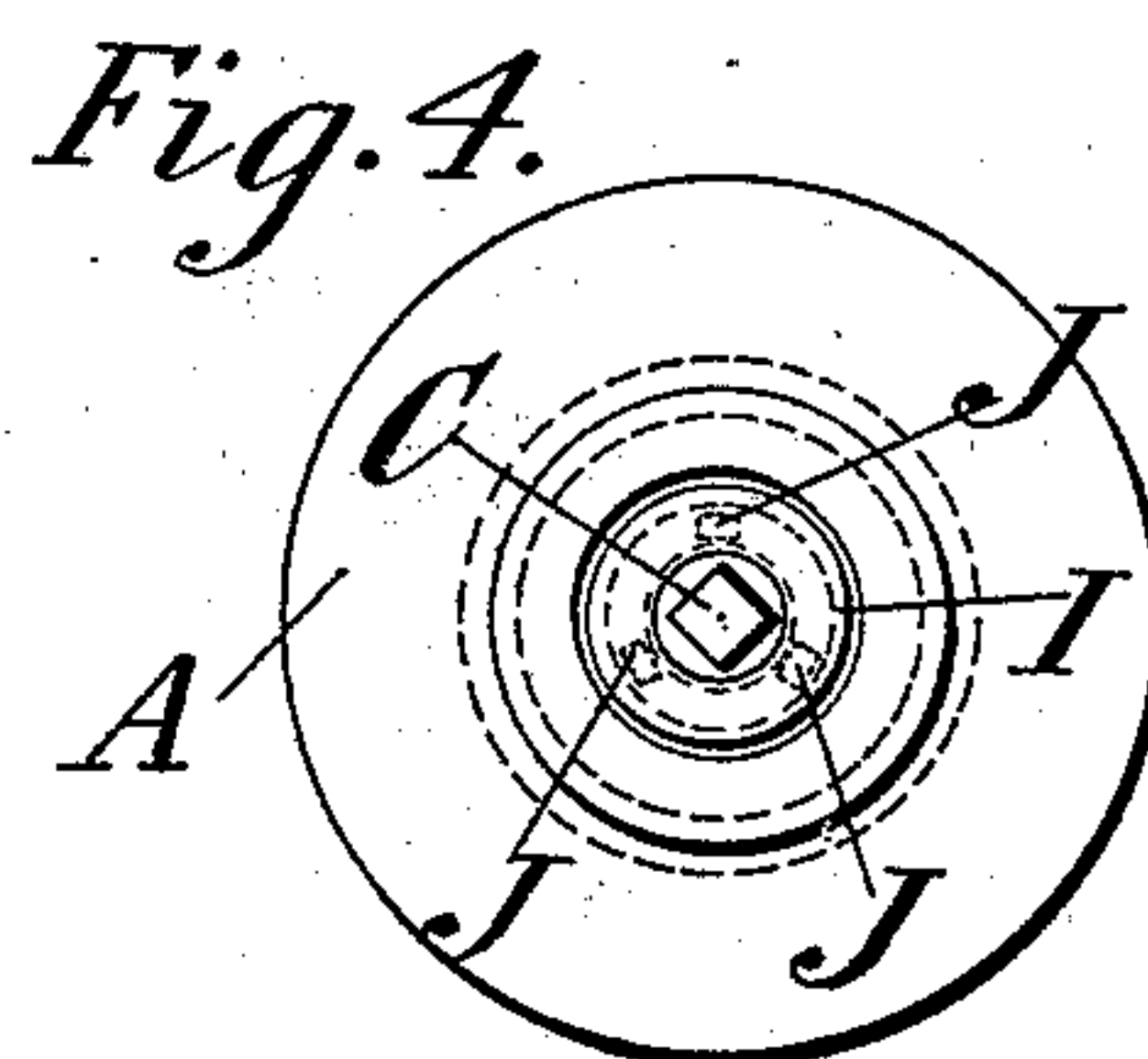
