

[54] ORO-PHARYNGEAL AIRWAY

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[52] U.S. Cl. 128/351

[51] Int. Cl.² A61M 16/00

[58] Field of Search 128/208, 351

[56] References Cited

UNITED STATES PATENTS

2,127,215	8/1938	Gwathmey	128/208
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[57] ABSTRACT

An improved oro-pharyngeal airway which comprises a relatively short straight bite portion having an extended elongated body portion formed in the general shape of the normal pharyngeal contour wherein the outer diameter of the body portion progressively increases from the distal to proximate end portions thereof so as to relieve any obstruction to the flow of air by the base of the tongue falling back on the posterior pharyngeal wall.

5 Claims, 10 Drawing Figures

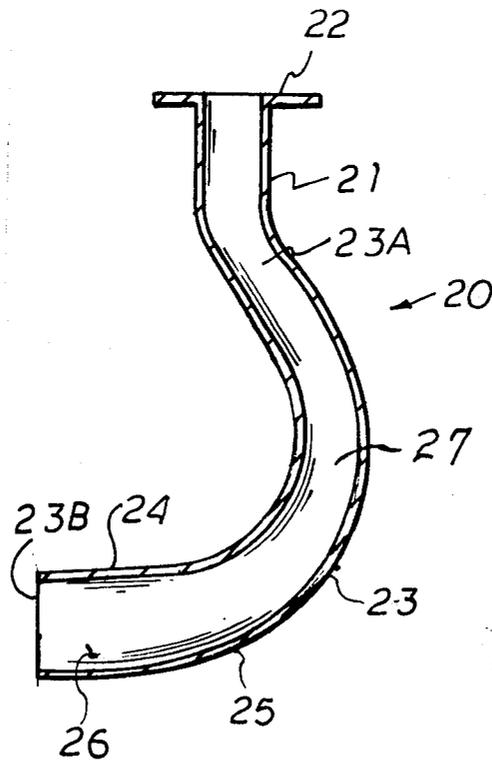


FIG. 3

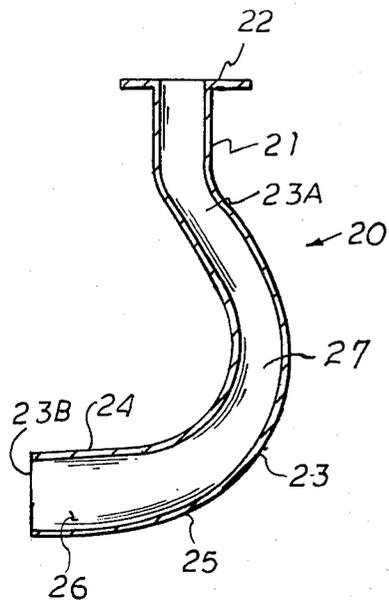


FIG. 1

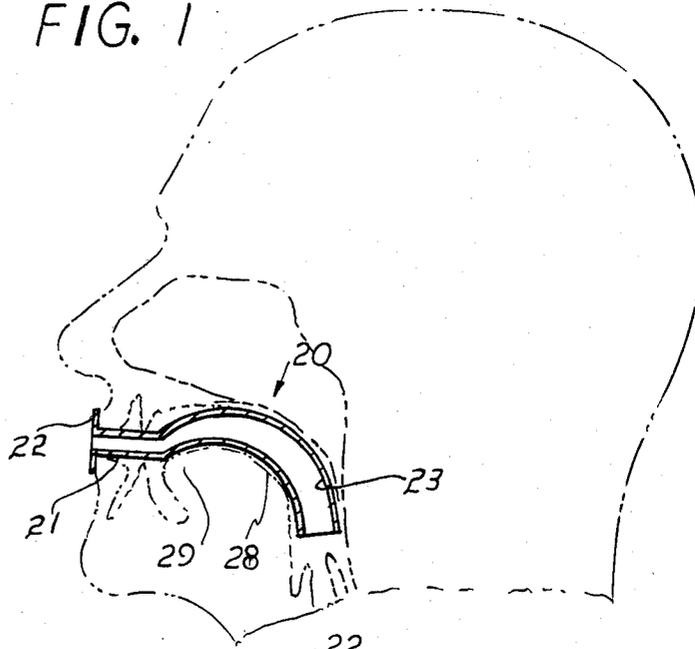


FIG. 4

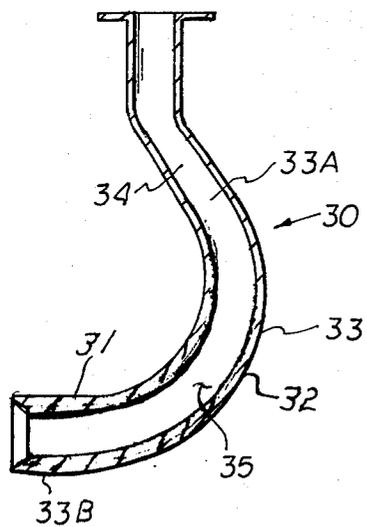


FIG. 2

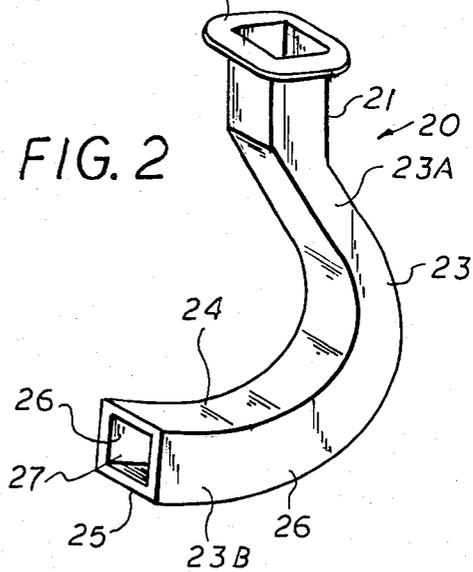


FIG. 6

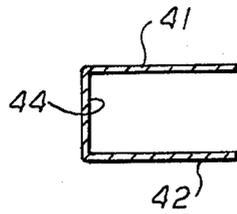


FIG. 5

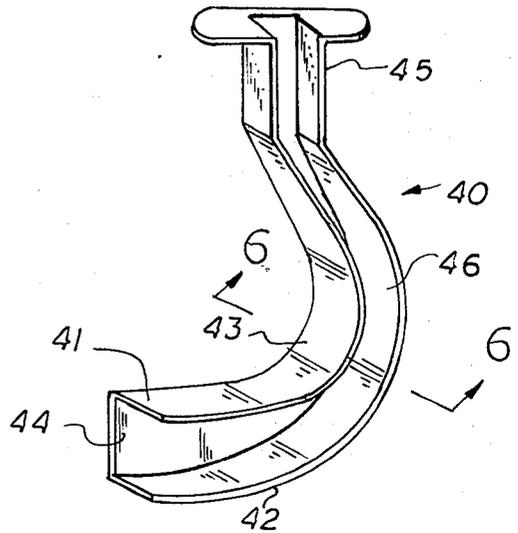


FIG. 10

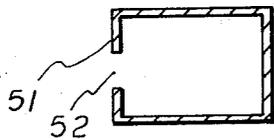


