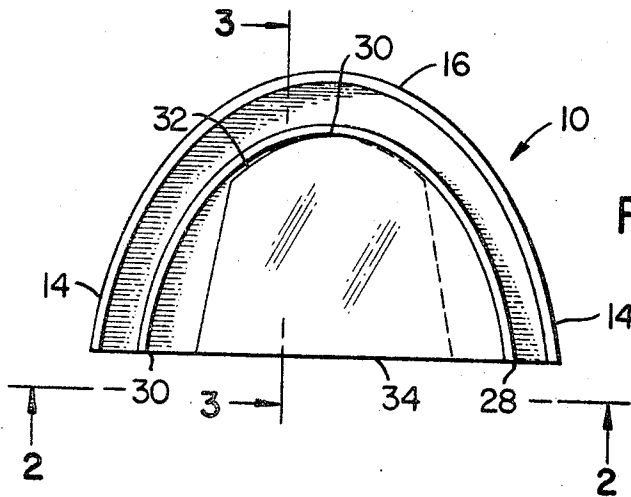


March 25, 1969

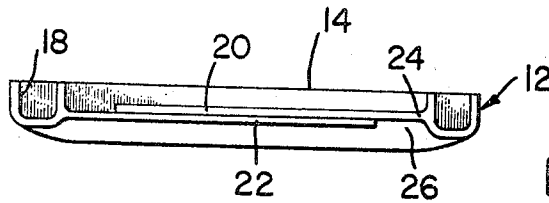
J. C. STRICKLAND
SNORE INHIBITING DEVICE

3,434,470

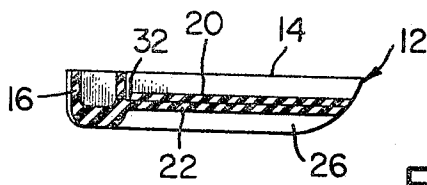
Filed May 27, 1966



FIG_1



FIG_2



FIG_3

INVENTOR.

JAMES C. STRICKLAND
BY

Townsend & Townsend
ATTORNEYS

1

2

3,434,470

SNORE INHIBITING DEVICE

James C. Strickland, 181 Walter Hays Drive,

Palo Alto, Calif. 94303

Filed May 27, 1966, Ser. No. 553,332

Int. Cl. A61f 5/56

U.S. Cl. 128—136

6 Claims

ABSTRACT OF THE DISCLOSURE

An oral device to inhibit snoring wherein the device includes a plate adapted to be placed within the mouth in the U-shaped space defined by the upper teeth. The plate has mounting structure thereon which releasably grips the upper teeth, whereby the plate reduces the effective volume of the air flowing into and out of the mouth. The decreased air flow resulting from the presence of the plate inhibits snoring.

This invention relates to an oral device used to prevent snoring and, more particularly, to such a device adapted to be fitted on the upper teeth.

The invention resides in a plate adapted to be positioned within the mouth and in the U-shaped space defined by the upper teeth. The plate has mounting structure which releasably grips the upper teeth so that the plate is removably maintained in this space. In this position, the plate considerably reduces the effective volume of the air flow passage through the mouth. Thus, less air can flow through the mouth in either direction. As a result, snoring is substantially eliminated since the snoring is a function of the volume rate of flow of air through the mouth. A portion of the air flow inhaled and exhaled must therefore be directed through the nose in bypassing relationship to the mouth, a condition which is to be desired to minimize snoring.

Snoring occurs when the uvula and the soft palate at the back of the mouth vibrate in response to the flow of air past these tissues. It has been reasoned that snoring will be minimized or eliminated if air flow through the mouth is inhibited. With this end in view, anti-snore devices in the past have generally been of a construction which completely blocks the air flow through the mouth. All inhaled and exhaled air thus has to travel through the nose so that the vibratory tissues which cause snoring remain substantially unaffected by the air flow.

