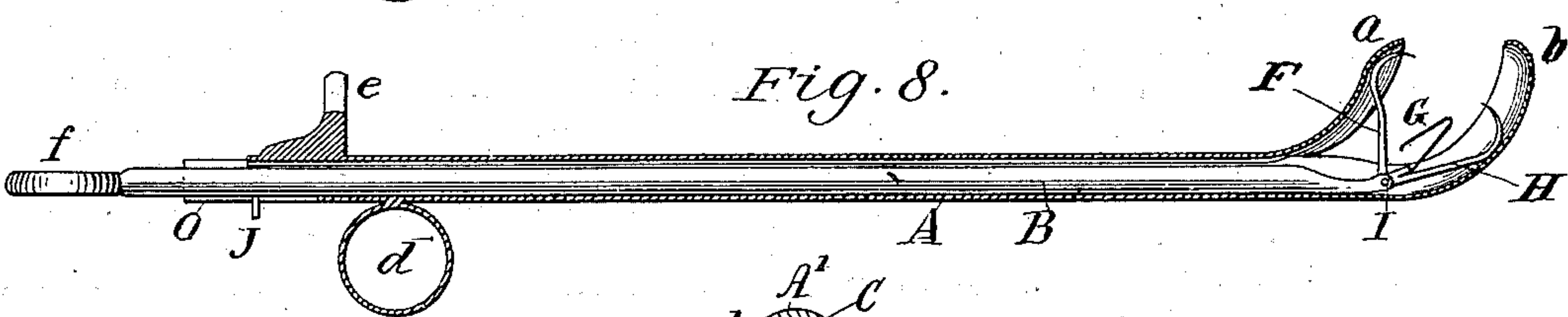
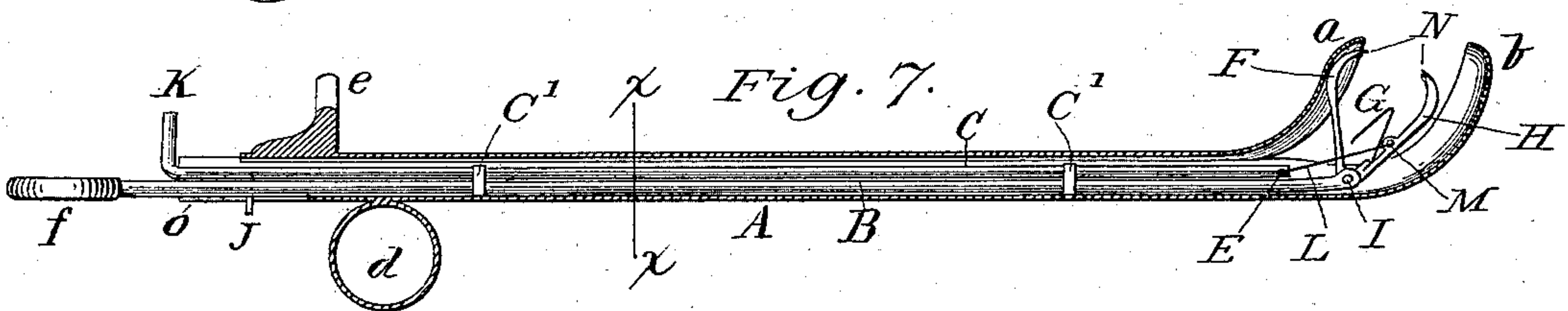
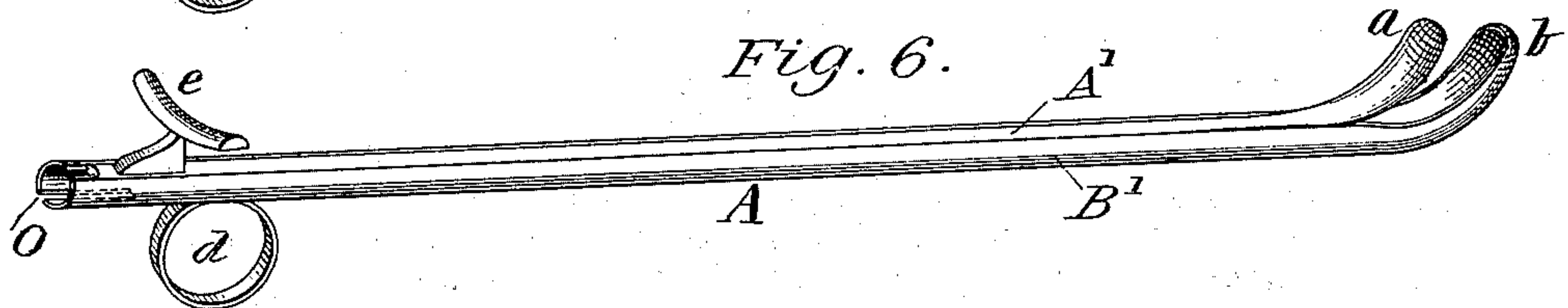
