

(12) UK Patent Application (19) GB (11) 2 102 294 A

(21) Application No 8214288
(22) Date of filing 17 May 1982
(30) Priority data
(31) 3119725
(32) 18 May 1981
(33) Fed. Rep. of Germany (DE)
(43) Application published
2 Feb 1983

(51) INT CL³
A61B 1/26
(52) Domestic classification
A5R EN

(56) Documents cited
None

(58) Field of search
A5R

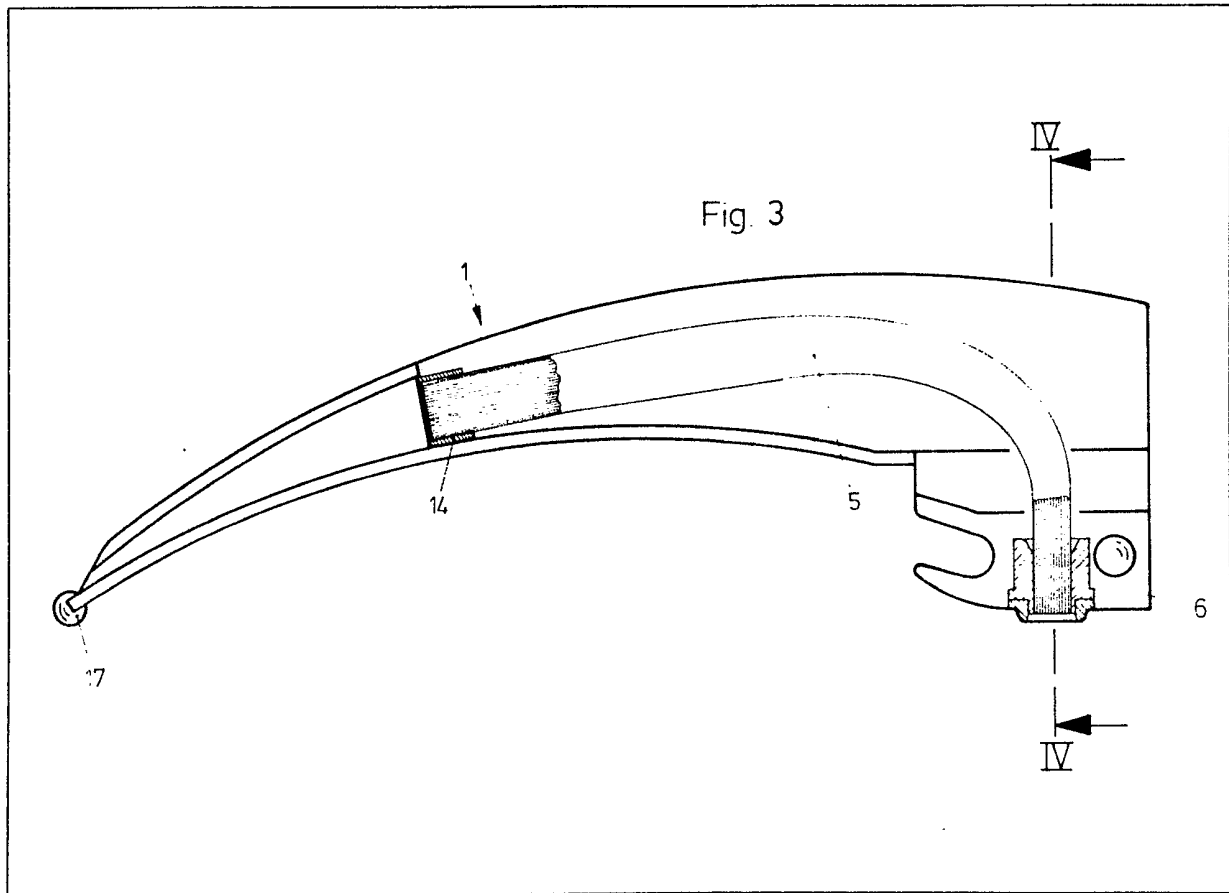
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(54) Laryngoscope and improved blade therefor

(57) The invention relates to a laryngoscope blade (1) which is constructed from two L-shaped elongated profiled members (8, 9) which are fitted together with a mutual overlap and connected to one another, preferably to leave a cavity (10) therebetween. This construction especially enables the laryngoscope blade to be manufactured easily and conveniently and the cavity can accommodate a light guide (5) for illuminating the throat of a patient from a light bulb housed in a handle of the blade.



