

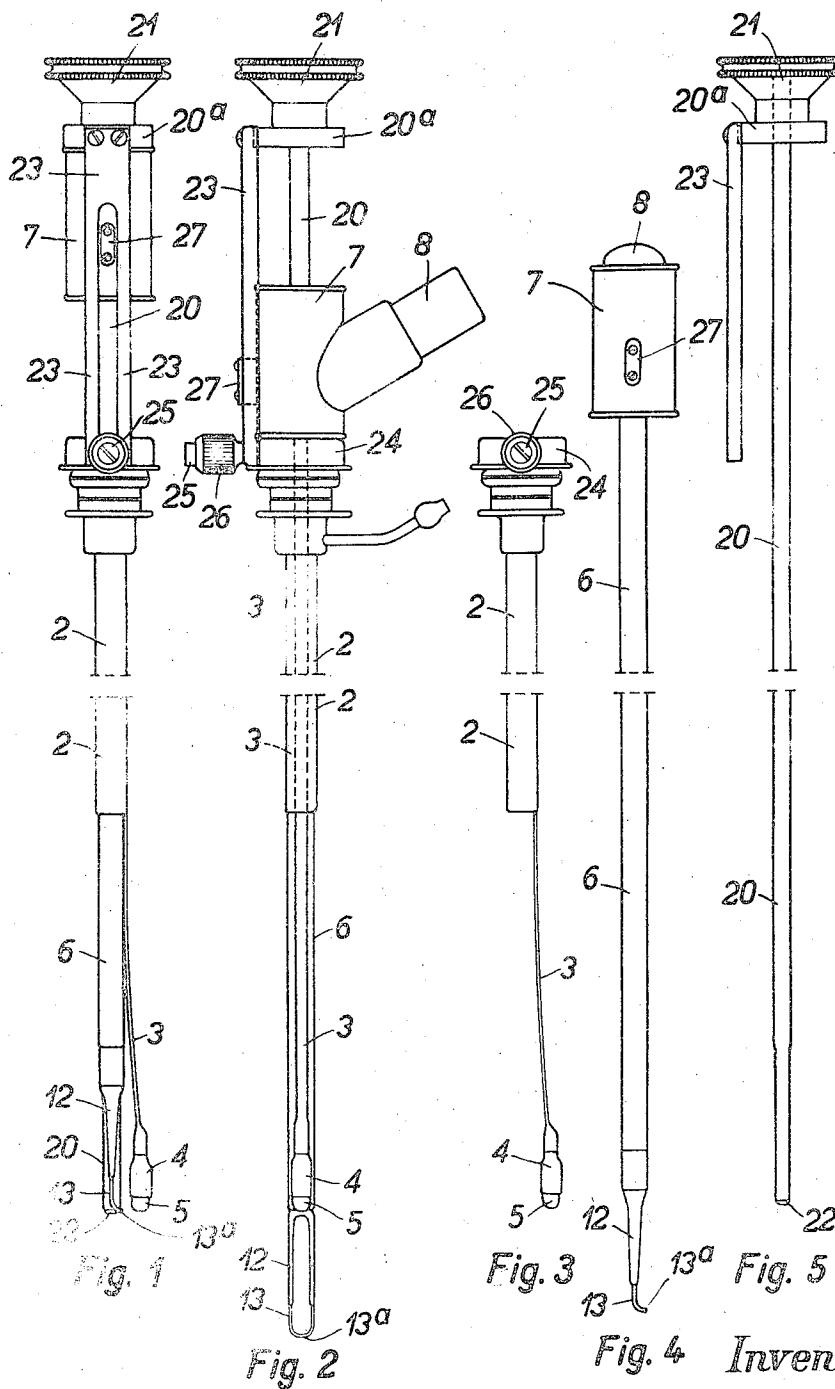
Jan. 9, 1940.