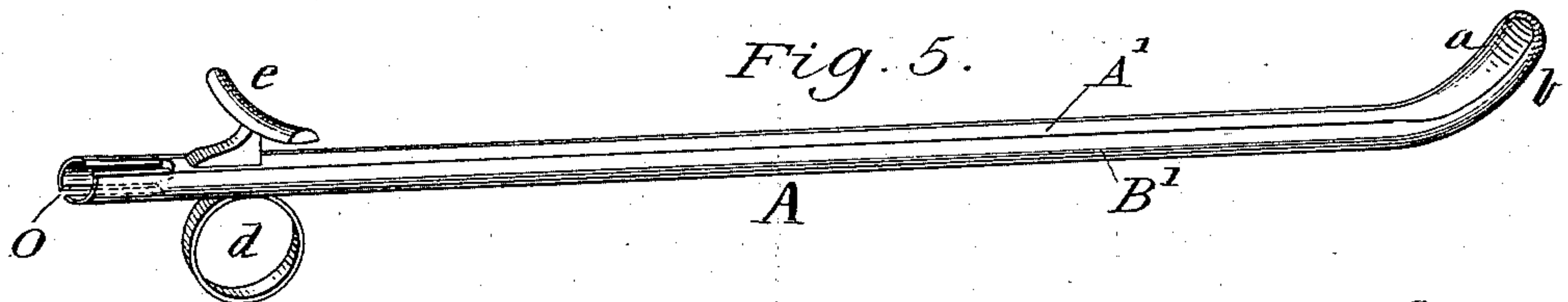
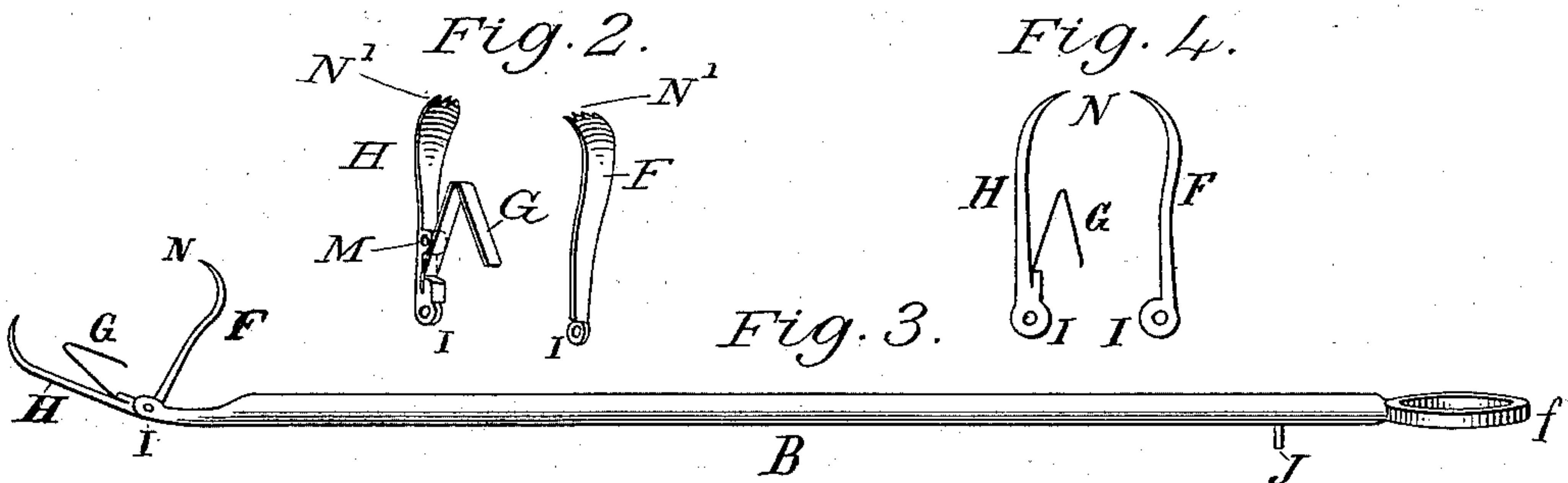
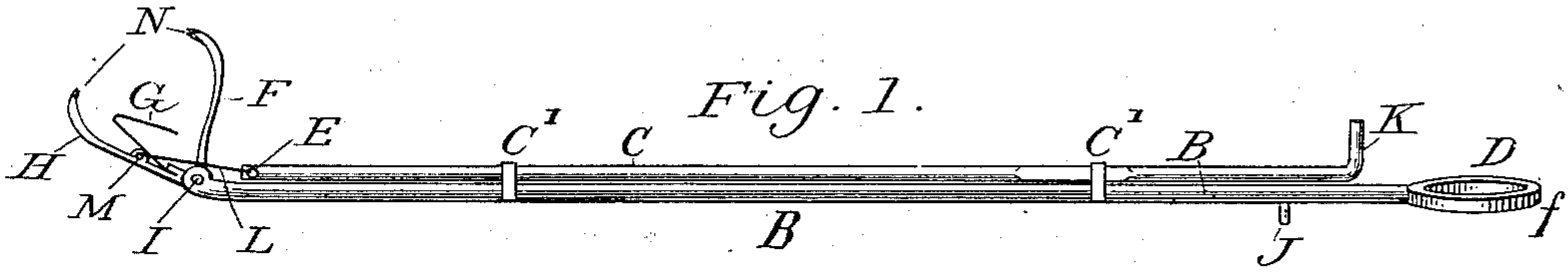


