ENDOTRACHEAL TUBE USING LEAK HOLE TO LOWER DEAD SPACE

A tracheal tube ventilation apparatus (10) to more effectively remove expired gases. In one embodiment, one or more leak holes (40) are created in the side walls of an endotracheal tube (12) so that expired gases can leak out of the endotracheal tube (12) above the larynx. Each leak hole (40) might have a diameter between 0.5 and 4.0 mm. In another embodiment, a tube (12) is attached to a proportionately larger leak hole (40) so that the expired gases can be directed away from the leak hole to a specific location. In the case of mechanically controlled ventilation, a positive end expiratory pressure can be applied to this tube (12) to mechanically assist with the process of exhaling. In each of these embodiments, it is preferred, but not required, that the endotracheal tube 912 be an ultra-thin walled, two-stage tube (12) so as to further assist in the reduction of resistance to the flow of oxygen/air.
For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.
INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER
   IPC(7) : A61M 16/00; A61B 18/08; A62B 7/10, 18/08, 23/02
   According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED
   Minimum documentation searched (classification system followed by classification symbols)

   Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

   Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>x</td>
<td>US 4,446,864 A (WATSON et al) 08 May 1984 (08.05.1984), see entire document</td>
<td>1-4, 11-13, 17,18</td>
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<td>8,10</td>
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</table>

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

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Date of the actual completion of the international search: 17 June 2003 (17.06.2003)

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