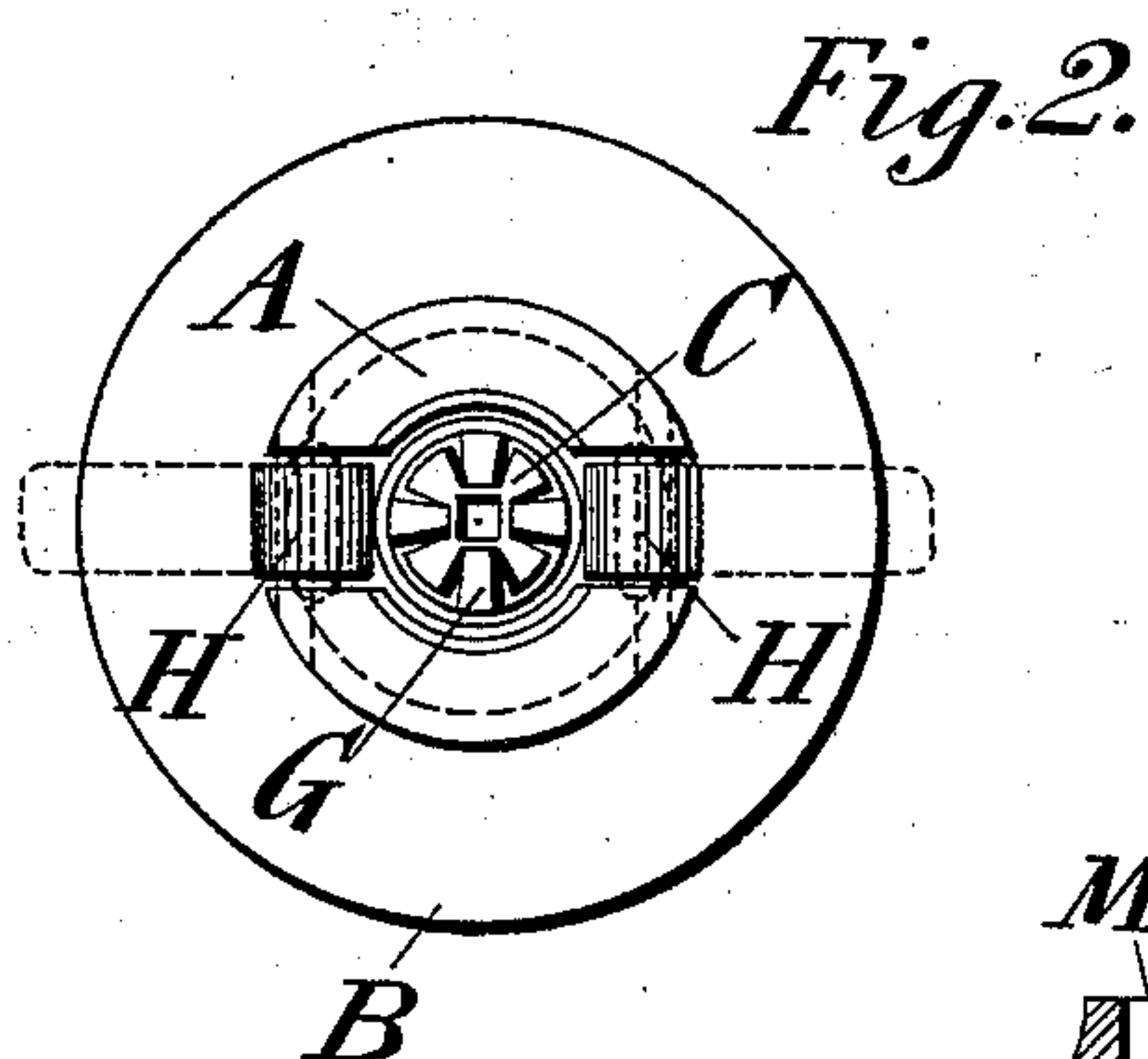