FIG. 9

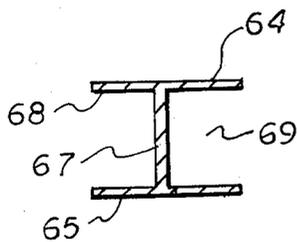
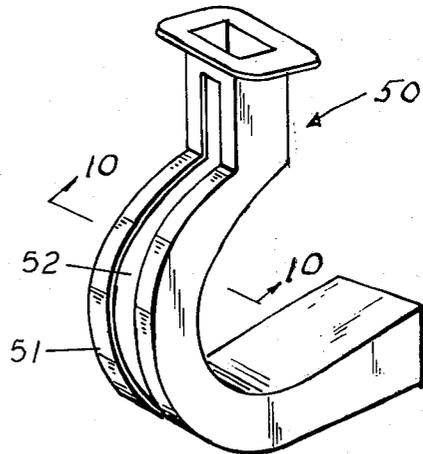
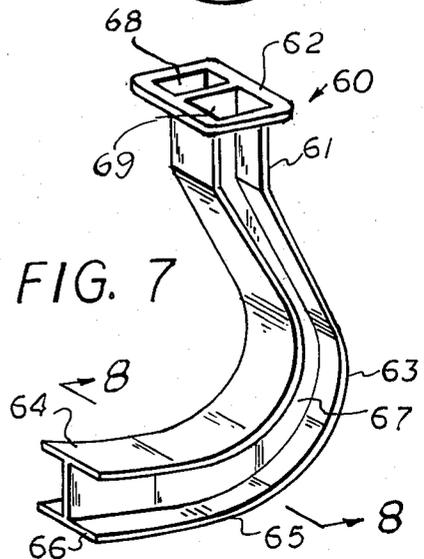


FIG. 8

FIG. 7



ORO-PHARYNGEAL AIRWAY

PROBLEM AND PRIOR ART

It is noted that several efforts have been made to develop a satisfactory respiratory device for insertion into the mouth and pharynx in the practice of anesthesiology and resuscitation as evidenced by the patented structures disclosed in the following noted U.S. Letters Patents: 3,756,244; 3,576,187; 3,568,680; 3,543,751; 3,398,747; 3,306,298; 2,705,959; 2,599,521; and 2,127,215. The known airways which are generally available have a curved body portion having generally uniform cross section throughout the length thereof. While such shaped pharyngeal airways are satisfactory for use on certain patients, it has been noted that in other patients the known airways will not always or completely relieve an obstruction to the flow of air. The incomplete relief of obstruction occurs primarily in those patients in which the known airway structures fail to elevate the base of the tongue sufficiently high to maintain the patency of the air passages.

