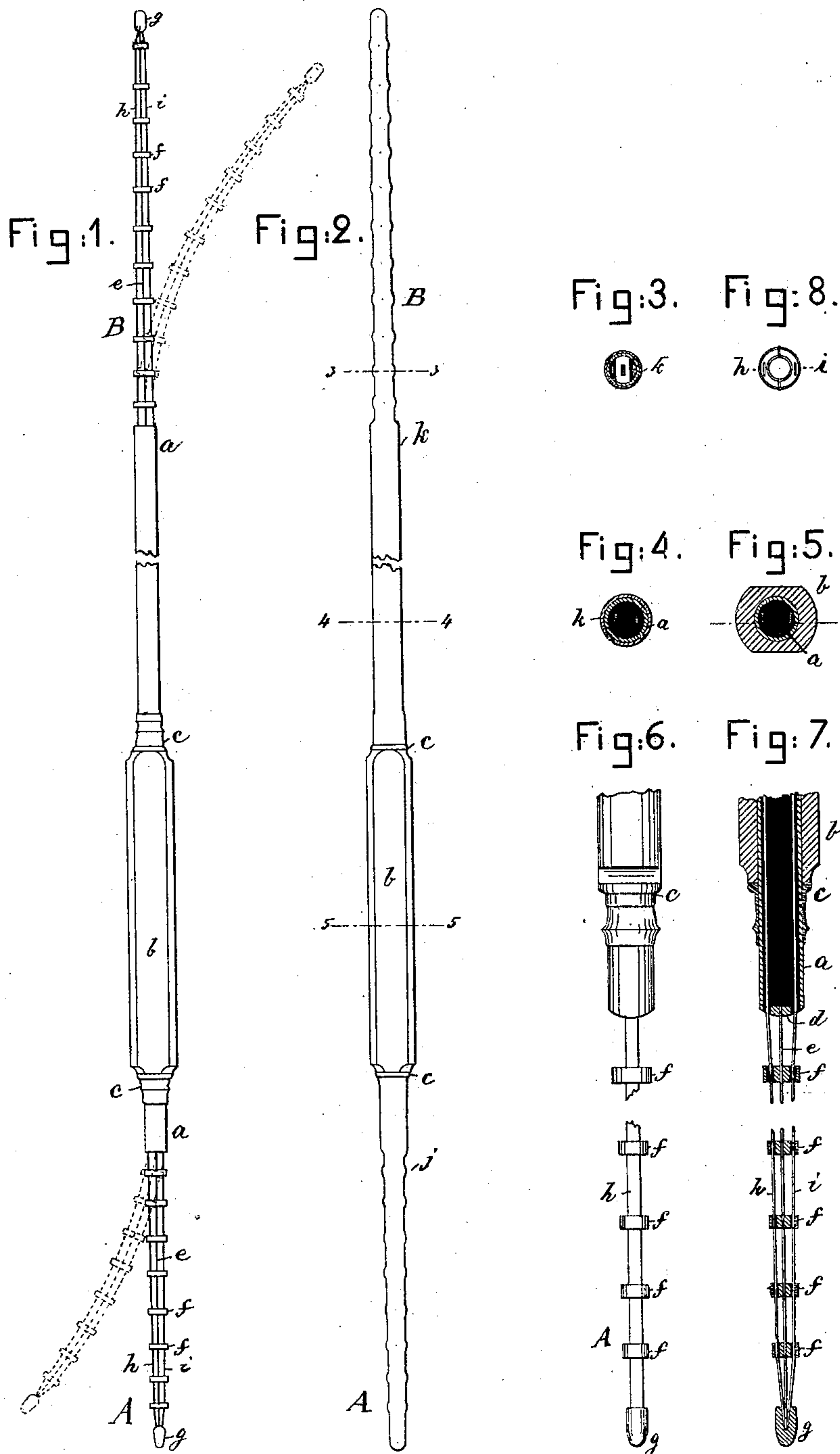


C. R. JENNISON.
Surgical-Explorers

No. 206,243.

Patented July 23, 1878.



Witnesses.

L. F. Connor
N. E. Whitney

Inventor.

Charles R. Jennison,
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UNITED STATES PATENT OFFICE.

CHARLES R. JENNISON, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO
CODMAN & SHURTLEFF, OF SAME PLACE.

IMPROVEMENT IN SURGICAL EXPLORERS.

Specification forming part of Letters Patent No. **206,243**, dated July 23, 1878; application filed
May 27, 1878.

