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SNORE STOPPING MOUTHPIECE AND PROCESS OF MAKING SAME

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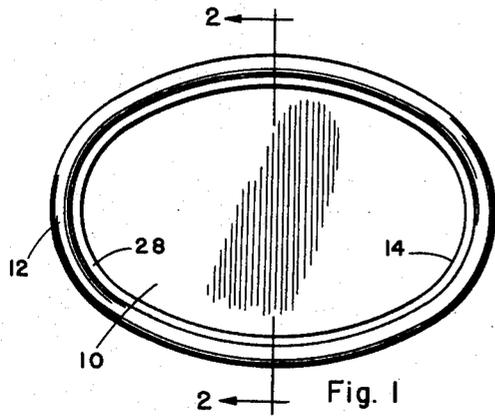


Fig. 1

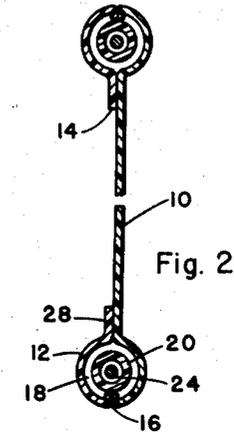


Fig. 2

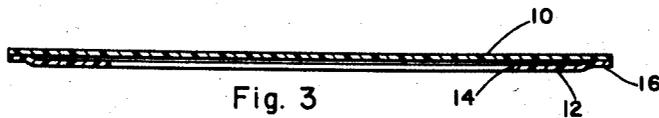


Fig. 3

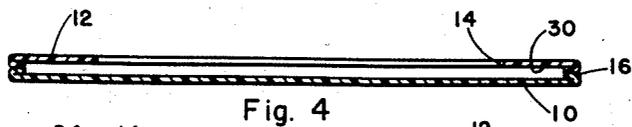


Fig. 4

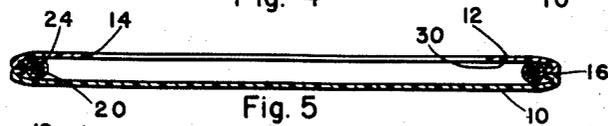


Fig. 5

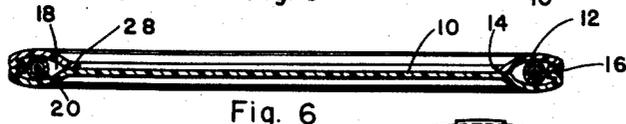


Fig. 6

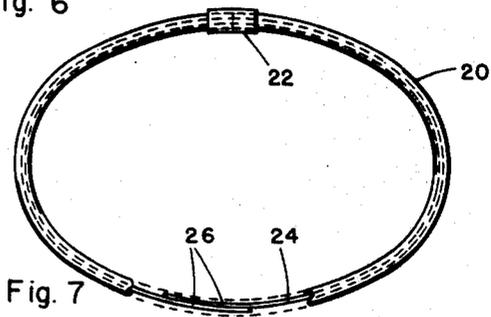


Fig. 7

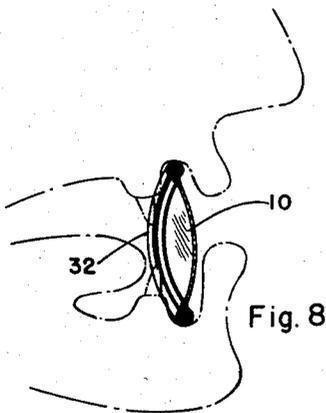


Fig. 8

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**SNORE STOPPING MOUTHPIECE AND PROCESS OF MAKING SAME**

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3 Claims. (Cl. 128—136)

This invention relates generally to prosthetic devices and more particularly to a mouthpiece for use in prevention of snoring and in the teaching of one given to such vociferous mode of breathing to forsake the habit.

