

[54] OPTICAL CATHETER

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[58] Field of Search 128/4, 5, 6, 7, 8; 604/264, 280, 283

[56] References Cited

U.S. PATENT DOCUMENTS

3,831,017	8/1974	Auer	128/6 X
3,858,577	1/1975	Bass et al.	128/8
4,011,403	3/1977	Epstein et al.	358/209
4,254,762	3/1981	Yoon	128/4
4,269,192	5/1981	Matsuo	128/6 X
4,313,431	2/1982	Frank	128/7
4,589,404	5/1986	Barath et al.	128/6
4,624,243	11/1986	Lowery et al.	128/6
4,736,733	2/1987	Adair	128/6

OTHER PUBLICATIONS

Microvasive Visicath advertisement submitted Apr. 9, 1987.

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[57] ABSTRACT

A sterilizable catheter of small diameter has a central coherent fiber bundle for carrying an image to a viewing means, and the fiber bundle is surrounded by light fibers. The proximate end of the catheter is provided with a coupling means for aligning the coherent optical bundle with the optical system of the viewing means and for providing an interface with light transmitting means to transmit light from a light source along the light fibers to the body cavity. The coupling means may have a diameter no bigger than the diameter of the covering of the catheter. When the catheter is used inside a larger endoscope or a trochar, the endoscope or trochar can be removed while the catheter remains in place. This is accomplished by removing the viewing means and sliding the endoscope or trochar over the catheter and then replacing the viewing means for further viewing within the body cavity. This device can be used for detection for cancer cells and treatment thereof by phototherapy. A fluorescent dye is attached to the cancer cells and subsequently exposed to an exciting laser light frequency. The fluorescent light is transmitted and displayed on the video monitor and the same light frequency is then transmitted through the light fibers to the cell for phototherapy treatment.

13 Claims, 7 Drawing Sheets

