

[54] APPARATUS FOR CORRECTING TONGUE THRUST

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[22] Filed: Sept. 13, 1973

[21] Appl. No.: 397,172

[52] U.S. Cl. .... 128/136

[51] Int. Cl. .... A61f 5/58

[58] Field of Search..... 128/136, 137, 76 R, 369; 32/7, 14 E, 14 B

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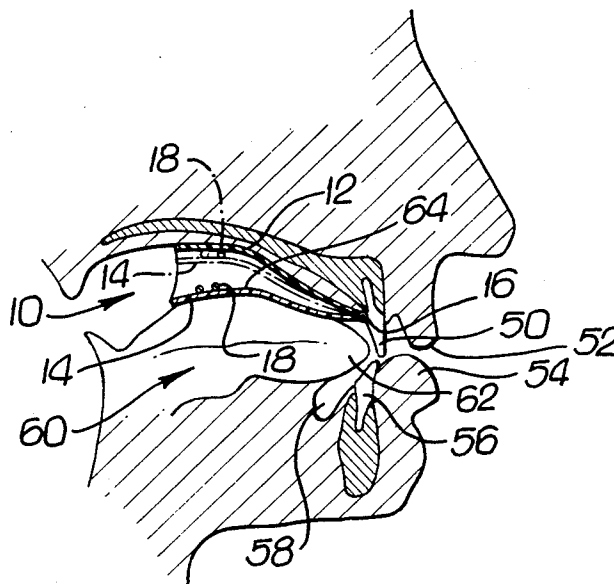
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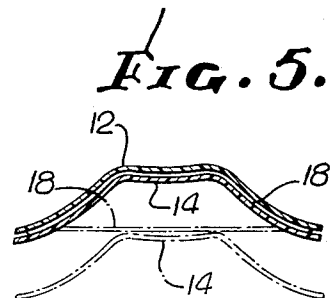
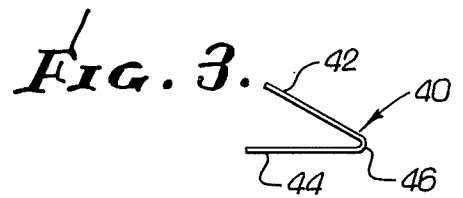
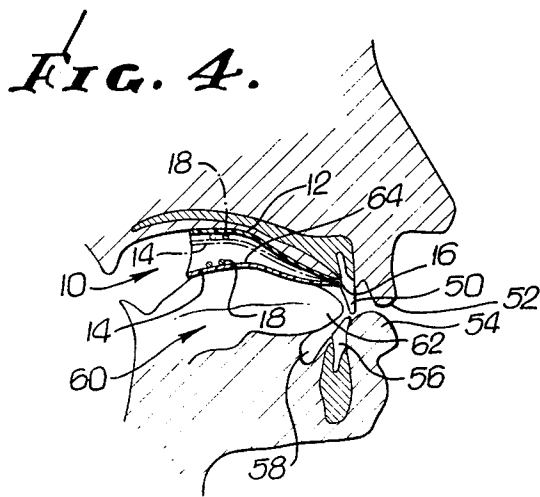
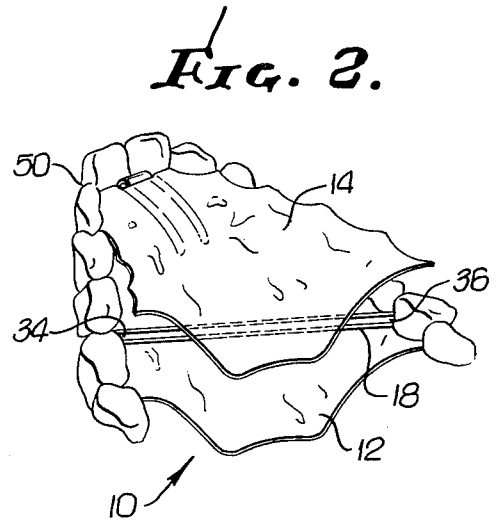
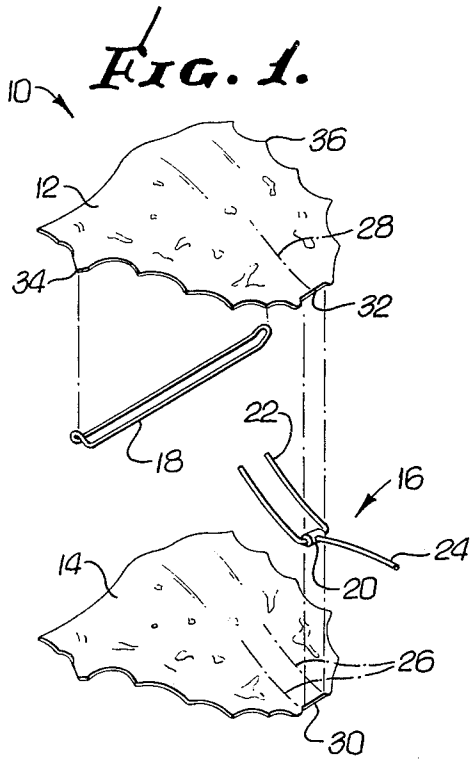
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[57] ABSTRACT