The invention is based upon the theory, generally acknowledged as correct, that snoring is caused almost solely by vibrations of the soft palate and uvula and that snoring is prevented as mouth breathing is prevented. It follows logically that if a person in the habit of snoring can be taught to stop breathing through the mouth, he will simultaneously learn to keep the mouth closed during slumber. It is contended that the use of the instant device will attain these beneficial results, first by stopping the snoring and, over a period of time, teaching the snorer to breath through the nose during sleep.

The primary object of this invention is, therefore, to provide a simple mouthpiece, having the general nature of a diaphragm, which is not unaesthetic and which is completely effectual and comfortable to use.

Another object, ancillary to the preceding object, is to assure against any discomfort due to the elongation of the mouthpiece when the mouth is closed, this being accomplished by employing material for the mouthpiece which is inelastic although quite flexible to provide for the easy, transverse collapse of the mouthpiece.

Another object of this invention is to provide a mouthpiece for controlling snoring which can be used with entire safety, it being virtually impossible for the user to swallow the device inadvertently.

A specific object of the invention is to provide an ovate mouthpiece with a relatively large or wide peripheral channel, the internal dimension of which is considerably greater than the diameter of the linear element used therein to support or extend the mouthpiece. By this simple expedient the number of different sizes required is considerably limited. In other words, the linear element has considerable freedom of movement within the said peripheral channel.

Another specific object is to provide a simple process for manufacture of the mouthpiece, the principal steps of the process being simple and easily accomplished by well-known economic procedures. In this regard it is noteworthy that the method of fabrication of the panel stabilizing means greatly reduces the cost of manufacture.

With these objects definitely in view, together with other objects which will appear hereinafter as this description proceeds, this invention consists in the novel construction, combination and arrangement of elements and portions, and in the novel method of manufacture, as fully described in the specification, particularly pointed out in the claims and illustrated in the drawing which forms a material part of this disclosure and in which:

Figure 1 is a plan view of the assembled mouthpiece;

Figure 2 is a transverse sectional view taken on the line 2—2 in Figure 1;

Figure 3 is an enlarged longitudinal sectional view of what will be referred to hereinafter as the two ovate panels, as peripherally secured together, this figure repre-

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senting the first two steps in the process of making the article, the first step being considered the provision of the two similar panels and the central aperture of one of them, and the second step being considered the peripheral

5 securement of the panels;  
Figure 4 is a view of the structure in Figure 3 and illustrating the third step in the process, the turning of the peripheral bonded panels inside out;

10 Figure 5 illustrates the fourth and fifth steps of the process, placing a suitable length of spring wire within a flexible tube defining a loop, and inserting the tube with the wire therein in the peripheral channel resulting from the preceding step;

15 Figure 6 is a vertical sectional view of the assembled article and may be thought of as representing the last principal step, the securement of the inner edge of the apertured panel to the adjacent portion of the other panel, thereby sealing the said peripheral channel;

20 Figure 7 is an elevational view of the above-mentioned tube with the spring wire therein, the tube being broken away, in part, to disclose the overlapped ends of the spring wire; and

25 Figure 8 is a vertical sectional view of the mouthpiece as disposed when in use, a portion of a human face being shown in profile and somewhat diagrammatically representing how the mouthpiece is disposed with reference to the teeth and lips, the figure also being proposed as indicating how the mouthpiece is rearwardly deflected at each end to set within the cheeks.

30 Similar characters of reference indicate similar or identical elements and portions throughout the specification and throughout the views of the drawing.

Referring now to the drawing in detail, the device will first be described as to its component parts and then the method of manufacture will be set forth.

35 A first ovate panel 10 and a second ovate panel 12 of the same external dimensions are constructed of highly flexible but inelastic material such as relatively thin plastic sheet. The first panel 10 is imperforate and the second panel 12 has a relatively large central aperture 14. The panels are secured at the common periphery 16 and define therebetween a channel 18 which has a considerable internal dimension or width for purposes which will become apparent immediately hereafter.