The prior devices are not satisfactory because they are cumbersome in the mouth and are uncomfortable to the user. To be effective, they must be custom made since teeth configurations vary between individual users. To reduce the size of the device to avoid discomfort would increase the danger of swallowing the device during use.

The present device overcome the disadvantages of the prior structures by providing a device of simple and rugged construction which is effective in minimizing or substantially eliminating a snoring condition even though it only partially restricts the air flow through the mouth. Thus, the desired result is attained without causing the user to suffer the discomfort which arises from completely blocking the mouth. The device also does not interfere with tongue movements and it is safe to use in that it cannot be swallowed nor can it cause harm to the teeth or gums. The device can be produced at minimum cost with readily available, inexpensive materials and through the use of well-known techniques. It can be used over and over again and can be easily sterilized for re-use. The device is adjustable so that it can fit in the mouths of different individuals and can be used by children as well as adults.

It is therefore the primary object of this invention to provide an oral device to prevent snoring wherein the presence of the device within the mouth reduces the volume of the effective air passage therethrough to reduce the volume rate of air flow through the mouth and thereby minimize the vibrations of tissues which generally cause a snoring condition.

Another object of the invention is to provide a device of the type described which does not cause discomfort to the user or harm the teeth or gums during use.

Another object of the present invention is to provide a device of the type described which is adjustable in size so that it can be used by different individuals having respective upper teeth mouth configurations.

A further object of the invention is to provide a snore-preventing device which is simple and rugged in construction, is inexpensive to produce from materials rendering it usable over and over again, and is of a size which cannot be swallowed during sleep.

Other objects of this invention will become apparent as the following specification progresses, reference being had and to the accompanying drawing wherein:

FIG. 1 is a top plan view of the device;

FIG. 2 is a rear elevational view of the device looking in the direction of lines 2—2; and

FIG. 3 is a cross sectional view taken along line 3—3 of FIG. 1.

A preferred embodiment of the device is denoted by the numeral 10 and includes a tooth-engaging member 12 to which a flat plate 14 is coupled. Member 12 is U-shaped to conform to the generally U-shaped configuration of the upper teeth and defines a pair of spaced, opposed sides 14 interconnected by a bight 16. Sides 14 and bight 16 are formed from a yieldable material and are transversely U-shaped as shown in FIGS. 2 and 3 to define a tooth-receiving groove 18 the width of which is such as to permit member 12 to frictionally engage the upper teeth when device 10 is in the mouth. Thus, member 12 may be releasably positioned on the upper teeth with the front teeth in the portion of groove 18 defined by bight 16 and the side teeth in the grooved portions defined by sides 14. Member 12 has a construction similar to that of tooth protectors used in certain sports. Preferably, rubber or a suitable plastic material is used to form member 12 to provide the yieldable characteristics therefor. The yieldability of member 12 will permit it to be fitted on various sets of teeth.

Plate 14 fills the U-shaped, planar space defined by sides 14 and bight 16. To provide for adjustability of device 10, plate 14 has a pair of relatively shiftable plate sections 20 and 22, which are connected to member 12 and are disposed in overlapping relationship to each other. Each section has an arcuate outer peripheral edge 24 rigidly connected to the adjacent portion of the inner peripheral surface 26 of member 12. Each edge 24 extends from an outer location 28 adjacent to the corresponding side 14 to an inner location 30 as shown in FIG. 1. A continuation 32 of each edge 24 is spaced inwardly from peripheral surface 26 to allow member 12 to be deformed sufficiently to fit a particular set of upper teeth.

Edges 24 may be bonded by a suitable adhesive to member 12 or may be integrally secured thereto such as by molding member 12 and plate sections 20 and 22 in the same molding process. In either case, plate 14 effectively closes the space defined by the U-shaped configuration of member 12.

In use, device 10 is put into the mouth and placed on the upper teeth. Fitting of the device may be required and this can be accomplished by deforming or manipulating member 12 until it substantially conforms to the

U-shaped configuration of the teeth. The overlapping, relatively shiftable feature of plate sections 20 and 22, as well as the yieldability of member 12 permits this fitting to be accomplished.