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Fig. 1

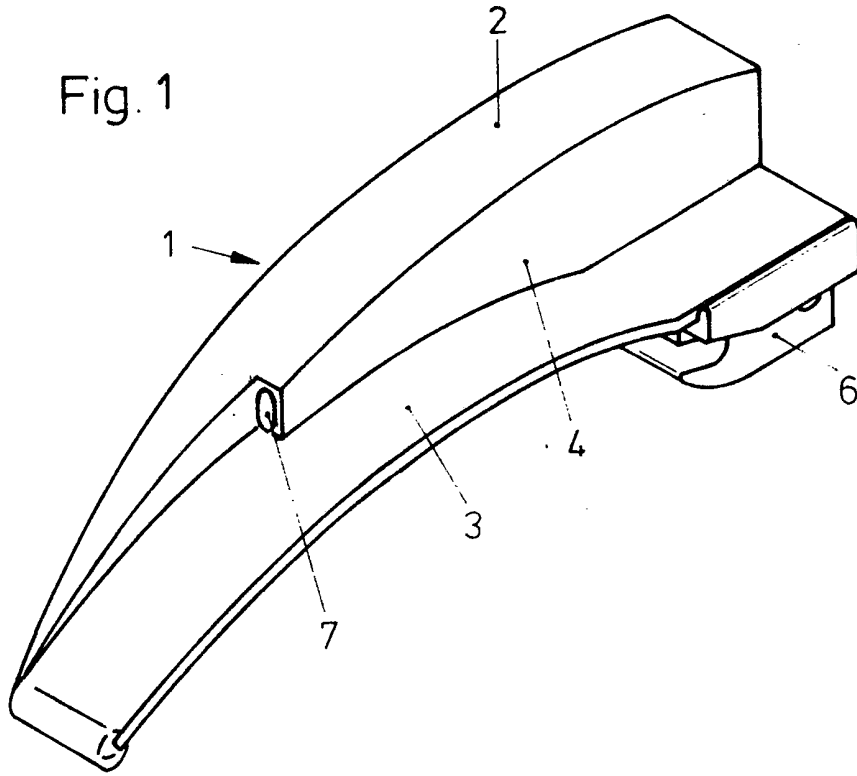
