May 24, 1927. 1,629,892

R. B. STORMS

ANTI MOUTH BREATHING DEVICE

Filed June 22, 1925

Fig. 2.

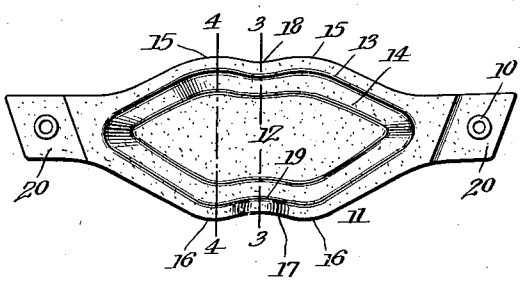
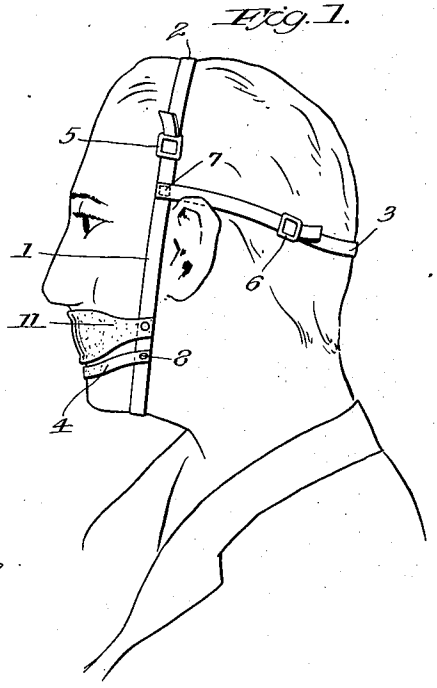


Fig. 1.



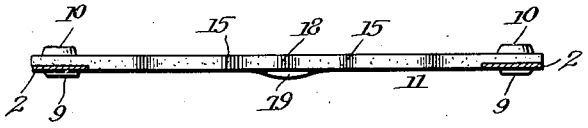


Fig. 5.

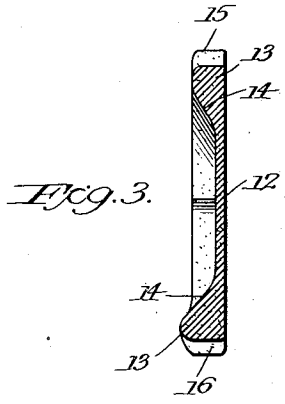


Fig. 3.

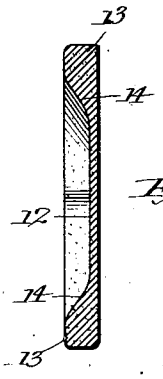


Fig. 4.

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UNITED STATES PATENT OFFICE.

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ANTI-MOUTH-BREATHING DEVICE.

Application filed June 23, 1925. Serial No. 38,847.

This invention relates to improvements in anti-mouth-breathing devices, and has for its primary object the provision of a device of this character which will, without discomfort to the wearer, absolutely prevent mouth-breathing and snoring, which is a direct result of mouth-breathing.

I am aware that devices of this general character have been proposed which are designed to function by forcibly holding the mouth in closed condition by means of a strap passing over the head and under the chin. Such devices are, however, very uncomfortable to wear, as the strap must be very tight in order to function at all and, in addition, the mere holding of the mouth closed does not prevent snoring, as there is nothing to prevent the lips falling apart and thus permit mouth-breathing.

My inventive concept involves the provision of a device of this character in which:

(1) The head-piece is so devised that it permits entirely free movement of the head in any direction without causing the straps thereof to become loose or bind the head of the wearer.

(2) The mouth-piece is made of rubber or like flexible material so molded as to conform to the contour of the lips and mouth and therefore is adapted to prevent air passing thereabout without being drawn uncomfortably tight.

(3) The mouth-piece is capable of easy attachment to and detachment from the head-piece, thus obviating the necessity of removing the entire device to cough or expectorate.

(4) The mouth-piece, being of rubber and easily detachable from the head-piece, is easily cleaned and sterilized as by immersion in antiseptics or by boiling.

With these and other objects in view, as will appear as the description proceeds, the invention consists of the novel features of construction, combinations of elements, and arrangements of parts hereinafter to be fully described and pointed out in the claims.

A full and complete understanding of the invention may be obtained from a consideration of the following detailed description, taken in connection with the accompanying drawing forming a part of the disclosure, it being understood that while the drawing shows a practical form of the invention, the latter is not confined to the showing thereof but may be changed or modified so long as such changes and modifications mark no material departure from the essential features of the invention as hereinafter fully described and claimed.

In this drawing:

Figure 1 is a view in elevation illustrating a device embodying the features of the invention as applied in operative position on the head of the wearer;

Fig. 2 is an enlarged view in elevation of the molded mouth piece;

Fig. 3 is a transverse sectional view, somewhat enlarged and taken on the line 3—3 of Fig. 2;

Fig. 4 is a similar view taken on line 4—4, Fig. 2; and

Fig. 5 is a view in plan of the mouth-piece as shown in Fig. 2, portions of the head-piece being shown in section to illustrate the manner in which the mouth-piece is secured thereto.

In the particular embodiment of the invention illustrated in the drawing, the reference-character 1 designates, generally, a head-piece or harness preferably and as shown comprising a main head-strap, band or strap 2, a back-strap 3, and a narrower chin-strap or band 4.