Since member 12 frictionally engages the teeth, it cannot be dislodged during sleep. Moreover, it is sufficiently large that it will not be swallowed.

In its operative disposition, plate 14 reduces the volume of the air passage through the mouth and causes all inhaled air to pass beneath its under surface. This is because sections 20 and 22 isolate the region above plate 14 with the region therebelow. Thus, any air above the plate must first pass downwardly about the rearmost edges 34 of sections 20 and 22 before it can be expelled from the mouth.

By reducing the volume of the air flow passage through the mouth, the volume rate of flow of air is reduced. Thus, a certain portion of air must pass into, through and out of the nose. Since snoring is a function of the total volume of air being inhaled and exhaled through the mouth, it follows that snoring will be minimized or substantially eliminated by this volume reduction in the mouth. This resistance to complete air flow through the mouth inhibits the build-up of resonant tissue vibrations which are the source of the snoring condition.

Device 10 can also be used on denture plates as well as natural teeth. It can be used by children as well as adults and can be used over and over again without replacement. It is easily sterilized since plate sections 20 and 22 can be separated slightly for cleaning purposes.

While one embodiment of this invention has been shown and described, it will be apparent that other adaptations and modifications can be made without departing from the true spirit and scope of the invention.

What is claimed is:

1. For use in preventing snoring, an oral device comprising: a plate; and means coupled with the plate for mounting the same within the mouth and on the upper teeth with the plate being disposed in spaced relationship below the roof of the mouth and being of a size to substantially fill the U-shaped space defined by the upper teeth, whereby substantially all of the air flow through the mouth will pass beneath the plate when the same is mounted on the upper teeth.

2. An oral device as set forth in claim 1, wherein said plate has a pair of relatively shiftable, generally overlapping sections, said mounting means being deformable, whereby said device is adjustable in size.

3. An oral device as set forth in claim 1, wherein said mounting means includes a tooth gripping member hav-

ing an inner, arcuate surface, said plate having an outer peripheral edge complementary with and rigidly secured to said inner surface.

4. An oral device as set forth in claim 1, wherein said mounting means includes a U-shaped member of deformable material having a pair of sides and a bight interconnecting said sides, said bight and said sides being transversely U-shaped to define an arcuate, tooth-receiving groove having an open, upper extremity, the groove having a width to permit the member to frictionally engage the upper teeth and thereby releasably maintain the member on said upper teeth, said plate having a pair of relatively shiftable sections secured to the member, whereby the device can be adjusted in size by deforming said member.

5. For use in preventing snoring, an oral device comprising a U-shaped member of deformable material having a pair of spaced sides, a bight interconnecting the sides and an arcuate surface defining the inner peripheral boundary of said sides and said bight, said sides and said bight being transversely U-shaped to define an arcuate, tooth-receiving groove having an open upper extremity, whereby the member can be placed in the mouth and on the upper teeth with the front and side teeth being received within the portions of said groove defined by said bight and said sides respectively, the width of the groove being of a value to permit the member to frictionally engage the upper teeth; and a pair of plate sections having arcuate outer peripheral edges secured to and complementary with respective portions of said inner peripheral surface, said plate sections extending inwardly of said inner peripheral surface into dispositions overlapping each other and filling the planar space defined by said bight and said sides, said plate sections being relatively shiftable to permit the member to be deformed and thereby changed in size to fit any one of a number of sets of upper teeth.

6. An oral device as set forth in claim 5, wherein said plate sections are molded to said member.

References Cited

UNITED STATES PATENTS

2,800,898	7/1957	Greenblum	128—136
2,531,222	11/1950	Kesling	32—14
3,132,647	5/1964	Corniello	128—136

ADELE M. EAGER, *Primary Examiner*.

U.S. Cl. X.R.

32—14