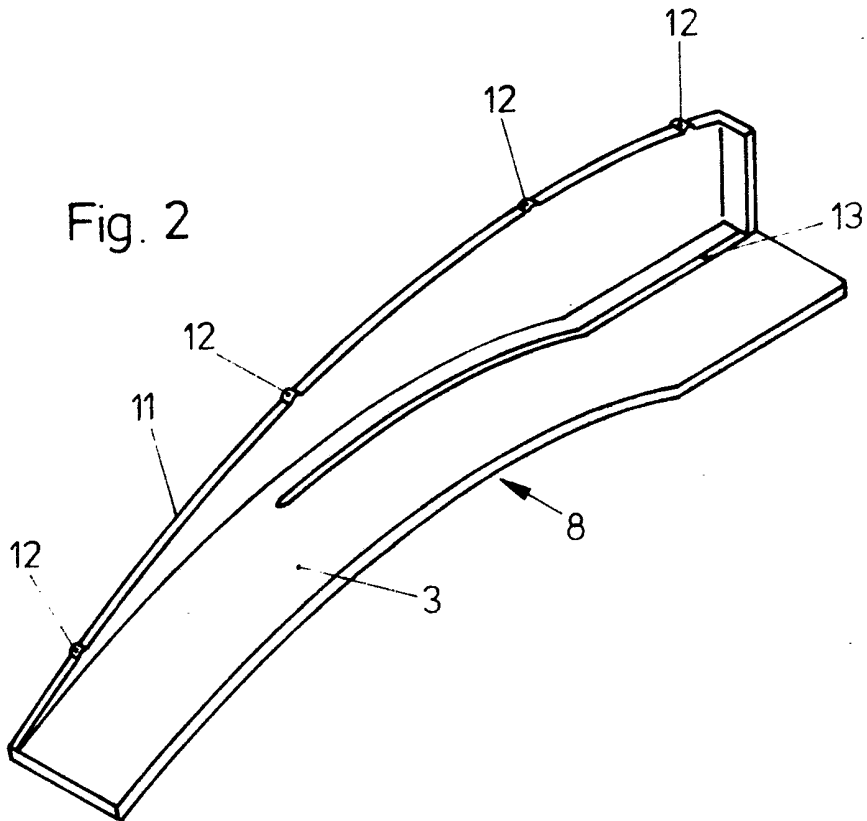
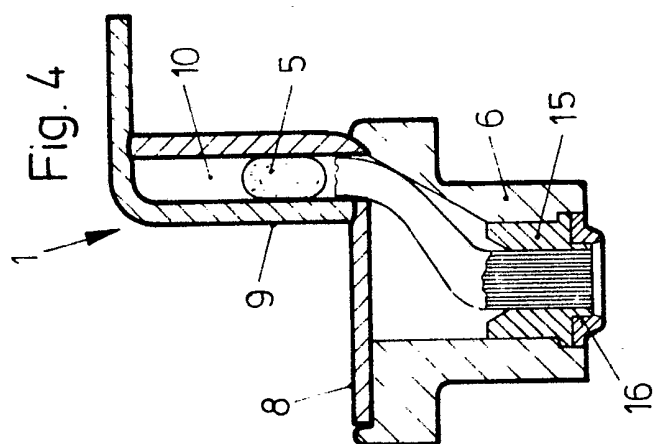
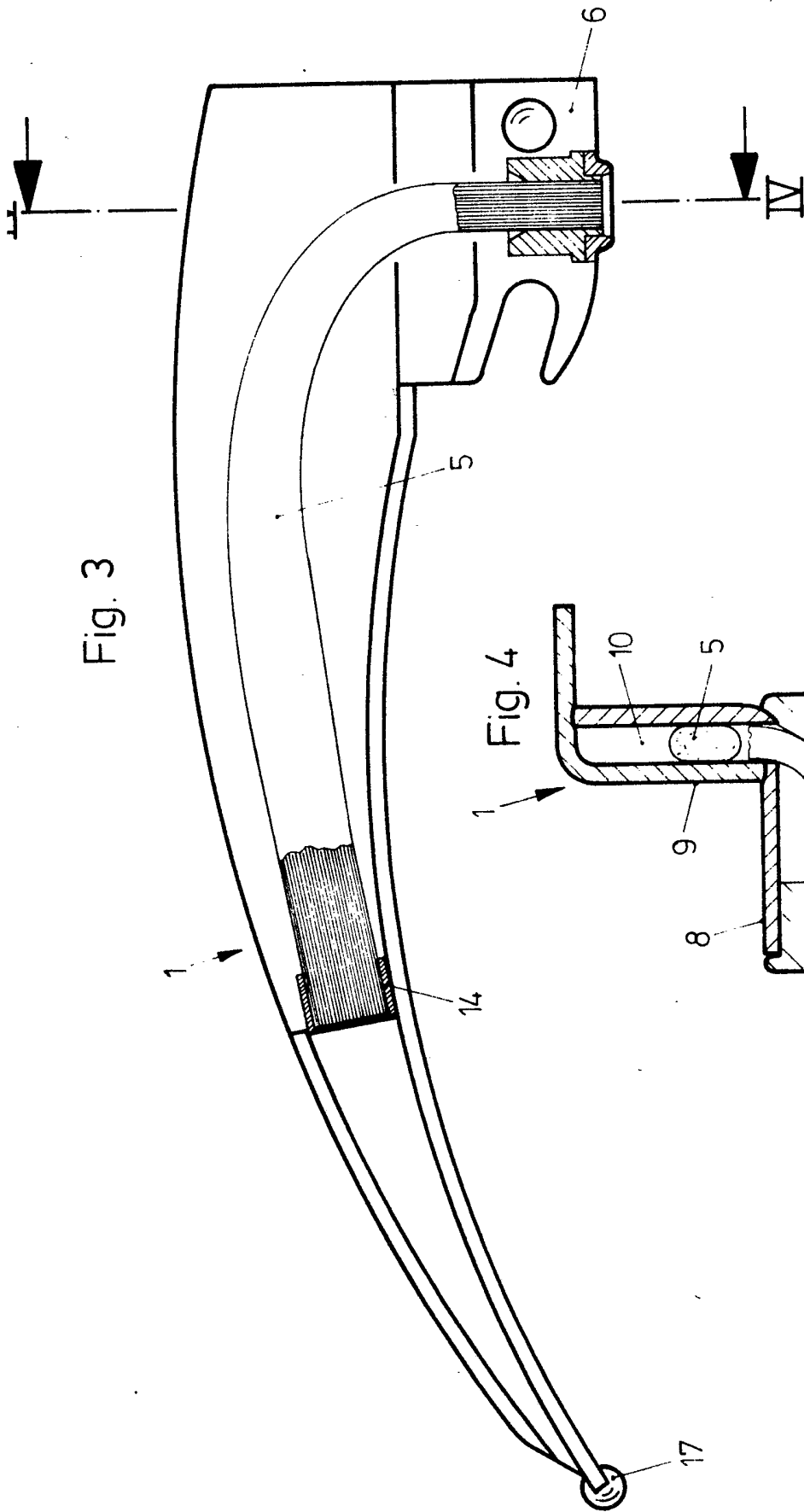