To all whom it may concern:

Be it known that I, CHARLES R. JENNISON, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Explorers, of which the following is a specification:

This invention relates to an explorer or repositor for use in uterine and other diseases and for exploring passages.

The invention consists in an explorer or repositor composed of flexible rods or strips, so connected together that a movement of the rods in one direction at one end will produce a reverse movement of the opposite end of the rods or strips, whereby from its external end the explorer may be made to enter and follow along any regular or irregular passage or canal. The internal end being flexible, and long enough to adapt itself to the shape of the passage or canal in which it moves or rests, or to the shape of a tumor, will so operate upon and shape the outer or external end of the explorer as to indicate in the reverse the exact shape of such canal or passage and the location and size of any obstruction or tumor.

Figure 1 represents, in full lines, one of my improved explorers with the rubber covering removed, the dotted lines showing it bent to illustrate the manner in which one end indicates in reverse direction the shape or curve assumed by the other end; Fig. 2, a similar view, with the india-rubber covering in position; Fig. 3, a section on line 4 4; Fig. 5, a section on line 5 5; Fig. 6, an enlarged detail of one end of the explorer viewing the flat sides of the rods or strips; Fig. 7, a longitudinal section of Fig. 6; and Fig. 8, a modification.

This explorer has at its central portion a tube, *a*, upon which is placed a handle portion, *b*, preferably made loose, so as to wind or rotate upon the tube between collars *c c*. In the ends of the tube are soldered or otherwise attached holders *d*, to which are secured the inner ends of central rods or strips *e*, upon which are firmly fastened collars *f f*, any suitable number, according to the length of the explorer, and fixed upon the outer ends of the strips *e e* are buttons *g*. These collars have each three holes, one at the center to receive

strip *e*, and one each side such central opening to receive loosely one of the strips or springs *h i*, which are long enough to extend from one to the other end button *g g*, the collars acting as guides for *h* and *i*. Over the tube and strips, collars, and buttons are drawn india-rubber or other flexible covers, *j k*. (See Fig. 2.)

From the construction so far described it is obvious if the outer or external end *A* of the explorer be bent in one direction, as shown in dotted lines, that the strip or spring *e*, made to occupy an arc of a circle of greater diameter than the arc of the circle occupied by the strip or spring *h*, will shorten to a corresponding extent the strip or spring *i* at the end *B* and lengthen the strip or spring *h*, this being possible because *e* is fixed and *h* and *i* free to move with relation to it.

The parts *e h i* will preferably be small narrow steel springs. If from any cause the end *B* should form an **S**-curve in the body, the end *A* will be straight. The fact of this **S**-curve will be apparent to the user of the instrument, for, while introducing it and passing the front part of the curve, the outer end was bent, and it was bent or curved again on the second part of the **S**-curve before it became straight.

The instrument can also be used as a carrier for a medicament, to follow an irregular stricture to dilute it. Instead of the particular collars *f*, two wings may be employed, one within the other, as shown in Fig. 8, and between them the strips *h i* may rest loosely. In such case the center strip, *e*, may be omitted.

By making the handle *b* loose, the instrument may be revolved within it to permit the exploring or inner end to be moved or turned in any direction, while the handle is held firmly in the hand.

By crossing the strips or springs *h i* within the tube the curves at opposite ends of the explorer will correspond rather than be in the reverse, as hereinbefore described.

I claim—

1. An explorer composed of flexible rods or strips *h i*, extended through a central tube, *a*, but not connected therewith, and a central

strip, *e*, secured at and projecting beyond each end of the tube between the strips *h i*, with the free ends of which it is connected, thereby making each end of the explorer flexible, to operate substantially as and for the purposes described.

2. The tube, fixed spring *e*, and collars combined with the loose springs *h i* and buttons *g*, to operate substantially as described.

3. The tube, springs *h i*, and collars combined with india-rubber or other flexible covering applied thereto, substantially as described.

4. The tube *a*, springs *h i*, and flexible covering combined with the loose handle *v* surrounding the tube, to operate substantially as and for the purpose described.

5. An explorer composed of a rigid central portion and flexible spring-formed ends, the flexible inner or entering end to be moved in any direction by the manipulation of the outer flexible end, substantially as described, to adapt the instrument to follow and indicate the shape of an irregular passage, as and for the purposes set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES R. JENNISON.

Witnesses:

G. W. GREGORY,
N. E. WHITNEY.