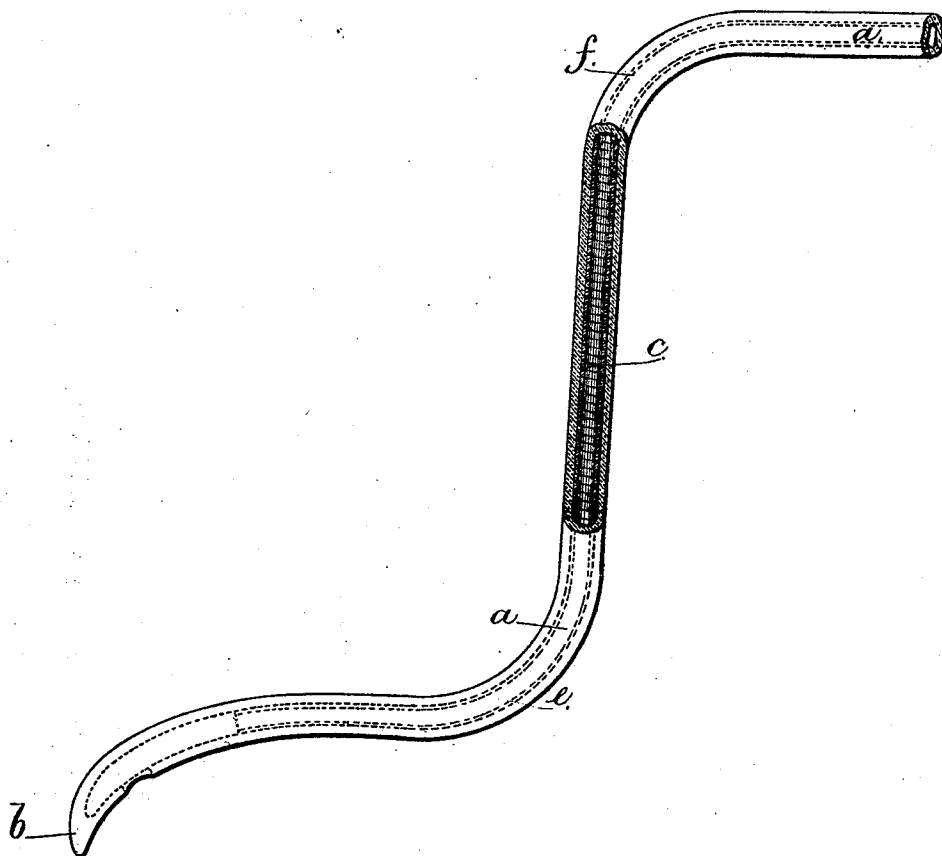


(Model.)

E. PFARRE.
Catheter.

No. 243,396.

Patented June 28, 1881.



Witnesses

Harold Terrell
Chas. A. Smith

Inventor.

Edward Pfarre
per Lemuel W. Terrell
city.

UNITED STATES PATENT OFFICE.

EDWARD PFARRE, OF BROOKLYN, NEW YORK.

CATHETER.

SPECIFICATION forming part of Letters Patent No. 243,396, dated June 28, 1881.

Application filed March 25, 1881. (Model.)

To all whom it may concern:

Be it known that I, EDWARD PFARRE, of Brooklyn, in the county of Kings and State of New York, have invented an Improvement in Surgical Instruments, of which the following is a specification.

This improvement relates to the instruments known as "vulcanized-rubber catheters," "stomach-tubes," &c. These tubes have been made straight with a tapering end, and in Letters Patent No. 191,879, granted June 12, 1877, an india-rubber tube is described, the same being vulcanized within a glass tube. When the straight vulcanized tube is introduced into a curved passage in the human or animal body it is not adapted to remain in place without inconvenience or irritation to the parts, because the tube presses more against one part than the other by its tendency to straighten. It has long been the desire of surgeons to have the catheter, stomach-tube, or bougie of a shape approximating that of the natural passage into which it is to be introduced, and also to be able to follow the tortuous passages without unnecessary pressure against the walls of the passage in causing the tube to bend at the curvature of the passage.

My invention relates, first, to a flexible tube or bougie having the end tapering and bent in a slightly curved form, whereby the catheter, tube, or bougie can be more easily caused to search out or follow the curved or tortuous passage in the human or animal body. This is effected by inserting the instrument into the passage, and when its end meets with any obstruction the instrument is revolved more or less, and its tapering curved end searches out and passes into the curved passage with great facility.

The second part of this invention relates to an improvement upon the surgical instrument made according to my aforesaid patent, and relates to curving the glass mold to a shape approximating to that of the passage into which the instrument is to be inserted, and curing in such glass tubular mold the india-rubber catheter, tube, or bougie, so that when the instrument is complete and ready for use its normal shape will approximate to that of the passage into which it is to be introduced, and hence when it is in the said passage it will remain without inconvenience or any unnecessary irritating effect.

The third feature of my invention consists in the combination, with the surgical tube, of a wire helix within the tube, and around which the india-rubber sets tightly and is vulcanized, so that the rubber and the helix are connected. This wire is either flat or round, and coiled so that the convolutions touch each other. The object of this helix is to stiffen the tube and allow of its being pressed into the passage more easily than heretofore without the elasticity of the tube being materially interfered with. It is preferable for the coils of wire in the helix to come into contact when endwise pressure is applied and form a metallic stiffening-tube to keep the instrument in shape; while the same is forced into the passage but this helix does not prevent the rubber bending so as to freely follow the passage. This helix is much better than the straight or curved wires that have sometimes been inserted into the bougie, because they are rigid and render the instrument painful to the person.

In the drawing I have shown by a partial section the smooth rubber tube *a* with the tapering point *b*, which is bent into a curve for the aforesaid purposes, and within this tube is the helix *c*, of flat or round wire. The instrument has also one or more curves, *e f*, by which the instrument is made to approximate to the shape of the passage in the body into which it is to be inserted. It is to be understood that the glass tube in which the india-rubber is cured is made of the shape required for the finished article.

I claim as my invention—

1. As a new article, a surgical instrument formed of india-rubber or similar elastic material, having a smooth surface and a tapering point, permanently curved in vulcanizing, as and for the purposes set forth.

2. The flexible surgical instrument, made of india-rubber or similar material, and having a smooth surface and tapering point, and containing within it a helix of wire, substantially as and for the purposes set forth.

Signed by me this 23d day of March, A. D. 1881.

EDWARD PFARRE.

Witnesses:

WILLIAM G. MOTT,
GEO. T. PINCKNEY.