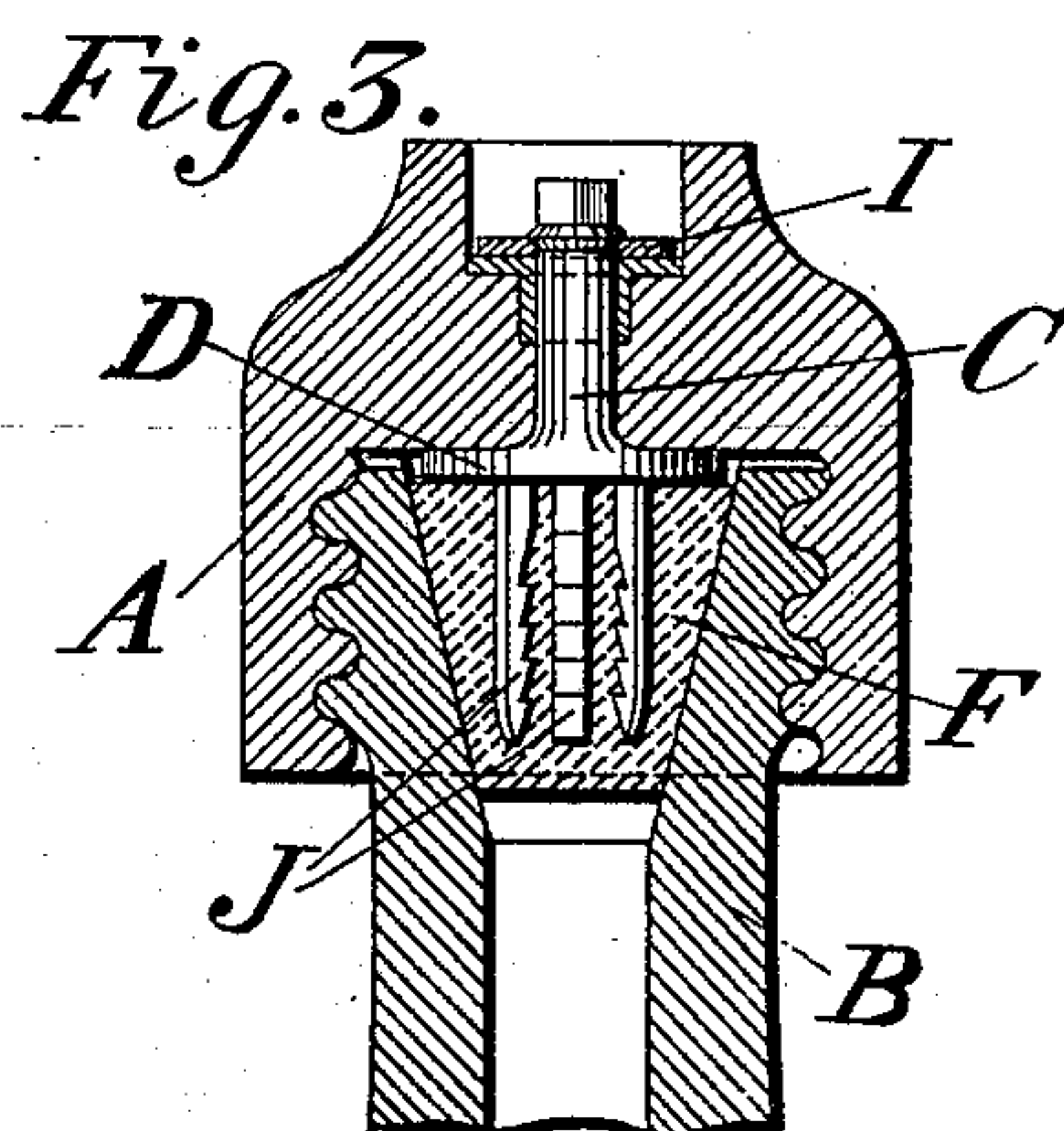