An apparatus including connected double upper retainers, a palatal retainer resting on the upper palate and a lingual retainer position adjacent to or resting on the dorsum of the tongue, both of which are connected by a hinge in their anterior portions, allowing the lingual retainer to be pivoted toward the palatal retainer by the tongue of the user during swallowing. The lingual retainer is biased from the palatal retainer to offer resistance to the pivoting movement and thereby to the tongue. As the dorsum of the tongue continually raises the lingual retainer during swallowing, a new corrective habit is established, and is useful not only in preventing further damage to the dental arches, but also to bring about the correction of malocclusions.

2 Claims, 5 Drawing Figures





## APPARATUS FOR CORRECTING TONGUE THRUST

### BACKGROUND OF THE INVENTION

#### 1. Field of the Invention

The present invention relates to an apparatus for correcting harmful tongue movements and positions, and, more particularly, to an apparatus for placement against the palate of a user for causing the user to position and manipulate his tongue in a desirable manner.

#### 2. Description of the Prior Art

A great many people have developed an improper method of swallowing, this improper method includes the thrusting of the tongue forward through the incisal edges of the front cutting or incisor teeth. This forward tongue thrusting movement is followed by rearward and upward movements to the roof or palate of the mouth. It is believed that this incorrect method of swallowing is attributable to the design of nipples used on baby bottles.

Two harmful results of this incorrect tongue movement are speech defects and malformation of the dental arches. With regard to the dental arches malformations are caused by the constant pressure applied to the front teeth, the gum or mucosa and underlying bone supporting the teeth. It is, of course, well known that deformed dental arches require expensive orthodontic work to correct.

Another problem which has been noticed among many people is the habit of permitting the tongue to rest on the lingual surfaces of the upper incisors. As with an incorrect tongue movement, improper placement or positioning of the tongue while the tongue is at rest will also cause deformities in the dental arches. Once again, the deformities will cause malocclusions.

Devices to remedy the above mentioned problems relying upon electrical stimulus have been made; for example, see U.S. Pat. Nos. 3,277,892 and 3,259,129 issued to the inventor of the subject invention. Of course, it is to be understood that any apparatus which is developed must be relatively inexpensive and easy to use if commercial acceptance is to occur.

### SUMMARY OF THE INVENTION

The present invention solves the above mentioned problems by providing for an apparatus comprising a first element positionable adjoining the palate of a user for supporting the apparatus in the mouth; a second element positionable in the mouth of the user for causing the tongue to move in a desired manner and thereby to train the tongue, the second element being movable between first and second positions; and connection means joining the first and second elements for allowing the second element to pivot between its first and second positions.

It is the general aim of the present invention to provide an apparatus for correcting improper tongue movements during swallowing.

It is an aspect of the present invention to provide an apparatus which corrects improper tongue placement while the tongue is at rest.

Another object of the present invention is to provide an apparatus for correcting tongue movements and positions which is inexpensive, reliable and completely safe.

Still another aspect of the present invention is to provide an apparatus for correcting tongue movements

and positions which is easy to use and which engenders automatic corrective habits on the part of the user.

Other objects and advantages of the invention will appear from the following description taken in conjunction with the accompanying drawing.

### BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is an exploded perspective view of one embodiment of the present invention.

FIG. 2 is an inverted perspective view of an upper portion of a mouth illustrating an operative position of the inventive apparatus.

FIG. 3 is a side elevational view of an integral hinge-spring device for use in the inventive apparatus.

FIG. 4 is a side elevational sectional view in diagrammatic form illustrating the placement of the inventive apparatus in the mouth of the user.

FIG. 5 is a rear elevational view in diagrammatic form illustrating the operation of the inventive apparatus.

### DESCRIPTION OF THE PREFERRED EMBODIMENTS

While the present invention is susceptible of various modifications and alternative constructions, illustrative embodiments are shown in the drawing and will herein be described in detail. It should be understood, however, that it is not the intention to limit the invention to the particular forms disclosed; but on the contrary, the intention is to cover all modifications, equivalences and alternative constructions falling within the spirit and scope of the invention as expressed in the appended claims.

Referring to FIG. 1 the apparatus 10 of the present invention includes a first element means in the form of a palatal retainer 12, a second element means in the form of a lingual retainer 14, a connection means in the form of a hinge 16 and a resilient band in the form of what is commonly referred to as a "rubber" band 18. The term "retainer" is used in the orthodontic field to refer to a small synthetic resin element formed to conform to the palate of an individual wearer. The method of making retainers is well known by orthodontists, dental laboratory technicians and others and need not be described here. The hinge 16 comprises a small tubular structure 20 through which a wire 22 is passed. A second wire 24 is suitably connected to the tubular structure in any convenient fashion such as by soldering. The hinge 16 is of very simple structure which allows the rotation of the wire 22 in relation to the wire 24. When connected, the wire 22 is embedded within the lingual retainer 14 in the locations depicted by the two phantom lines 26. The wire 24 is embedded within the upper palatal retainer 12 along the phantom line 28. To accommodate the tubular structure 20, each of the retainers may have a properly dimensioned indentation such as the indentation 30 of the lingual retainer and the indentation 32 of the palatal retainer.

To provide a biasing force between the palatal and lingual retainers the rubber band 18 is looped around oppositely disposed projections 34, 36 of the palatal retainer 12. The rubber band is positioned to extend laterally under the palatal retainer so as to be between the palatal and lingual retainers when they are in an operative position. This is shown more clearly in FIGS. 2, 4 and 5 and will be described in more detail hereinbelow. It is now readily apparent that the apparatus 10 is sim-

ply constructed and can be inexpensively manufactured. The technology for making the retainers, for embedding the wires, and for attaching rubber bands is well known.

To simplify the apparatus even further and thus enhance its low cost, reference is made to FIG. 3 in which a spring steel length 40 is illustrated having end portions 42, 44. Between the end portions is a bend 46. The spring steel length is an integral spring-hinge and may be substituted for the hinge. The steel length operates by having the end portion 42 attached to or embedded in the palatal retainer 12, while the end portion 44 is attached to or embedded in the lingual retainer 14. By selectively forming the bend 46 the angular distance separating the palatal and lingual retainers is easily determined, and by making the bend in spring steel, a biasing force is created when the retainers are brought together. (Bringing the retainers together also brings the end portions 42, 44 together.) In addition to being simply constructed, and therefore inexpensive, the reliability of the apparatus will be excellent, as will be the safe use of the apparatus.

Another important aspect of the present invention is that the user may easily use the apparatus with no special training. Referring now to FIGS. 2 and 4 there is illustrated the placement of the apparatus within the mouth of a wearer. As can be readily seen, the palatal retainer 12 is placed adjoining the palate and is held in place by the slight resilient force of the retainer acting upon the palate and the upper dental arch 50. The lingual retainer 14 is joined by the hinge 16 to the palatal retainer. In the embodiment shown in FIG. 1 the lingual retainer is free to move downwardly until contact is made with the tongue so that the retainer rests upon the tongue. When using the spring steel length 40 of the FIG. 3 embodiment, the lingual retainer can be positioned at any angular distance from the palatal retainer or any distance from the tongue depending upon the angular bend placed in the length of steel.