(Model.)

J. W. MERRILL, Jr.
SHEATHED BLADDER FORCEP.

No. 268,039.

Patented Nov. 28, 1882.



Witnesses:
Nathan Merrill,
Fred H. Gould.



Inventor.
John W. Merrill Jr.
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UNITED STATES PATENT OFFICE.

JOHN W. MERRILL, JR., OF CONCORD, NEW HAMPSHIRE, ASSIGNOR TO
JOHN W. MERRILL, OF SAME PLACE.

SHEATHED BLADDER-FORCEPS.

SPECIFICATION forming part of Letters Patent No. 268,039, dated November 28, 1882.

Application filed May 11, 1882. (Model.)

To all whom it may concern:

Be it known that I, JOHN W. MERRILL, Jr., of Concord, in the county of Merrimack and State of New Hampshire, have invented certain new and useful Improvements in Instruments for Removing Foreign Bodies from the Human Bladder; and I declare the following to be a description of my said invention sufficiently full, clear, and exact to enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

The object of my invention is to provide an efficient and convenient instrument for the use of surgeons, whereby foreign or hard substances can be removed from the human bladder without causing unnecessary pain to the patient and without injury to the walls of the bladder or the urethra or injuring the neighboring organs. These objects I attain by the instrument shown in the accompanying drawings, and herein described, the particular features claimed being hereinafter definitely specified.

On the drawings, Figure 1 is a side view of the extractor with the auxiliary shaft for operating the gripping-claws. Fig. 2 is a perspective view of the gripping-claws detached. Fig. 3 is a view of an extractor without the auxiliary shaft. Fig. 4 is a side view of the gripping-claws made with sharp points. Fig. 5 is a perspective view of the sheath or catheter-tube closed. Fig. 6 is a similar view of the same, but with the blades opened. Figs. 7 and 8 are longitudinal sectional views of the catheter tube or sheath, showing the extractor inserted within said sheath and the blades and claws opened, one showing an extractor with the auxiliary shaft and one without said shaft. Fig. 9 is a transverse section of the sheath and extractor-shaft at the position of line *xx*, Fig. 7.

My improved instrument comprises a hollow sheath or catheter-tube having male and female blades, which can be opened and closed, and an extractor provided with gripping-claws adapted for insertion and operation within said sheath, in the manner hereinafter explained.

The sheath A is constructed of suitable metal, formed as a hollow tube having the general

shape of urethral sound or catheter, with a short curve at its entering end, which is properly and smoothly rounded, as shown. The sheath is formed of two parts, grooved together at their edges along the straight portion, so that the male part A' can move longitudinally in the part B' for opening or closing the male and female blades *a b*, which comprise the curved portion of the tube. Said blades *a* and *b* are both made hollow or concaved on their inner sides, the cavities being of sufficient size to receive and cover the jaws of the extractor B, which is inserted and withdrawn through the sheath or catheter-tube, as required. A ring or other suitable handle, *d*, is fixed on the outer end of the sheath, for steadying and guiding the instrument when in use, while a suitable thumb-piece, *e*, is fixed on the shank of the male blade A', for effecting the movement of said blade as desired.

The extractor B consists of a shaft or rod of convenient length and size to pass through the sheath A, one end thereof being provided with a suitable handle or ring, *f*, while to its other end are hinged or pivoted, as at *X*, two claws or hooked grippers, F and H, the ends of which are curved toward each other and provided with sharp points N or with a series of serrations or pointed teeth, N'. (See Fig. 2.) The form and size of these claws are such that they can be inclosed within the cavities of the blades *a* and *b* of the sheath A or be drawn through the tube by means of the shaft B.

