

March 15, 1927.

R. T. EVANS
ABDOMINOSCOPE

1,621,159

Filed Nov. 27, 1925

2 Sheets-Sheet 1

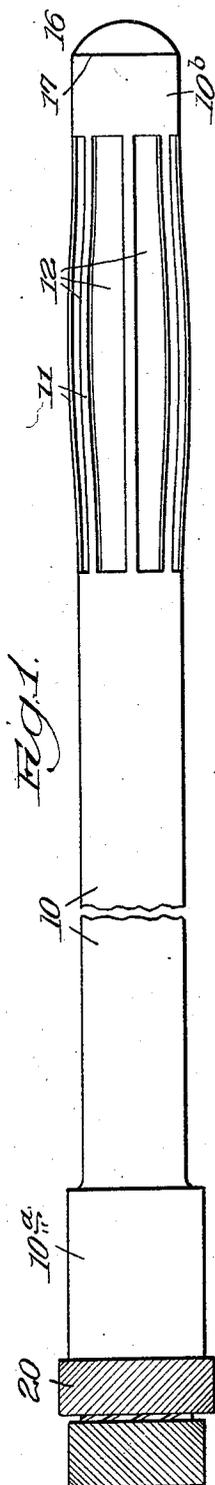


Fig. 1.

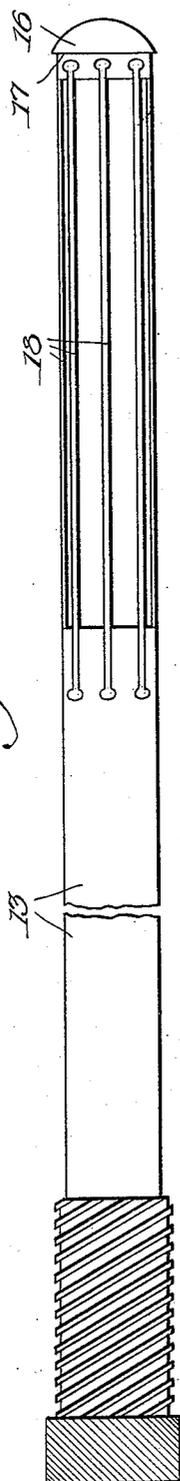


Fig. 2.

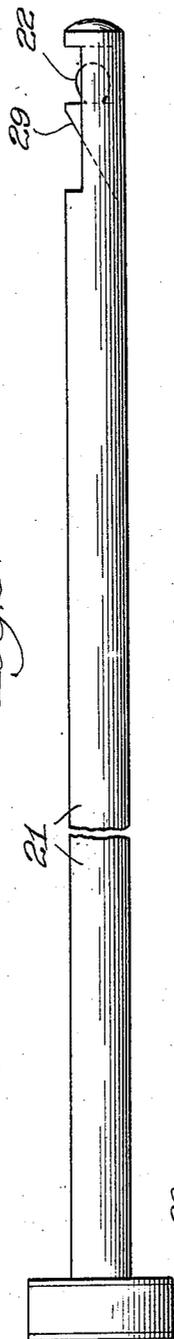


Fig. 3.

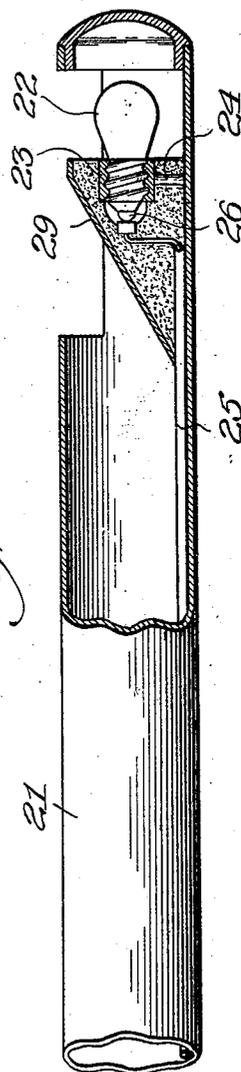


Fig. 4.

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2 Sheets-Sheet 2

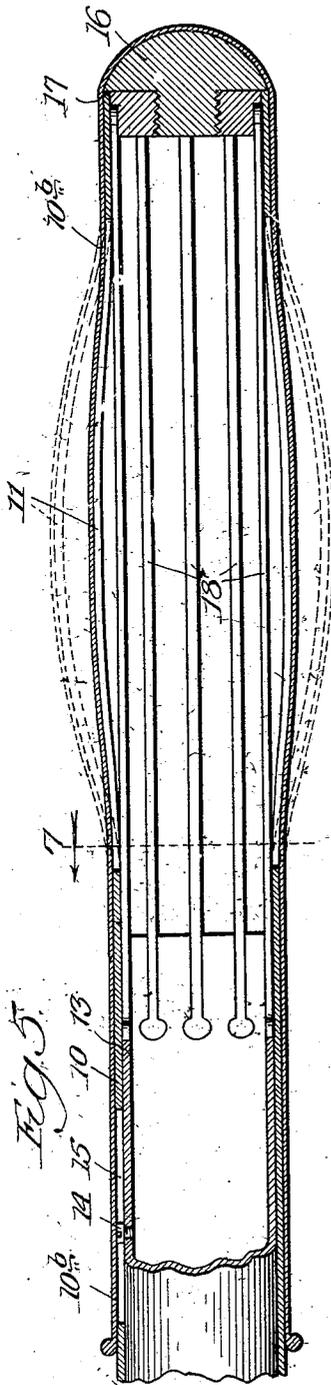


Fig. 5.



Fig. 7.

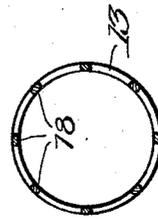


Fig. 8.