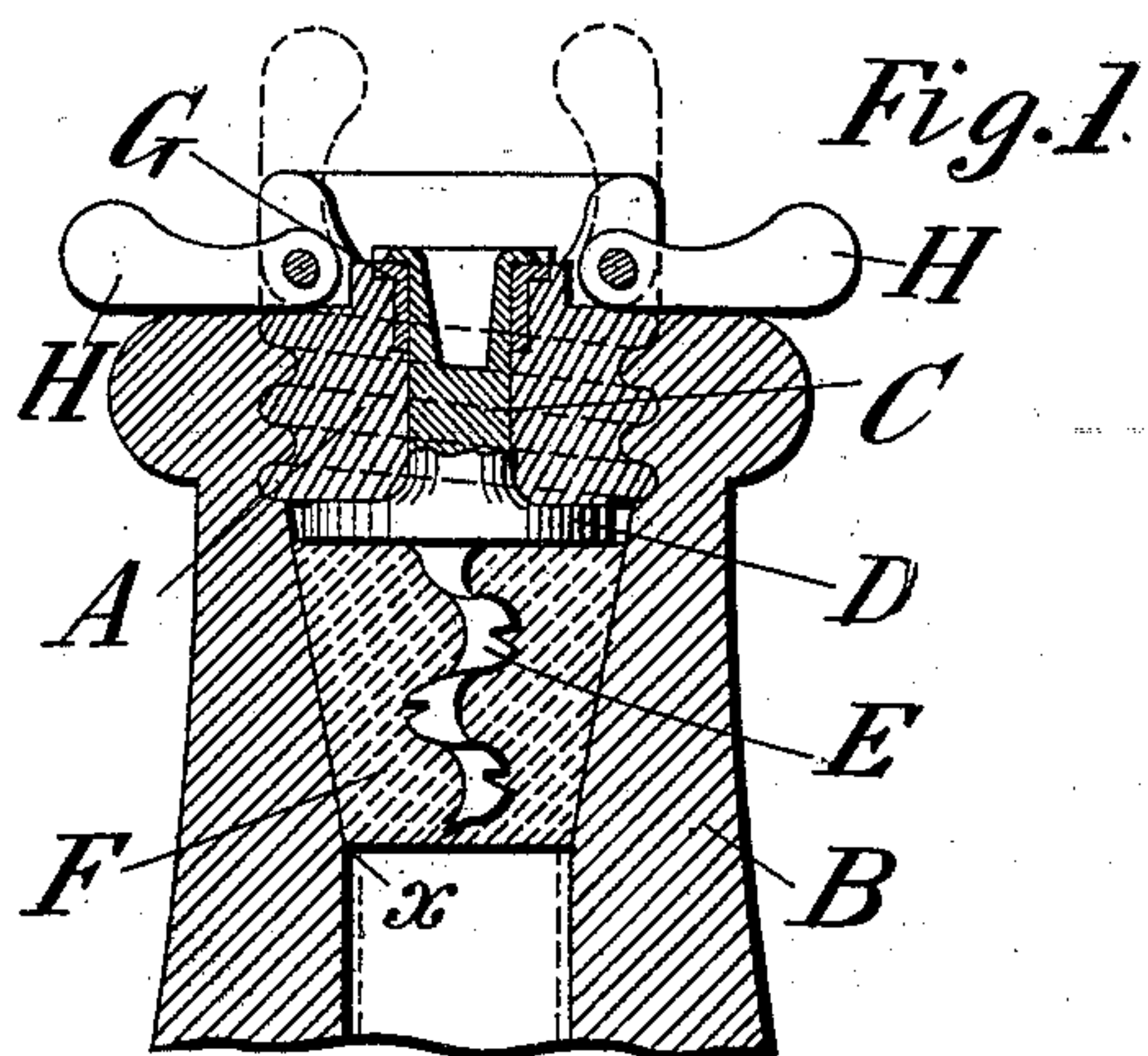
Patented May 2, 1899.