G. WOLF

2,186,187

INSTRUMENT FOR ELECTROSURGICAL TREATMENT IN BODY CAVITIES

Filed June 3, 1938



Inventor:

George Wolf

UNITED STATES PATENT OFFICE

2,186,187

INSTRUMENT FOR ELECTROSURGICAL
TREATMENT IN BODY CAVITIESGeorg Wolf, Berlin, Germany, assignor to the firm
Georg Wolf G. m. b. H., Berlin, GermanyApplication June 3, 1938, Serial No. 211,536
In Germany June 7, 1937

5 Claims. (Cl. 128—303.15)

I have filed an application in Germany, June 7, 1937.

The present invention concerns operation instruments which can be inserted into body cavities, especially thorascopes, and are provided with a sleeve carrying an elastically attached lamp, a catheter introducible into this sleeve and having a cauter, and an inspecting tube which is introducible into the catheter and serves for viewing the body cavity. On account of the concentricity of the tubes and the elastic attachment of the lamp, these instruments require only little space when being introduced into a body cavity and offer the advantage not only of a comparatively wide inspecting tube but also of a continuous observation through this tube during the introduction of the instrument into a body cavity.

According to the invention, these instruments have a guide which, when the instrument is in working condition, permits axial displacement, and prevents rotation, of the catheter carrying the cauter relative to the sleeve carrying the lamp. Not only can the cauter, which is generally a wire loop, be given the most suitable position when the instrument is being introduced into a body cavity, so that the cauter is prevented from injuring the patient, but this cauter can be adjusted to a certain extent also during the operation.

The loop of the cauter is suitably bent sidewardly, so that it does not disturb axial displacements of the inspection tube. If bent towards the lamp, the loop lies between the lamp and the inspection tube when the catheter carrying the cauter is drawn back, the loop being thus protected exceedingly well during the introduction of the instrument into the body cavity.

To ensure during the axial displacement a convenient handling of the catheter carrying the cauter, it is advisable to provide that the inspection tube can be fixed in any desired position relatively to the sleeve carrying the lamp.

Fixing the inspection tube relatively to the sleeve carrying the lamp can be effected for instance by a rod-like part which is fast with the inspection tube and can be fixed to the sleeve by means of a clamping screw. This rod may constitute at the same time the guide for the catheter carrying the cauter.

To provide that the cauter has sufficient room when drawn back, it is advisable to use an inspection tube whose front part tapers slightly to the edge.

In the accompanying drawing, which illus-

trates a thoracoscope according to the invention, Figures 1 and 2 show this instrument in two different elevational sections, the catheter being withdrawn in Figure 1 and pushed forward in Figure 2,

Figures 3 to 5 represent in side views single parts of the instrument,

Figure 3 showing the sleeve carrying the lamp,

Figure 4 showing the catheter carrying the cauter, and

Figure 5 showing the inspection tube and the guide.

2 is the sleeve for carrying the lamp. To this sleeve 2 is fixed an elastic arm 3 the front end of which carries a holder 4 for an incandescent lamp 5. 6 is the catheter, whose front end has arms 12 for a cauter 13. The exterior diameter of the catheter 6 corresponds to the interior diameter of the sleeve 2. The rear end of the catheter 6 is fast with a current distributor 7 having a plug socket 8. The cauter 13 ends in a loop 13a which is bent sidewardly. The inspection tube, designated 20, which has at its rear end an eye-piece 21 and at its front end an objective 22, is so dimensioned that it can be introduced into the catheter 6. To the eye-piece end of the inspection tube 20 is fixed a ring 20a fast with a rod 23 having the form of a fork. The lower, and open, end of the fork 23 can contain a pin 25, which is fixed to a ring 24 fast with the sleeve 2, and is clamped to this ring 24 by means of a screw 26. The arms of the fork 23 constitute a guide for a slide 27 fast with the distributor 7 of the catheter 6. On account of the slide 27, the catheter 6 is axially displaceable and not rotatable. The axial displacement of the catheter 6 is limited by the distributor 7, which is arrested by the ring 24 on the sleeve 2 and by the ring 20a on the inspection tube 20.