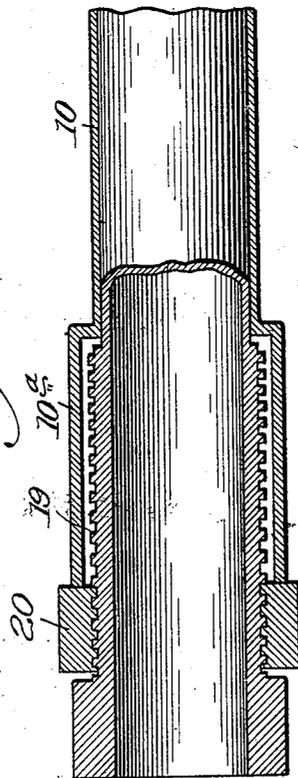


Fig. 6.

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ABDOMINOSCOPE.

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This invention relates to abdominoscopes and the like for use by surgeons in exploring the abdominal cavity and is fully described in the following specification and shown in the accompanying drawings, in which,

Figure 1 is a side elevation of the expansible sheath;

Fig. 2 is a similar view of the inner sleeve;

Fig. 3 is a similar view of a tubular member carrying a lamp and mirror;

Fig. 4 is a partial enlarged longitudinal section of the inner end of the same;

Fig. 5 is a similar view of the inner end of the sleeve and sheath assembled;

Fig. 6 is a similar view of the outer end of the same;

Fig. 7 is a transverse section of the sheath on the line 7 of Fig. 5; and

Fig. 8 is a similar section of the inner sleeve.

The embodiment illustrated comprises an outer member having a tubular sheath 10, the lower end having a series of strips 11 separated by longitudinal slots 12 and having a circular member 10^b connected to the outer ends of the strips 11 separated by longitudinal slots 12 and having a circular member 10^a connected to the outer ends of the strips 11. The inner sleeve 13 is slidably mounted therein as shown in Fig. 5 and is prevented from turning by means of a screw or the like 14 on the inner sleeve which slides in a longitudinal slot 15 on the sheath.

The inner end of the sleeve 13 has a button 16 which lies outside of the sheath 10 and which has a shoulder 17 which prevents it from being drawn through the sheath. The button 16 bears upon the outer end of the circular member 11 and is connected to the sleeve 13 by means of a series of parallel tension members 18 which preferably have the same spacing as the strips 11, one of the members 18 lying beneath each of these strips.

The outer end of the sleeve 13 is provided with spiral threads 19 on which operates a nut 20 which bears against the circular member 10^a of the sheath 10. As the nut 20 is turned so as to withdraw the threads 19 from the sheath expansion 10^a the strips 11 are forced up as shown in dotted lines in Fig. 5 thereby enlarging the slots 12 beneath them. In using the instrument it

is covered by a thin transparent covering 10^b of rubber, fish bladder or the like and is inserted through an opening in the abdominal cavity in the form shown in full lines in Fig. 5 after which the nut 20 is turned so as to expand the strips 11 of the expansible sheath as shown in dotted lines in Fig. 5.

In this condition, the exploration tube 21 is inserted. This consists of a thin tube carrying an incandescent lamp 22 near its lower end, this lamp being screwed or otherwise secured in a suitable socket 23, this socket being connected by means of a lead 24 with the tube 21 while an insulated wire 25 is led from the opposite terminal 26 of the lamp. Wires 27 and 28 then serve to connect in the well known manner the insulated wire 25 and the tube 21 with a suitable source of electric current so that when a switch (not shown) is operated, the lamp 22 will be lighted. Between the observer and the lamp 25 is a mirror 29 of any suitable material.

When this exploratory tube is inserted within the expansible sheath after it has been opened as previously explained and the lamp 22 lighted, the operator may look through the tube 21 and see in the mirror 29 the reflection of the interior of the cavities which are being explored. By turning the tube 21, the line of vision may be directed toward various points. The thin transparent covering 10^b helps to prevent any of the adjacent portions of flesh from being caught between the strips 11.

While I have shown and described certain embodiments of my invention, it is to be understood that it is capable of many modifications. Changes, therefore, in the construction and arrangement may be made without departing from the spirit and scope of the invention as disclosed in the appended claims.

I claim:

1. In a surgical instrument, a sheath comprising a tube having a series of outwardly bowed spaced longitudinal strips, means for exerting endwise pressure on said strips to cause them to spread by bending between their ends, and means insertable into said sheath for exploring through the slits between said strips the cavity into which said sheath is inserted.

2. In a surgical instrument, a sheath comprising a tube having a series of outwardly

- bowed spaced longitudinal strips, an inner tube within said sheath having an external screw thread, a nut threaded thereon for exerting endwise pressure on said strips outwardly to cause them to spread by bending between their ends, and means insertable into said sheath for exploring through the slits between said strips the cavity into which said sheath is inserted.
3. In a surgical instrument, a sheath comprising a tube having a series of outwardly bowed spaced longitudinal strips, an inner tube within said sheath having an external screw thread, a nut threaded thereon for exerting endwise pressure on said strips to cause them to spread by bending between their ends, means for preventing one tube from turning with respect to the other, and means insertable into said sheath for exploring through the slits between said strips the cavity into which said sheath is inserted.
4. In a surgical instrument, a sheath comprising a tube having a series of longitudinal strips, means for forcing said strips outwardly to cause them to spread by bending between their ends, and means insertable into said sheath for exploring through the slits between said strips the cavity into which said sheath is inserted.
5. In a surgical instrument, a sheath comprising a tube having a series of outwardly bowed spaced longitudinal strips and a circular member connected to the outer ends of said strips, means for exerting endwise pressure to said member to cause said strips to spread by bending between their ends, and means insertable into said sheath for exploring through the slits between said strips the cavity into which said sheath is inserted.

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