The lingual retainer 14 is movable from the position shown in FIG. 2 and in the solid line in FIG. 4, to the position shown in phantom line in FIG. 4. In the first position, the lingual retainer is either resting on or is adjacent to the upper part or dorsum of the tongue, while in the second position the lingual retainer is adjacent to the palatal retainer. In either the FIG. 1 or FIG. 3 embodiment, when the lingual retainer is adjacent to the palatal retainer, there is a biasing force created either from the stretched rubber band 18 or from the bent spring steel length 40. This force provides a bias tending to move the lingual retainer away from the palatal retainer. Referring to FIG. 5, the lingual retainer is illustrated in its second position, adjacent to the palatal retainer in solid line and in its first position adjacent to or resting upon the tongue in phantom line.

The main feature of the present invention is that it corrects the undesirable thrusting of the tongue toward the front teeth during swallowing. A correct movement of the tongue during swallowing is for the tongue to move rearwardly and upwardly toward the palate. Secondly, the invention is also to correct the undesirable habit of positioning the tongue adjacent to the front teeth while at rest. It is a very important aim of the present invention to provide an apparatus which accomplishes the two corrective objectives hereinabove mentioned by causing a new habit to be established, a habit which is to be automatically and unconsciously

performed. Referring now to FIG. 4 there is illustrated a side section view of a mouth including upper and lower lips 52, 54 respectively, behind which is the upper dental arch 50 and a lower dental arch 56. Movable within the oral cavity 58 is the tongue 60. Once again the undesirable habit which many people have is the thrusting of the tip 62 of the tongue against the front portions of the dental arches prior to the rearward and upward motion which accompanies a swallow. By having the lingual retainer 14 rest upon the dorsum 64 of the tongue or immediately adjacent thereto, the user or wearer of the apparatus will automatically develop the habit of raising the tongue initially to clear the oral cavity. In this way, not only is the undesirable forward thrusting movement not performed, but the dorsum muscles of the tongue are developed and caused to perform correctly. Because of the biasing force either of the rubber band or of the spring steel length, the tongue in its upward movement is required to push against a resistance which further helps to develop the tongue muscles. The biasing force also ensures that the lingual retainer is always in its position proximate to the tongue to cause the user to form the habit of pushing the retainer upwardly with the tongue whenever he is required to swallow. Because the apparatus is safe, it is expected that a user can wear the apparatus 24 hours a day and thereby develop the proper tongue movements even during sleep, until the adverse habit is corrected.

The apparatus will also cure a user of the habit of resting the tongue against the forward portions of the dental arch. Instead, the tongue will remain touching or close to the lingual retainer and away from the incisor teeth.

What has been described is a unique but low cost and reliable apparatus designed to change two bad habits in many individuals: thrusting the tongue toward the front teeth prior to swallowing, and resting the tongue between upper and lower front teeth. The apparatus is designed so as to not only break the old habits, but automatically to instill new habits, without conscious effort, of properly moving the tongue during swallowing and properly placing the tongue while at rest. All of this is achieved with an apparatus which is very easy to use, painless, and very low in cost. In conclusion, the present apparatus is totally safe without any attendant inconveniences found in the prior art.

I claim:

1. An apparatus for correcting tongue movements and positions comprising:

a first element means having front and rear ends adapted to be positioned adjacent the palate of a user for supporting said apparatus in the mouth of said user;

a second element means having front and rear ends pivotally connected at said front end to said front end of said first element means, said second element means being pivotable between a first extended, at-rest position where said second element means is generally parallel to the dorsum of said tongue, and a second contracted, operative position where said second element means bears against the dorsum of the tongue; and

resilient band means connected laterally across said first element means and positioned between said first element means and said second element means for biasing said second element means rear end

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away from said first element means rear end and toward said first position.

2. An apparatus for correcting tongue movements and positions comprising: a palatal retainer having front and rear ends adapted to be positioned adjacent the palate of a user for supporting said apparatus in the mouth of said user;

- a lingual retainer having front and rear ends;
- a hinge pivotally connecting said front ends of said

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palatal and lingual retainers, wherein said lingual retainer is movable between a first position spaced from said palatal retainer and a second position adjacent said palatal retainer; and

a resilient band means connected laterally across said palatal retainer for biasing said lingual retainer away from said palatal retainer.

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