pin 64 provides for registration of the telescope within a sheath, etc.

In operation, the telescope is ordinarily used with a sheath for maximum visualization of the internal orifice. The sheath with a suitable obturator may be inserted into the body orifice. Then the obturator is removed and the telescope is inserted within the sheath and connected to an external source of light, for instance, by means of a flexible light carrier coupling to jack 34 and to the light source. The portions of the orifice immediately adjacent to the objective lens may be brilliantly illuminated as an aid to examination and treatment.

Turning now to FIGURES 5–9 cystoscope 100 is comprised generally of light carrying sheath 102 and telescope 104 inserted in sheath 102. Sheath 102 is further comprised of annular mounting member 106 which is threadably engaged by mounting member 108. Gasket 110 is inserted between members 106 and 108 and serves to form a tight seal between them in the assembled position.

Sheath 102 is further comprised of outer tube 112 and inner tube 114. The proximal end of outer tube 112 is connected to mounting member 106 and terminates adjacent to jack 116 which is also connected to mounting member 106. Mounting ring 118 forms a tight seal with outer tube 112 and is positioned in relation to mounting member 106 by locating pin 120.

The flared proximal end portion 122 of inner tube 114 is connected to mounting member 106 and opens into channel 124. The proximal end portion of inner tube 114 terminates near the proximal end of mounting member 106, as shown in FIGURE 7. Mounting member 106 supports inner tube 114 in eccentric relation to outer tube 112 so that they form a crescent-shaped chamber 126 between them. Optic fibers 128 are disposed in chamber 126.

The distal end portion 130 of outer tube 112 extends beyond the distal end of inner tube 114 and is preferably bent to form a slight concave angle with the main body of outer tube 112. Polished metal tip 132 is inserted into the distal end portion 130 in order to aid the easy insertion of the cystoscope into the body orifice. Distal end portion 134 of optic fibers 128 is shaped into a solid bar configuration as shown in FIGURE 7 and is disposed between tip 132 and bridge 136 which is mounted on the distal end of inner tube 114.

Telescope 104 is inserted in sheath 102 in engagement with mounting ring 108. Telescope 104 is maintained in fixed position by a locking device made up of annular member 138 which is free to rotate about mounting member 108 but is restrained from longitudinal movement by annular ring 144 and by shoulder 140 on member 138 which engages a corresponding shoulder 142 on member 108. Annular member 138 may be rotated by manipulation of lever 146 to lock a pair of oppositely disposed pins 148 on telescope 104 into slots 150 of member 138, one slot 150 being shown in phantom.

Telescope 104 is further made up of eyepiece 152, an ocular (not shown), and a lens system is disposed within telescope tube 154. Telesocpe tube 154 extends within inner tube 114 and at its proximal end contains objective 156 which is positioned adjacent bridge 136. Spacers 158 maintain a spaced relation between the objective and succeeding internal lenses 160.

The proximal end portion 166 of optic fibers 128 is formed into a solid rod and disposed within and supported by jack 116.

Conduits 168, 170 communicate with channel 124 in mounting member 106 and may be used to introduce or remove fluids from the internal orifice through the inner tube 114. The flow of fluids through conduits 168, 170 is controlled by valves 172, 174, respectively. The fluids may flow through opening 176 in outer tube 112 and inner tube 114.

In operation, the cystoscope may be placed within the internal orifice, using an obturator to close opening 176. Following removal of the obturator, internal fluids may be drained or insufflation fluids may be inserted into the orifice. Telescope 104 may be readily inserted into the interior of inner tube 114 for observation of the internal orifice. The optic fibers, being coupled to an external source of light by means of jack 116, serve to conduct light to the distal end portion of the optic fibers to brilliantly illuminate the internal orifice

If desired, the sheath of this invention may be made in a convex configuration, as shown in FIGURE 9. The arrangement is similar to that as shown in FIGURES 5 through 8 except that outer tube 112 has a convex bend and serves to support tip 132 in a downward position with relation to optic fiber distal end portion 134 and bridge 136.

Culdoscope 200 is comprises of sheath 202 and telescope 204, as shown in FIGURES 10–13. Mounting member 206 supports component parts of sheath 202 and serves to threadably connect to telescope 204. Outer tube 208 is connected to mounting member 206 and terminates at its proximal end adjacent jack 210 which is also connected to mounting member 206. Inner tube 212 is flared at its distal end portion 214 and connected to mounting member 206. As shown in FIGURE 12, the proximal end of inner tube 214 is coextensive with shoulder 216 of mounting member 206.

Inner tube 212 is supported eccentrically adjacent and inside outer tube 208 forming a crescent-shaped chamber 218 therewith. Optic fibers 220 are disposed within the crescent-shaped chamber 218 and extend through the crescent-shaped chamber and through channel 222 in mounting member 206 into jack 210. The proximal end portions 224 of optic fibers 220 are formed into a solid rod and supported by jack 210.

Distal end portion 226 of outer tube 208 extends beyond the distal end portion of inner tube 212 and serves to support beak 228. Distal end portions 230 of optic fibers 220 are formed into a solid rod, as shown in FIGURE 12, which is mounted adjacent tip 228 and bridge 232.

The telescope 204 further comprises eyepiece 234 and an ocular (not shown). Telescope tube 236 extends within inner tube 212 and has its distal end objective 238. Spacers 240 serve to separate the objective lens and middle lenses 242.

In operation, the culdoscope may be inserted into the internal body orifice with the aid of a trocar and cannula, in well known manner. The optic fibers are then connected to a suitable source of external light by coupling to jack 210 and provide a high degree of illumination of the orifice. The telescope may be inserted into the inner tube for observation of the internal orifice.

The terms and expressions which have been employed are used as terms of description and not of limitation, and there is no intention in the use of such terms and expressions of excluding any equivalents of the features shown and described or portions thereof, but it is recognized that various modifications are possible within the scope of the invention claimed.

What is claimed is:

1. An endoscope suitable for use in examining internal cavities, comprising elongated tubular means forming side by side longitudinally extending chambers, said tubular means having a laterally presented opening formed therein adjacent one end thereof, a bridge member extending transversely of said tubular means in said opening, a plurality of light-carrying fibers extending in one of said chambers toward and beyond said bridge member with said fibers passing to one side of said bridge member away from said opening, said fibers adjacent said bridge member being rigidly adhered together and forming an end wall said fibers extending partially about said bridge member with said end wall disposed in said opening, and