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SEARCH ROOM
SUBSTITUTE FOR MISSING XR

[11] 3,626,471

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[54] ILLUMINATED SUCTION BRAIN RETRACTOR

4 Claims, 3 Drawing Figs.

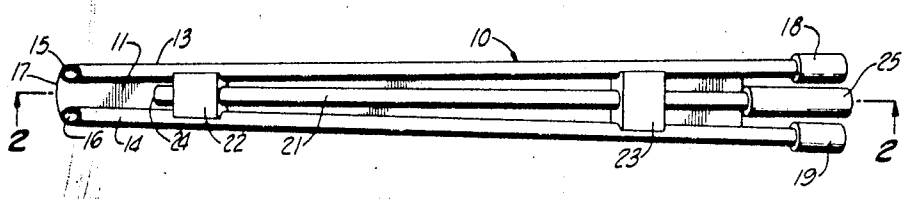
[52] U.S. Cl. **128/20,** 128/4, 128/6, 128/16, 128/276
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[50] Field of Search 128/4, 6, 9, 20, 276, 16, 351

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ABSTRACT: A surgical tool comprising a brain retractor is shaped so that it may pass through an opening in the skull. The tool has an arched blade with a concave lower surface, flat in cross section, and a pair of tubes mounted on the marginal edges of the arched blade are flush with the lower surface thereof. Both tubes may be connected to a source of suction pressure for removal of fluids from the operating area, or only one may be so connected, with the other supplying a flushing fluid. A curved fiber optic element is mounted upon the arched blade between the tubes to illuminate the operating area.



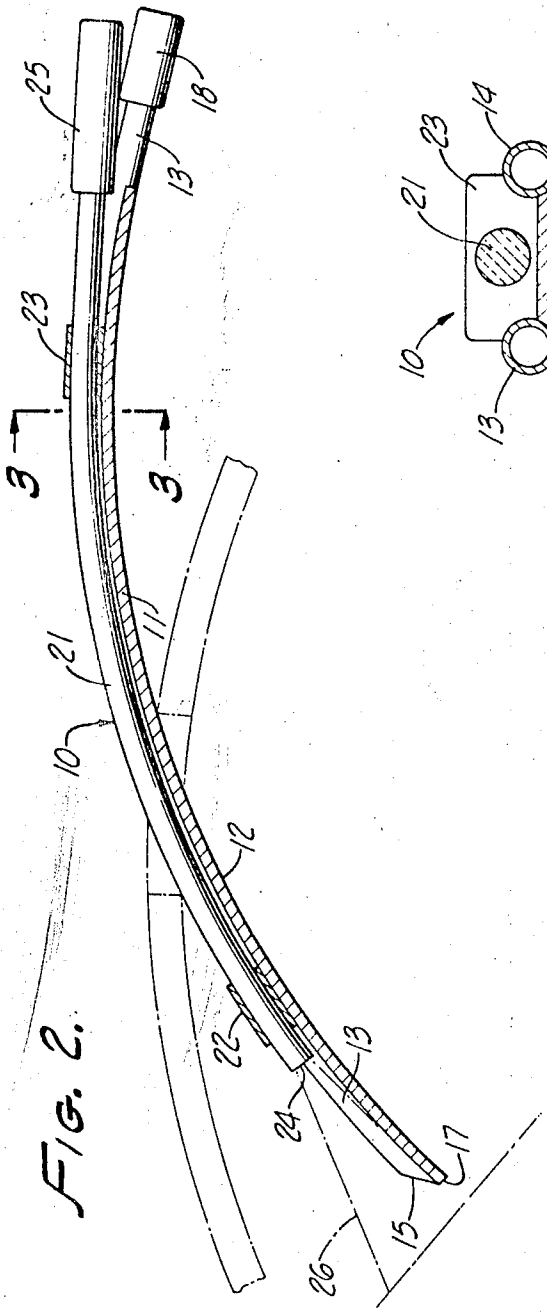


FIG. 2.

FIG. 3.

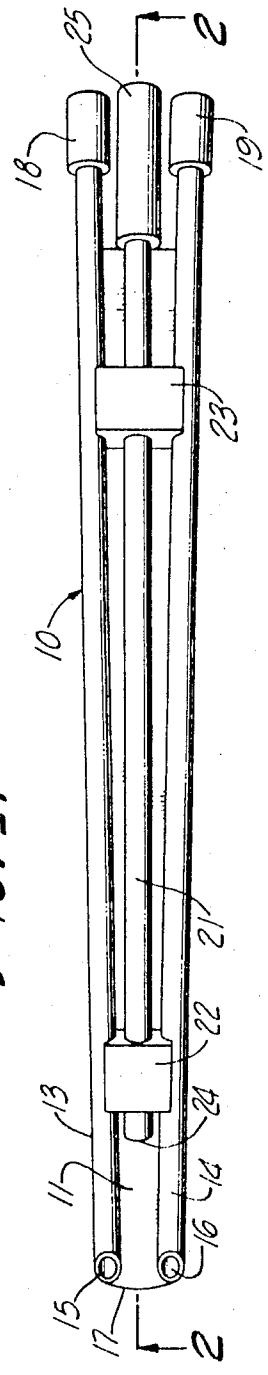


FIG. 1.