F. W. SCHROEDER.

BOTTLE STOPPER.

(Application filed Dec. 5, 1898.)

(No Model.)



Witnesses
W. B. Keefe
Oliver L. Elliott

Inventor
Frederick W. Schroeder
 By
James L. Norris

UNITED STATES PATENT OFFICE.

FREDERICK W. SCHROEDER, OF LONDON, ENGLAND.

BOTTLE-STOPPER.

SPECIFICATION forming part of Letters Patent No. 624,384, dated May 2, 1899.

Application filed December 5, 1898. Serial No. 698,335. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK WILLIAM SCHROEDER, engineer, a citizen of Great Britain, residing at 19 Adam street, Strand, in the city of London, England, have invented certain new and useful Improvements in Bottle-Stoppers, (for which application for a patent has been made in Great Britain, dated September 20, 1898, No. 19,887,) of which the following is a specification.

This invention relates to a construction of screw stopper or cap adapted to screw into or onto the neck of a bottle, with which is combined a cork or plug adapted to tightly close the orifice of the bottle and which is so arranged that the screw stopper or cap can rotate independently of the cork or plug.

In ordinary screw-stoppers where a part of the stopper itself forms the hermetic closure great difficulty is experienced in screwing up the stopper to such an extent as to insure a very tight fit of the plug or closing-surface, because as soon as the plug comes in close contact with its seat in the bottle the further rotation of the stopper is greatly resisted by the considerable friction of the plug in turning with the stopper or cap upon its seat, which frictional resistance increases the more the stopper is screwed up. By the present invention I entirely obviate this disadvantage, inasmuch as when the cork or plug of the screw-stopper comes in contact with its seat it ceases to rotate, while the screw stopper or cap can continue to be rotated, so that it can exert considerable screw-pressure in forcing the cork or plug against its seat. By this means also I am enabled to employ a form of cork or plug that could not be used with ordinary screw-stoppers—namely, one of slightly conical or tapering form fitting into a correspondingly-coned orifice of the bottle, owing to which a very considerable wedging action for tightening and expanding the cork or plug in its seat by the screw-pressure can be obtained.

A further advantage is obtained by my invention in that by powerfully compressing the cork by the screw action its pores are effectually closed, and thus no leakage of gases or fluid can take place through the cork itself.

Another advantage is afforded by this improved construction in that it enables the

stopper to be effectually secured by a seal against unauthorized opening.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 is a central vertical section of the end of a bottle-neck equipped with my invention. Fig. 2* is a plan view showing a modified construction of parts illustrated in Figs. 1 and 2. Fig. 2 is a plan view of the parts shown in Fig. 1. Fig. 3 is a central vertical section showing a modified construction. Fig. 4 is a plan view of the same. Fig. 5 is a sectional view, and Fig. 6 is a plan view, of a further modification.

Fig. 1 shows a vertical section, and Fig. 2 a plan, of a screw-stopper in which the stopper A has a screw-thread adapted to screw into the threaded neck of a bottle B and has pivotally connected thereto a stem C with disk D and corkscrew-like projection E, adapted to receive a tapered plug F, of cork or other suitable material, the corkscrew being suitably notched or barbed in such manner as to allow of the cork being screwed onto it, so as to fit tight against the disk D, but to be prevented from readily unscrewing therefrom. The stem C is formed hollow either throughout or at its upper part, and the upper end being slit it has the separate parts bent over a tubular piece G, as shown, so as to be secured in the stopper A, while free to rotate therein, together with the cork or plug F. Thus on screwing in the stopper A the cork F will cease to rotate with it as soon as it comes in close contact with the corresponding tapered hole of the bottle-neck. On then continuing to screw in the stopper A this will force the cork tighter onto its seat and will also cause it to be compressed and expanded laterally under the pressure, so as to effect a perfectly hermetical closure of the bottle. The bottle-neck may, if desired, be formed with a projecting shoulder, as at x , Fig. 1, serving as a seat against which the lower end of the cork is pressed. When the stopper has been screwed home, a seal can be applied to the top thereof, so that if it should be attempted to unscrew the stopper the parts C G in remaining stationary with the cork F will break the seal, and will thus show that the bottle has been tampered with.