Fig. 2



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SPECIFICATION

Laryngoscope and improved blade therefor

Technical Field

5 This invention relates to a laryngoscope and in particular to the blade of a laryngoscope.

Discussion of Prior Art

A variety of differently shaped blades have been proposed for laryngoscopes and included among these are blades of a generally L-shaped or Z-shaped cross-section such as the Macintosh and Soper blades describes in the "Laryngoskope" pamphlet Med. 0773 DE published by Optotechnik Heine GmbH & Co. KG of Herrsching, West Germany.

10 In a known blade of generally L-shaped cross-section the web of the blade which is disposed generally vertically in use is thickened adjacent its upper edge to provide a suitably broad support surface against which the teeth of the patient rest in use of the blade. Additionally, the vertically extending web defines a channel which accommodates the supply cable of an electric bulb, the bulb being located between the proximal and distal ends of the blade and serving to illuminate the pharynx of the patient. In a known blade of generally Z-shaped cross-section, the teeth support surface provided at the upper end of the vertical web is extended beyond the vertical web to give the aforementioned Z-shaped cross-section.

15 In another known form of blade, a generally U-shaped cross-sectional part of the blade is used to receive the cable and bulbholder and the U-shaped part is attached to a section having a generally L-shaped cross-section.

20 The blades of these known laryngoscopes are castings which are relatively difficult to manufacture and in which the channels provided to receive the cables are made after manufacture or are produced subsequently by attaching a suitably profiled part. With these known methods of manufacture, relatively large wall thicknesses are unavoidable. A further disadvantage of the known laryngoscope blades, is that the cables, bulbholder and the bulb itself are difficult to clean. Moreover, the patient can suffer burns due to the fact that the bulb becomes hot in use.

25 The last-mentioned disadvantage can be avoided if a remote light source is used, which is accommodated, for example, in the handle of the laryngoscope, and the light emitted by the source is conducted by means of a bundle of optical fibers, accommodated in the blade, from the heel of the blade to the desired light outlet point. Even with this arrangement, however, the difficulties in the manufacture of a hollow casting for the blade, the associated large wall thickness and the correspondingly high weight of the blade have not been avoided.

60 Brief Disclosure of Invention

It is therefore an object of the invention to provide a laryngoscope blade which is easy to

manufacture and which in use, does not cause any hazards to the patient.

65 According to the invention a laryngoscope blade comprises two elongated profiled members of generally L-shaped cross-section connected together with a mutual overlap at least over a part of the length of the blade.

70 The profiled members can simply and rapidly be manufactured as stampings which are then put together, connected together (e.g. by welding or soldering), if necessary joined to a heel and subjected to a finishing treatment such as polishing and/or plating.

75 If, according to a preferred embodiment of the invention, the L-shaped profiled members are fitted together to define a cavity therebetween, the cavity can be used for receiving a light guide (e.g. a bundle of optical fibers), which light guide runs from the proximal end of the blade up to a distal outlet point located between the proximal and distal ends of the blade.

80 Preferably, the light guide is supported at each end in a holder which in turn is fixed (e.g. soldered or cemented) into the inlet and outlet of the channel.

85 To simplify manufacture, spaced-apart projections (e.g. studs) are formed along the contact edges of the L-shaped profiled members, which projections engage in grooves formed in the other profiled member. The provision of locating grooves facilitates the fitting together of the profiled members since the contact edges are guided during assembly of the blade and a mutual hold results afterwards. The L-shaped profiled members can then be fixed to one another by resistance-welding, whereafter the remaining gaps can be filled by hard soldering.