The strap 2, which is preferably constructed of cotton or silk webbing of some considerable width to prevent cutting action on the head and chin of the wearer, has a buckle 5 fast to one of its ends and is long enough to pass about the head and chin of the wearer and extend through the buckle to permit adjustment in the size of the loop thus formed.

The strap 2 is designed to encircle the head directly above the ears and, in the completed head-harness, is disposed with the buckle 5 in convenient position adjacent the temple.

The strap 3, which is constructed of the same kind of material and is equal in width to the strap 2, is made up of two sections adjustably secured together by means of a buckle 6. The free ends of the strap 3 are

permanently fastened, as by stitching 7, to opposite sides of the strap 2 at points which are adjacent the upper portion of the ears of the wearer when the harness is in operative position (as shown in Fig. 1). The strap 3 is designed to encircle the occipital part of the head just above the base of the ears and if desired may overlie the latter and thus serve to retain them in their proper position close to the head. It will be observed that by reason of the fact that the strap 3 passes around the occipital part of the head rather than about the back of the neck, as is the case with certain known devices, the position of the head-harness is not affected by movement of the head, and there is consequently no loosening or tightening of the straps upon such movement.

The chin-strap 4, which is preferably composed of elastic webbing somewhat narrower than the webbing employed in the remainder of the harness, has its ends permanently secured to the respective sides of the strap 2 as at 8, and is designed to pass about the chin and cooperate with the band 3 to yieldingly maintain the strap 2 in proper position.

Fastening elements 9 are provided on the strap 2, in substantial alinement with or slightly above the mouth, and serve, by cooperation with fasteners 10 on the respective ends of a mouth-piece 11 about to be described, to removably secure the latter in operative position over the mouth of the wearer.

Preferably and as shown, the mouth-piece 11 is constructed of rubber or the like material and is molded to the contour of the lips in order that it may prevent mouth-breathing and snoring when gently fitted against and around the lips without being drawn tight enough to draw the mouth out of shape or cause discomfort to the wearer. The mouth-piece comprises a central diaphragm or membrane 12 of relatively thin rubber, which is surrounded on one of its sides by a thick rim 13 which tapers inwardly from its outer extremity toward the diaphragm, as at 14, so that it will contact snugly with the slope of the lips and prevent passage of air to or from the mouth when associated with and maintained in position by the head-harness hereinbefore described.

It will be observed that the contour of the rim 13 is irregular and it has been found by experiment that the mouth-piece 11 is best suited to applicant's purposes when formed as shown in Figs. 1 to 5 of the drawing. As here shown, the mouth-piece is relatively narrow at the center and is wider at each side of the center by reason of elevations 15 and 16 at the top and bottom, respectively, of the mouth-piece, those at the bottom being greater than those at the top and defining a recess 17 between them which is deeper than the recess 18 between the elevations 15.

The rim 13 is thickened, as at 19, adjacent the recess 17 in order to more closely fit within the depression below the lips of the wearer.

It is desirable that the diaphragm 12 and rim 13 be soft and pliable and therefore capable of stretching to a limited degree; but it is essential that tabs 20 which carry the fastening elements 10 shall be of more durable and inelastic construction, and these tabs are therefore preferably made of rubber and fabric integrally united and secured to the rim 13 during the molding and vulcanization of the mouth-piece.

From the foregoing description, it is evident that a device has been provided which will adequately perform the functions ascribed to it without discomfort to the wearer.

What I claim is:

1. An anti-mouthbreathing device comprising a head-harness including an adjustable main band adapted to pass over the head and under the chin of the wearer, and an adjustable back band having its ends fast to the respective sides of the main band and adapted to pass above the ears and about the back of the head of the wearer, a mouth piece adapted to fit over the mouth of the wearer, and means for detachably connecting said mouth-piece to said head-harness.

2. An anti-mouthbreathing device comprising a head-harness including an adjustable main band adapted to pass over the head and under the chin of the wearer, an adjustable back band having its ends fast to the respective sides of the main band and adapted to pass above the ears and about the back of the head of the wearer, and an elastic strip having its ends fast to the respective sides of the main band and adapted to pass above the front of the chin of the wearer, a mouth-piece adapted to fit over the mouth of the wearer, and means for detachably connecting said mouth-piece to said head-harness.

3. An anti-mouthbreathing device comprising a head-harness, an imperforate mouth-piece molded to conform to the contour of the mouth, and cooperating means on said harness and mouth-piece for detachably securing and maintaining the latter in operative position.

4. A mouth-piece for the prevention of mouth-breathing comprising a membrane, and a relatively thick bordering rim integral with and projecting from one surface of the membrane to fit the face above the mouth.

5. A mouth-piece for the prevention of mouth breathing comprising a membrane, a relatively thick bordering rim integral

with and projecting from one surface of the membrane to fit the face above the mouth, and fastening tabs integral with and secured to said rim.

6. An anti-mouth breathing device comprising a head-harness, a one-piece rubber member molded to conform to the contour of the mouth of the wearer, and means for detachably securing said member in operative position to said harness whereby the wearer may partially remove the member to permit coughing or expectorating or wholly remove the member for cleaning or sterilization thereof.

In testimony whereof I affix my signature.

ROY BASIL STORMS.