OBJECTS

An object of this invention is to provide an oro-pharyngeal airway in which pharyngeal contour portion of the airway is formed with a progressively increasing outside diameter to more effectively elevate the base of a patient's tongue to more efficiently relieve any obstructions to air flow and to more effectively maintain the patency of the air passages.

Another object is to provide an oro-pharyngeal airway having a progressively increasing pharyngeal contour portion which can be readily cleaned.

Another object is to provide an oro-pharyngeal airway in which the external dimensions of the pharyngeal curved portion is progressively increased while the internal dead space can be maintained within optimum limits.

Another object is to provide an oro-pharyngeal airway which is readily simple in construction, relatively inexpensive to manufacture, and which is simple to use and/or clean.

BRIEF DESCRIPTION

The foregoing objects and other features and advantages are attained by an oro-pharyngeal airway having a generally straight bite portion and a connected pharyngeal curved body portion wherein the body portion is formed with a cross-sectional shape which progressively increases from the distal to proximate end thereof so that in operation the enlarged proximate end portion functions to elevate the base of the tongue higher so as to relieve any obstruction more effectively. In another form of the invention the wall thickness of the pharyngeal curved portion is progressively increased so that the outer dimension progressively increases from distal to proximate end while the internal passageway is maintained generally uniform in cross-section. In another form of the invention the progressively increasing pharyngeal curved portion is formed with a "C" shape cross-section to permit visibility of the passageway defined to facilitate cleaning.

FEATURES

A feature of this invention resides in the provision whereby the airway may be readily fabricated of any suitable material; e.g., metal, plastics, rubber and the like.

Another feature resides in the provision that the airway is specifically shaped and formed to elevate the base of the tongue and thereby relieve any obstruction to the flow of air caused by the base of the tongue falling back in the posterior pharyngeal wall.

Another feature resides in the provision whereby the airway may be readily formed in different sizes to fit men, women, children or infant.

Other features and advantages will become more readily apparent when considered in view of the drawings and specification in which:

FIG. 1 is a longitudinal section of a patient's head illustrating the oro-pharyngeal airway in place.

FIG. 2 is a perspective view of an airway embodying this invention.

FIG. 3 is a sectional view of the airway of FIG. 2.

FIG. 4 is a sectional view of a modified embodiment.

FIG. 5 is a perspective view of another modified embodiment.

FIG. 6 is a detailed sectional view taken along line 6—6 of FIG. 5.

FIG. 7 is a perspective view of another modified embodiment.

FIG. 8 is a sectional view taken on line 8—8 on FIG. 7.

FIG. 9 is another modified construction.

FIG. 10 is a section view taken on line 10—10 on FIG. 9.

DETAILED DESCRIPTION

Referring to the drawings, there is shown in FIG. 1 a longitudinal section of a patient's head and neck illustrating how the oro-pharyngeal airway 20 embodying the present invention is applied. The oro-pharyngeal airway 20 as best seen in FIGS. 2 and 3 comprises a relatively short bite portion 21 which terminates in a lateral extending mouth flange 22. Connected to the other end of the bite portion 21 is an extended body portion 23 which is contoured or shaped in the form of a pharyngeal curve. In the form illustrated in FIG. 1, the bite portion 21 and extended body portion 23 is defined by an upper wall and lower wall portion 24, 25 respectively, interconnected in spaced relationship by opposed end walls 26—26. The wall portions 24, 25, 26—26 define a continuous air passageway 27. In accordance with this invention the upper and lower walls 24, 25 are spaced apart so that the spacing therebetween is progressively increased from the distal end 23A to proximate end 23B of the extended body portion 23. If desired, interconnecting or end walls 26—26 likewise may also progressively increase from distal to proximate end of the pharyngeal curved body portion 23. With this construction, the outside diameter of the extended body portion 23 progressively increases from distal 23A to proximate end 23B thereof.

With the construction described, it will be noted that the progressively increasing body portion 23, when inserted into the mouth and pharynx of a patient causes the base 28 of the patient's tongue 29 to be elevated to a higher degree and thus relieve any obstruction more effectively; and maintains the patency of the pharynx

passageways particularly in those patients where the base of the tongue tends to fall back on the posterior of the pharyngeal wall.