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ILLUMINATED SUCTION BRAIN RETRACTOR

This invention relates to surgical instruments and is particularly directed to improvements in a brain retractor adapted to be operated by the surgeon through a hole in the patient's skull. The brain retractor is equipped with at least one suction tube for removing fluids from the operating area and is provided with a curved fiber optic for illuminating the operating area. A second tube may also be used to apply suction, or it may be used to supply flushing fluid to the operating area. The fiber optic is nested between the tubes to minimize overall thickness of the tool, in order to facilitate its use through the skull opening.

In the drawings:

FIG. 1 is a top plan view showing a preferred embodiment of this invention.

FIG. 2 is a sectional elevation taken substantially on the lines 2—2 as shown in FIG. 1.

FIG. 3 is a transverse section taken substantially on the lines 3—3 as shown in FIG. 2.

Referring to the drawings, the surgical tool generally designated **10** includes an arched retractor blade **11** having an undersurface **12** longitudinally curved and substantially flat in cross section. A pair of tubes **13** and **14** are provided, one tube being positioned at each marginal edge of the retractor blade, respectively, each tube being substantially flush with said undersurface **12**. The tubes **13** and **14** are joined to the arched retractor blade **12** throughout their lengths to stiffen the retractor blade **11**. The tubes have slanted open ends **15** and **16** adjacent the forward end **17** of the retractor blade **11**. Each tube has a socket **18**, **19** for connection to the source of suction pressure, or alternatively, one of the tubes may be connected to suction pressure and the other to a source of flushing fluid. As shown in FIG. **3**, the outer surfaces of the tubes **14** and **13** merge smoothly with the undersurface **12** of the arched retractor blade **11** so that the side edges of the tool are rounded.

A fiber optic element **21** of conventional form is curved to match the curvature of the retractor blade **11** and is nested between the tubes **13** and **14**. Axially spaced clips **22** and **23** hold the fiber optic element **21** in position, and the forward end **24** terminates short of the open ends **15** of the tubes **13** and **14**. A socket **25** is provided on the other end of the fiber optic element **21** to receive a fiber optic lead, not shown, from a conventional illuminator. The light beam **26** extending from the forward end **24** of the fiber optic element **21** serves to illuminate the operating area, while forming a minimum obstruction in the surgeon's viewing area. The use of the fiber optic element has an important advantage in that it acts as a filter to screen out heat which would have harmful effects upon brain tissue.

In use, the tool is extended by the surgeon through an opening in the skull, and the undersurface **12** presses against the tissue to retract it, to expose an operating area. The nesting of the fiber optic element **21** between the suction tubes **13** and **14** minimizes the transverse thickness dimension in such a manner that the tool is substantially wider than its overall thickness. This is important in minimizing the size of the necessary hole to be formed in the skull, and in providing maximum unblocked viewing area for the surgeon. Uniform illumination of the depth of a surgical wound is provided while removal of blood or fluid is accomplished by one or both of the tubes. One of the tubes may also be used to deliver an irrigating solution into the wound. The convex curvature of the retractor blade permits the surgeon to hold the instrument without interfering with visualization of the wound.

Having fully described my invention, it is to be understood that I am not to be limited to the details herein set forth but that my invention is of the full scope of the appended claims.

I claim:

1. In a surgical tool of the class described, the combination of an arched retractor blade having a concave undersurface longitudinally curved and substantially flat in cross section, a pair of tubes, one positioned at each marginal edge of the retractor blade, respectively, and substantially flush with said undersurface, and a curved fiber optic element mounted on the retractor blade and nested between said tubes.

2. In a surgical tool of the class described, the combination of an arched retractor blade having a concave undersurface longitudinally curved and substantially flat in cross section, a pair of tubes, one positioned at each marginal edge of the retractor blade, respectively, and substantially flush with said undersurface, and a curved fiber optic element mounted on the retractor blade and nested between said tubes, said tubes having slanted open ends terminating near the forward end of the retractor blade.

3. The combination set forth in claim 1 in which the open end of the fiber optic element terminates short of the open ends of the tubes.

4. The surgical tool construction set forth in claim 1 wherein the surgical tool is substantially wider than its overall thickness, in transverse dimension.

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