100 Brief Description of Drawings

One embodiment of laryngoscope blade in accordance with the invention will now be described, by way of example, with reference to the accompanying drawings in which:—

105 Figure 1 is a perspective view of the blade.

Figure 2 is a perspective view of one component of the blade shown in Figure 1, Figure 3 is a longitudinal section of the blade shown in Figure 1, and

110 Figure 4 is a cross-section taken on the line IV—IV of Figure 3.

Description of Preferred Embodiment

115 The blade 1 shown in the drawings has an approximately Z-shaped profile (see Figure 4) and provides a curved upper surface 2 serving as a support surface for the teeth of a patient, a curved lower surface 3, serving to hold the tongue of a patient out of the way and a web 4, which connects the upper surface 2 and the lower surface 3. The web 4 serves to receive a bundle 5 of optical fibers (see Figures 3 and 4), which bundle runs between a heel 6 of the blade 1 (connected to the lower surface 3) and a light outlet point 7 provided between the proximal and

distal ends of the blade 1. The channel formed by the web and the lower surface 3 and, when the laryngoscope is in use, the pharyngeal wall of a patient, permits easy introduction of an intubation catheter into the trachea of the patient.

From Figure 4, it can be seen that the blade 1 is constructed from two elongated profiled members 8 and 9 each of which has an approximately L-shaped cross-sectional form and which are connected together with a mutual overlap, to form a cavity 10 therebetween. The members 8 and 9 are preferably of stainless steel. Figure 2 shows the lower profiled member 8 which defines the lower surface 3. The upper edge 11 of the member 8 is provided with spaced-apart projections 12 which engage in a groove on the underside of the horizontal web of the profiled member 9. A groove 13 formed in the profiled member 8, receives an edge part of the vertical web of the profiled member 9.

In manufacture, the profiled members 8 and 9, shaped to give the desired cross-section of the blade 1, are correctly placed in contact with one another, and are fixed together (e.g. by resistance-welding and/or hard soldering). The heel 6 can be joined to the profiled member 8 in a similar manner, if desired in the same working step, but it can be formed integrally therewith.

The distal end of the bundle 5 of optical fibers is mounted in a preferably oval holder 14 (see Figure 3) which in turn is soldered or otherwise fixed into the orifice forming the outlet end of the cavity 10. From the outlet point 7, the bundle 5 of optical fibers is introduced into the bore provided in the heel 6 and is mounted there by means of a centering insert 15 and a preferably round holder 16.

To avoid sharp edges, a part-cylindrical profiled lip 17 is preferably fixed onto the distal end of the blade 1. As shown in Figure 3 it is affixed to the lower surface 3 defined by the profiled member 8.

To use the blade, the heel 6 would be hooked on to a handle which includes an electrical power source and a light bulb whose output light would be led to the proximal end of the bundle 5 and thus illuminate the patient's throat by light emitted from the distal end of the bundle 5.

CLAIMS

1. A laryngoscope blade comprising two elongated profiled members of generally L-shaped cross-section connected together with a mutual overlap at least over a part of the length of the blade.

2. A laryngoscope blade according to claim 1, in which the profiled members are connected together to define a cavity where the overlap occurs.

3. A laryngoscope blade according to claim 2, in which said cavity extends from the proximal end of the blade to a distal outlet point located between the proximal and distal ends of the blade and houses a light guide.

4. A laryngoscope blade according to claim 3, in which said light guide is supported at each end in a holder secured in said channel.

5. A laryngoscope blade according to any preceding claim, in which the elongated profiled members are connected together by means of an edge region of a respective one of the profiled members being received in a groove formed in the respective other profiled member.

6. A laryngoscope blade according to claim 5, in which each said edge region received in a groove is provided with spaced apart projections.

7. A laryngoscope blade according to any preceding claim, in which the two profiled members are of stainless steel and are connected together to form the blade by soldering.

8. A laryngoscope blade according to any preceding claim, in which the blade is curved in the elongate direction of the two conjoined members.

9. A laryngoscope blade according to claim 8, in which the distal end of the blade is formed by a part-cylindrical lip secured to one of the profiled members.

10. A laryngoscope blade substantially as hereinbefore described with reference to, and as illustrated in, the accompanying drawings.

11. A laryngoscope including a blade as claimed in claim 3 or any claim dependent thereon or claim 10, and a handle therefor which includes means to illuminate the proximal end of the light guide.