It will be understood that the airway 20 may be made of various materials; e.g., metal, hard rubber, plastic and the like, and in varying sizes for use on men, women, children and infants.

FIG. 4 illustrates a modified embodiment. In this embodiment, the construction of the airway 30 is identical to that described with respect to FIGS. 2 and 3, except that the wall thickness of the upper wall 31 and lower wall 32 progressively increases from the distal end or upper end portion 33A of the pharyngeal curved body portion 33 to the proximate or lower end portion 33B thereof. In this embodiment the dead air space can be reduced; i.e., upper and lower walls 31 and 32 and interconnecting or side walls 35 define a passageway 34 in which the cross-sectional area is maintained generally uniform throughout the length of the airway 30.

FIG. 5 illustrates another embodiment. In this embodiment the airway 40 is similar to that described with respect to FIGS. 2 and 3 except that the upper and lower walls 41, 42 of the pharyngeal curved body portion 43 are maintained in spaced relationship by a single end wall 44 that extends along the length of the body portion 43 and bite portion 45. Thus as seen in FIGS. 5 and 6, the passageway 46 is defined with a C-shaped cross section in which, the extended body portion progressively increased in cross-section area from the distal to proximate end thereof. With this construction, cleaning of the airway is greatly facilitated as the interior of the passageway is rendered relatively visible.

FIG. 9 illustrates another modified embodiment of airway 50. This embodiment is similar in all respects to the embodiment of FIGS. 1 and 2 except that the bottom wall 51 is formed with a longitudinally extending slot or opening 52 which extends along the length of the bottom wall. This construction imparts a substantial C cross section to the airway.

FIGS. 7 and 8 illustrate another embodiment. The airway 60 of FIGS. 7 and 8 comprises a straight bite portion 61 terminating in a mouth flange 62. Connected to the end of the bite portion is the extended pharyngeal curved body portion 63. In this form, the bite portion 61 and curved extended body portion 63 is defined by an upper wall 64 and a complementary bottom wall 65 spaced therefrom. In the straight bite portion, the upper and bottom walls 64 and 65 respectively are substantially parallel. However, as the upper wall and bottom walls 64 and 65 continue to form the extended body portion 63, they progressively diverge so that the spacing therebetween progressively increases toward the proximate end 66 thereof. To maintain the upper wall 64 and bottom wall 65 in spaced position, an interconnecting or dividing wall 67 is interconnected between the upper wall 64 and lower wall 65. The intermediate wall extends along the longitudinal length of the airway 60. If desired, the intermediate

wall 67 may be provided with space openings not shown to place the two passageways 68 and 69 defined thereby in communication.

In operation the various airway constructions defined are similar. Each when inserted into the mouth and pharynx of a patient, due to the enlarged proximate end portions thereof will cause the base of the patient's tongue to be raised to a higher degree than is otherwise possible with the known oro-pharyngeal airways, and thereby relieve any obstruction which may be occasioned in certain patients by the tongue falling back against the posterior pharyngeal wall.

From the foregoing, it will be apparent that the structure defined is relatively simple and can be readily manufactured from a number of various materials. The structure can be readily cleaned and sterilized and enables the base of the tongue to be elevated to an optimum degree.

In view of the description and drawings, it will be readily apparent to one skilled in the art that variation and modification may be made without departing from the spirit or scope of the invention.

What is claimed is:

1. An oro-pharyngeal airway for use in the practice of anesthesiology and resuscitation for insertion into a patient's mouth and pharynx to relieve obstruction to the flow of air that may be occasioned by the base of the tongue falling back in the posterior pharyngeal wall comprising:

a generally straight bite portion having a transversely extending flange at one end thereof,

an extended curved body portion integrally connected to said bite portion, said curved body portion functioning to maintain the patency of a pharynx passageway; said curved body portion having a distal end portion connected to said bite portion and a terminal proximate end portion to define a unitary airway,

said body portion including spaced apart upper and lower curved walls, and an interconnecting wall for rigidly maintaining the spatial relationship between said upper and lower curved walls,

said curved body portion having a cross-sectional area which progressively increases from said distal end portion to said proximal end portion.

2. The invention as defined in claim 1 wherein said upper and lower curved walls have a thickness which progressively increases from said distal to proximal ends.

3. The invention as defined in claim 2 wherein said upper and lower curved walls and interconnecting wall defines a passageway which is substantially uniform in cross section.

4. The invention as defined in claim 1 wherein the extended body portion is C-shaped in cross-section.

5. The invention as defined in claim 1 wherein said extended body portion is H-shaped in cross section.

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