A spring, G, is provided for forcing apart the claws F and H, which spring may be connected to one of said claws and arranged for pressing against the other, as indicated, or in other suitable manner for effecting similar result.

An auxiliary shaft or rod, C, is arranged along the shaft B, running parallel therewith, and guided by bands C' or otherwise. One end of said auxiliary shaft is connected by a suitable link, L, to claw H, as indicated at M, while its opposite end is turned upward at a right angle, as at K, to form a handle or thumb-piece, by which the shaft and claw can be actuated as desired, and the claw H be closed against the claw F for gripping any substance

that may come between them. The claws can also be closed together by withdrawing the extractor-shaft from the sheath.

In Figs. 3 and 7 an extractor is shown without the auxiliary shaft. With this form the claws are closed by the closing of the blades or by withdrawal of the extractor.

Near the handle end of the extractor is a pin or lug, J, which is adapted to engage with a slot, O, formed in the end of the sheath, to prevent the extractor from revolving within the sheath or for retaining the claws F and H centrally within the hollows of the blades *a* and *b*. The claws can be made to have any suitable curvature desired and with desired form of gripping-points. By making the male and female blades with inner cavities, as shown, the claws are allowed sufficient space to pass around the substance or body which may lie between or be clasped by the blades. The blades may be made of sufficient strength and stiffness to crush moderately hard substances, if desired, although the instrument is not intended for crushing purposes.

The operation is as follows: The catheter tube or sheath A, with its blades closed, is first inserted through the urethra into the bladder and used as a sound for ascertaining the location of the foreign body or substance to be removed. The blades are then opened by sliding back the male blade by the aid of the thumb-piece *e* to a sufficient distance to receive the body or substance which is grasped between the blades, and the instrument partially revolved to insure the operator that he has no hold of the membranes or folds of the bladder. The extractor B is then inserted, and as the claws reach the blades they are forced open by the spring G and pass up within the respective hollows or cavities, so as to embrace the body which is retained between the blades. The claws are then closed onto the body by drawing back the thumb-piece K. The blades are then opened to press back the mucous membranes of the bladder, and the extractor, with the foreign body retained in the claws, is withdrawn from the sheath, the sheath protecting the bladder-walls and urethra from laceration during the operation. The blades *a* and *b* are then closed together, the sheath revolved to be sure that the membrane is not held thereby, and the sheath may then be withdrawn from the urethra, the operation being finished.

I am aware that instruments have heretofore been made for withdrawing substances from the bladder through a tube, and I do not therefore make claim broadly to such feature; but, so far as I am aware, with all such instruments heretofore made, there is danger of

wounding the mucous membrane or bladder-wall, whereas with my improved instrument all such danger is avoided by operating the claws and extractor within the sheath, as before specified.

What I claim as of my invention, and desire to secure by Letters Patent, is—

1. In an instrument for removing foreign bodies from the bladder, a protecting-sheath or catheter and an extractor consisting of a shaft or shafts provided with hinged claws adapted to pass through the sheath, to permit the withdrawal of the claws and substance grasped thereby, substantially as hereinbefore described.

2. In an instrument for removing foreign bodies from the bladder, the combination, with the sheath or catheter, of an extractor consisting of a principal shaft provided with hinged or pivoted claws or grippers and an auxiliary shaft connected with said claws and adapted for closing them together by longitudinal movement of said auxiliary shaft, substantially as set forth.

3. The catheter tube or sheath composed of the parts A' B', grooved together for permitting longitudinal movement between said parts, and respectively provided with male and female blades *a* and *b*, curved as shown, and made concave on the inner sides of both blades to a sufficient extent to receive and cover the claws of the extractor, which are adapted to swing back into the cavities of said blades in the manner substantially as set forth.

4. The combination, with the sheath or catheter-tube A, having a slot, O, of the extractor B, provided with claws F H and pin or lug J, for preventing revolution of the extractor when inserted in the sheath, as set forth.

5. The combination of the sheath or tube formed in two parts, A' B', grooved together for longitudinal movement, and respectively provided with curved hollow blades *a b*, the extractor B, extending through said tube, and provided with hinged claws F H, adapted to open into the cavities of said blades, the spring G for separating said claws, the auxiliary shaft C, the link L, connecting said shaft to the claw H, and the thumb-piece or handle for operating said claws when the instrument is inserted within the bladder, as set forth.

Witness my hand this 5th day of May, A. D. 1882.

JOHN W. MERRILL, JR.

Witnesses:

W. A. DE LACY,
WEBSTER THAYER.