When the distributor 7 lies against the ring 20a, the part 13a of the cauter 13 is hidden between the lamp 5 and the front end of the inspection tube 20 (of Figure 1), which lies between the arms 12 and the loop 13, 13a. The front end of the inspection tube 20 is made to taper in order to provide that the cauter has sufficient room when withdrawn.

As mentioned hereinbefore, the instrument shown in the drawing makes it possible that the cauter 12, 13, 13a assumes a protected position when the catheter 6 and the inspection tube 20 are introduced conjointly into the body cavity and when this cavity is being inspected and that, during the operation, the cauter only requires being pushed forward more or less. To this effect,

it is sufficient to displace the distributor 7 on the inspection tube 20, the socket 8 serving as a handle. Special means for holding the catheter 6 and the cauter in their desired positions can be dispensed with, since the catheter 6 is guided on the inspection tube 20 and in the slide 27.

I claim:

1. In an instrument for electrosurgical treatment in body cavities, a sleeve, a lamp, a flexible lamp holder carrying said lamp and fixed to said sleeve, a hollow catheter introducible into said sleeve, a cauter fixed to the catheter end to be introduced into the body cavity, an optical tube containing an eye-piece and an objective and introducible into said catheter, said sleeve, said catheter and said optical tube being concentric to each other, and a guide for axial displacement of said catheter and said sleeve relative to each other during the use of the instrument, said guide preventing rotations of said catheter and said sleeve relative to each other.

2. In an instrument for electrosurgical treatment in body cavities, a sleeve, a lamp, a flexible lamp holder carrying said lamp and fixed to said sleeve, a hollow catheter introducible into said sleeve, a cauter fixed to the catheter end to be introduced into the body cavity, an optical tube containing an eye-piece and an objective, said optical tube being introducible into said catheter and capable of being locked to said sleeve, said sleeve, said catheter and said optical tube being concentric to each other, and a guide for axial displacement of said catheter and said sleeve relative to each other during the use of said instrument, said guide preventing rotations of said catheter and said sleeve relative to each other.

3. In an instrument for electrosurgical treatment in body cavities, a sleeve, a lamp, a flexible lamp holder carrying said lamp and fixed to said sleeve, a hollow catheter introducible into said sleeve, a cauter fixed to the catheter end to be

introduced into the body cavity, an optical tube containing an eye-piece and an objective and introducible into said catheter, said sleeve, said catheter and said optical tube being concentric to each other, a rod-like part fast with the eye-piece end of said optical tube and capable of being locked to said sleeve, said rod-like part being a guide for said catheter.

4. In an instrument for electrosurgical treatment in body cavities, a sleeve, a lamp, a flexible lamp holder carrying said lamp and fixed to said sleeve, a hollow catheter introducible into said sleeve, a cauter fixed to the catheter end to be introduced into the body cavity, an optical tube containing an eye-piece and an objective and introducible into said catheter, said sleeve, said catheter and said optical tube being concentric to each other, and a guide for axial displacement of said catheter and said sleeve relative to each other during the use of the instrument, said guide preventing rotations of said catheter and said sleeve relative to each other, said cauter being bent sidewardly.

5. In an instrument for electrosurgical treatment in body cavities, a sleeve, a lamp, a flexible lamp holder carrying said lamp and fixed to said sleeve, a hollow catheter introducible into said sleeve, a cauter fixed to the catheter end to be introduced into the body cavity, an optical tube containing an eye-piece and an objective and introducible into said catheter, said sleeve, said catheter and said optical tube being concentric to each other, and a guide for axial displacement of said catheter and said sleeve relative to each other during the use of the instrument, said guide preventing rotations of said catheter and said sleeve relative to each other, said optical tube having at its forward end a restricted exterior diameter.

GEORG WOLF.