

the recess 142 (outer peripheral surface of the fixing sleeve 140), so that the fixing sleeve 140 is gradually reduced in diameter to contact the outer periphery of the sheath 31 of the insert portion 30 under pressure. As a consequence, the slide sleeve 130 is fixedly secured.

In this embodiment, fixture means for fixing the slide sleeve 130 is constituted of the fixing sleeve 140 and the fixture screw 150.

It should be noted that the present invention is not limited to the above embodiments and many changes can be made. For example, in the embodiments shown in FIGS. 9 to 13, it is possible that the outer peripheral surface of the fitting sleeve portion is formed as a tapered surface which is gradually reduced in diameter toward the front end of the fitting sleeve portion and a sleeve portion of a rear end part of the insert tube structure is attached to this outer periphery as shown in FIG. 8.

A video camera having a CCD may be connected to the eye piece portion disposed at the rear end of the body. It is also possible that in the image transmission system, a CCD is disposed rearwardly of the objective lens and signal wires connected to the CCD is guided out through the insert portion and body. In the case where the CCD is employed, a state of the airway can be displayed on the TV monitor. In this way, operators can watch the TV monitor together. This is also useful for training beginners.

It should be noted that instead of the light guide tube, an illumination device containing batteries and a lamp may be secured directly to the body. In that case, a rear end of the bundle of optical fibers is optically connected to the lamp.

It should be noted that the insert tube structure may be constituted of a tube alone.

It should be noted that the glass plate 37 disposed at the distal end of the sheath 31 may be omitted.

What is claimed is:

1. A tracheal airway apparatus comprising

- (a) a tracheal insert tube for insertion into a tracheal airway, said tracheal insert tube having a low rigidity;
- (b) an endoscope including a body portion and an insert portion extending forwardly of said body portion and inserted into said tracheal insert tube;
- (c) said insert portion of said endoscope comprising an outer tube and an inner tube received in said outer tube, said inner tube being flexible and receiving illumination light transmission means and image transmission means, said outer tube having a semi-hard property, a rear end of said outer tube being detachably attached to a distal end of said body portion of said endoscope, wherein said outer tube comprises an aluminum tube and two synthetic resin tubes laminated on an inner and an outer periphery, respectively, of said aluminum tube, said aluminum tube having a slit formed over an entire length thereof, the slit forming mating edges in said aluminum tube which overlap each other.

2. A tracheal airway apparatus according to claim 1, in which a space is formed between an outer periphery of said inner tube and an inner periphery of said outer tube.

3. A tracheal airway apparatus according to claim 2, further comprising closure means for closing an open distal end of said outer tube, said closure means having a transparent portion faced with a distal end of said inner tube.

4. A tracheal airway apparatus according to claim 3, in which said closure means has a chip fixed to the distal end part of said outer tube, said chip having a through-hole formed therein and coaxial with said outer tube, an open distal end of said through-hole being attached with a trans-

parent plate serving as said transparent portion, the distal end part of said inner tube being received in said through-hole.

5. A tracheal airway apparatus according to claim 1, in which said body portion has a fitting sleeve portion disposed on a front end face thereof such that said fitting sleeve portion coaxially surrounds a rear end part of said insert portion, a rear end part of said tracheal insert tube being detachably fitted to said fitting sleeve portion.

6. A tracheal airway apparatus according to claim 5, in which contacting surfaces of said fitting sleeve portion and the rear part of said tracheal insert tube are tapered at a same angle of taper.

7. A tracheal airway apparatus according to claim 1, further comprising a slide sleeve axially slidably attached to said outer tube, and fixture means for fixing said slide sleeve to said outer tube at a desired position thereof, said slide sleeve having a fitting sleeve portion formed on a front part thereof, a rear end part of said tracheal insert tube being detachably fitted to said fitting sleeve portion.

8. A tracheal airway apparatus according to claim 7, in which contacting surfaces of said fitting sleeve portion and a rear end part of said insert tube are tapered at a same angle of taper.

9. A tracheal airway apparatus according to claim 1, in which a distal end of said insertion portion of said endoscope substantially coincides with a distal end of said tracheal insert tube.

10. A tracheal airway apparatus comprising:

- (a) a tracheal insert tube for insertion into a tracheal airway, said tracheal insert tube having a low rigidity;
- (b) an endoscope including a body portion and an insert portion extending forwardly of said body portion and inserted into said tracheal insert tube;
- (c) said insert portion of said endoscope comprising an outer tube and an inner tube received in said outer tube, said inner tube being flexible and receiving illumination light transmission means and image transmission means, said outer tube having a semi-hard property, a rear end of said outer tube being detachably attached to a distal end of said body portion of said endoscope, and wherein a space is formed between an outer periphery of said inner tube and an inner periphery of said outer tube; and
- (d) connection means for detachably attaching the rear end of said outer tube to the distal end of said body portion, said connection means comprising:
 - (i) a cylindrical receiving portion formed on a front wall of said body portion and having a threaded portion formed on an outer periphery of said cylindrical receiving portion;
 - (ii) an attachment fixed to the rear end of said outer tube and received in said cylindrical receiving portion, said inner tube being coaxial with said cylindrical receiving portion and extending rearwardly through the rear end of said outer tube, said attachment and the front wall of said body portion;
 - (iii) a connection sleeve threadedly engaged with said cylindrical receiving portion, said connection sleeve having an annular flange portion formed on a distal end thereof and extending radially inwardly, said attachment being retained by said flange portion.

11. A tracheal airway apparatus comprising:

- (a) a tracheal insert tube for insertion into a tracheal airway, said tracheal insert tube having a low rigidity;