The top of the stopper A may be made with

a projecting rim for affording the requisite purchase for screwing it in; but when it is required for bottles containing aerated liquids I prefer to make the top of the stopper of the same size as the screwed part and to provide it with two pivoted levers H H, which for screwing in the stopper are turned down into the position shown in full lines at Fig. 1 and in dotted lines at Fig. 2 for affording the requisite purchase, but which are turned up into the dotted position shown at Fig. 1 and full position at Fig. 2, so as not to project beyond the screwed part for passing the stopper down the tube of the filling-machine in the usual manner, and they are also turned into that position when the stopper has been screwed home. The sides of the levers are slightly bulged, and the slots in the stopper are correspondingly notched, as shown at Fig. 2, so as to hold the levers with a slight spring action when they are in the vertical position.

Instead of arranging the levers H as shown at Figs. 1 and 2 they may be made as shown in plan at Fig. 2*, where they are formed to fold right down side by side over the top of the stopper. They are held in that position by forming small projections h on their tapered outer ends, which spring into slight recesses formed near the pivoted ends.

The recess of the stem C is preferably made of a square section in order to enable a square key to be inserted for holding it stationary for facilitating the screwing on or off of the cork F.

Fig. 3 shows a vertical section, and Fig. 4 a plan, of a modification, in which the part A is formed as a screw-cap, screwing onto an external thread on the bottle-neck. The solid stem C is riveted over onto the piece I, being left free to rotate in the cap, and the disk D has two or more barbed spikes J, which are driven into the cork or plug F. The end of C is formed square, as shown, so as to enable a key to be fitted thereto when required. The action of the stopper is the same as above described.

Fig. 5 shows a section, and Fig. 6 a plan, of a modification, in which the stem C and disk D are formed in one with a central barbed spike K, on which the cork F is driven. On the stem C is slid a tubular piece L, passing loose through the cap A. The upper end of C, projecting beyond L, is threaded, and onto it is screwed a nut M for screwing it tightly to the tubular piece L, the end of the stem being preferably riveted over the nut, as shown.

In place of a nut a simple washer may be employed, over which the end of the stem is riveted.

In all the above constructions the cork or plug F can be readily forcibly removed from the stopper in the event of its becoming worn and replaced by a new one. When the screwed part A is formed as a cap, as at Figs.

3 and 5, I prefer to form holes through the top, leading into the interior, as shown at N, so that any solid matter that may accumulate in the annular space can be readily removed on rinsing with water.

Having thus described the nature of this invention and the best means I know for carrying the same into practical effect, I claim—

1. The combination with the neck of a bottle having a tapered seat for a cork, of a stopper provided with a screw-thread to engage a thread on the bottle-neck, a disk lying against the under side of the stopper and having a stem passing centrally through and capable of turning in the latter, and a tapered cork pierced by one or more barbed projections on the lower face of the disk, substantially as described.

2. The combination with the neck of a bottle having a tapered seat for a cork and a separate, screw-threaded portion, of stopper having a thread to engage the latter, a disk lying against the lower face of said stopper and having a stem passing centrally through and capable of turning in the latter, the upper end of said stem being adapted to receive a key to prevent its rotation, and a tapered cork pierced by one or more barbed projections on the lower face of the disk, substantially as described.

3. The combination with a bottle-neck having a tapered seat for an elastic cork, of a stopper having a screw-thread to engage a thread upon said bottle-neck, a disk lying against the lower face of said stopper and having a cylindrical stem passing centrally through and capable of turning in said threaded stopper, a tapered cork pierced by one or more barbed projections on the lower face of the disk, and levers having one end pivoted in notches in the stopper, on opposite sides of the stem, substantially as described.

4. The combination with a bottle-neck having a tapered seat for a cork, of a stopper surrounding the end of the bottle-neck and having a screw-thread engaging a thread on the exterior of the bottle-neck, a disk lying against the lower face of the stopper and having a stem passing centrally through and capable of turning in the top portion of said stopper, and a cork pierced by one or more barbed projections on the lower face of the disk, the stopper being provided with a series of openings passing through its upper part and lying directly over the edge of the neck between the top of the cork and the threaded inner surface of the stopper, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

FREDERICK W. SCHROEDER.

Witnesses:

JNO. P. M. MILLARD,
FRED C. HARRIS.