40 A tube 20 of resilient, reasonably durable material has its ends secured together by a coupling 22 to constitute a loop and a spring wire loop 24 is enclosed in this tube, the spring wire being considerably longer than the tube so that its overlapping ends 26 are free to move relative to each other within the tube as the tube is flexed. The tube 20 with the wire loop 24 therein is inserted in the channel 18 and the channel 18 is closed at its inner periphery by bonding or securing the panels together as indicated at 28. As mentioned above, the channel 18 is considerably larger than the diameter of the tube 20 and this allows the tube 20 to move freely within the channel when the mouthpiece is flexed in use.

45 Coming now to a discussion of the process of manufacture of the article, the first step may be considered the provision of two panels of similar ovate form, the central perforation of one of them and the securement of the panels together at the common periphery 16 or as diagrammatically indicated in Figure 3. The next step of the process is the turning of the peripherally secured panels inside out as indicated in Figure 4 to provide a channel which is substantially peripherally disposed. This channel, indicated at 30, corresponds to the channel 18 after the same has been closed at its inner periphery. The next steps consist in the placing of a suitable length of spring wire within the tube 20, connecting the ends together, as indicated by the coupling 22, and inserting

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the tube 20 with the wire loop therein into the channel 30. The final step is indicated in Figure 6 and consists in the bonding or securing of the second, perforated panel 12 to the adjacent portion of the imperforate panel 10 so that the open channel 30 becomes the closed channel 18, with the loop 20 retained therein. It will be noted that all the steps of this process are simple and easily carried out by established procedures, the securing of the panels together at 16 and 28 being ordinarily accomplished by thermal bonding, at least when the panels are constructed of plastic material, although it is obvious that other means could be employed. It will also be noted that extreme accuracy in measurement and positioning of the elements is not required in this process, a notable example of this feature being in the insertion of the wire 24 with overlapping ends in the tube 20. The use of this last-mentioned structure is an important feature of this invention when considered both from article and method viewpoints.

The manner of employment of this invention will be obvious from a consideration of the foregoing description of the mechanical details of the article and the steps of manufacture. In recapitulation it may be noted, however, that the extreme flexibility of the article is important and the representation in Figure 8 indicates how the ends of the mouthpiece are deflected rearwardly by the lips and cheeks, one rearwardly deflected portion, that at the left side of the mouth, being shown in elevation at 32. This figure also indicates that the mouthpiece will tend to collapse forwardly when the mouth is partially or fully closed.

Further description would appear to be unnecessary.

Minor variation from the illustrated and described embodiments of this invention, and minor variation from the specifically described steps of the process can be resorted to without departure from the spirit and scope of this invention and the drawing and specification should be considered illustrative rather than limiting.

I claim:

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1. An anti-snoring mouthpiece comprising: a first ovate panel of flexible sheet material dimensionally adapted to be inserted in the mouth between the teeth and the lips; a second panel centrally apertured and peripherally secured to the first ovate panel to define a continuous channel extending substantially along the common periphery of the panels; a flexible tube in said channel and defining a closed loop; and a spring wire loop in said tube directly supporting said tube and thus indirectly supporting said ovate panels along said common periphery; said panels being of inelastic material, and said channel has an internal dimension several times the diameter of said tube, whereby elongation of the ovate panels in the direction of the major axes thereof is inhibited while transverse collapse is made possible, thus permitting the user to close his mouth without uncomfortable projection of the ends of the ovate panels into the cheeks.

2. A mouthpiece according to claim 1 wherein the wire in said wire loop is considerably smaller in diameter than said tube and has its ends overlapping, whereby fabrication of the mouthpiece is simplified.

3. A method of making an anti-snore mouthpiece consisting in the following steps: providing two, similar ovate panels and centrally aperturing one of them; peripherally securing said panels together; turning the secured panels inside out; inserting a spring wire loop into a tube in the form of a closed loop, and inserting this tube with the spring wire therein into the channel between the panels so that the wire loop supports said panels; and securing the panels together along a line inside said tube.

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