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W. E. TIFFANY

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NASAL AND SINUS PROTECTOR AND WARMER

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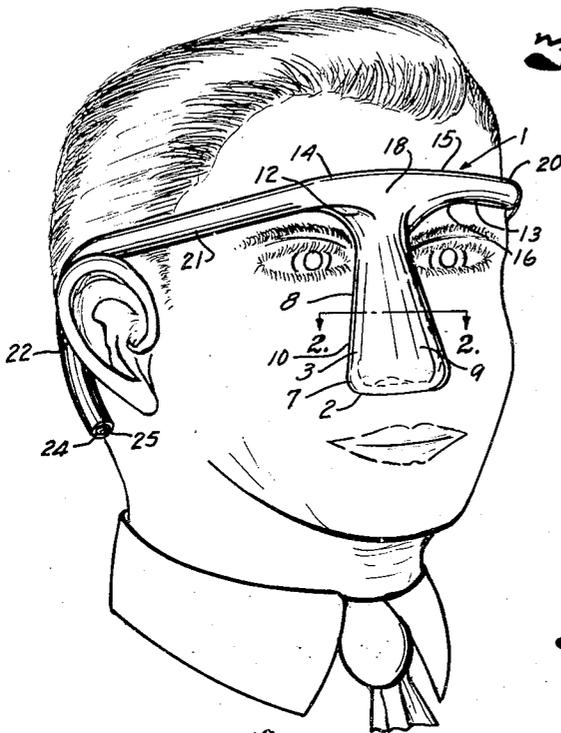


Fig. 1.

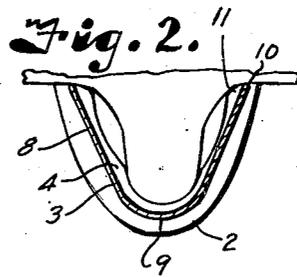


Fig. 2.

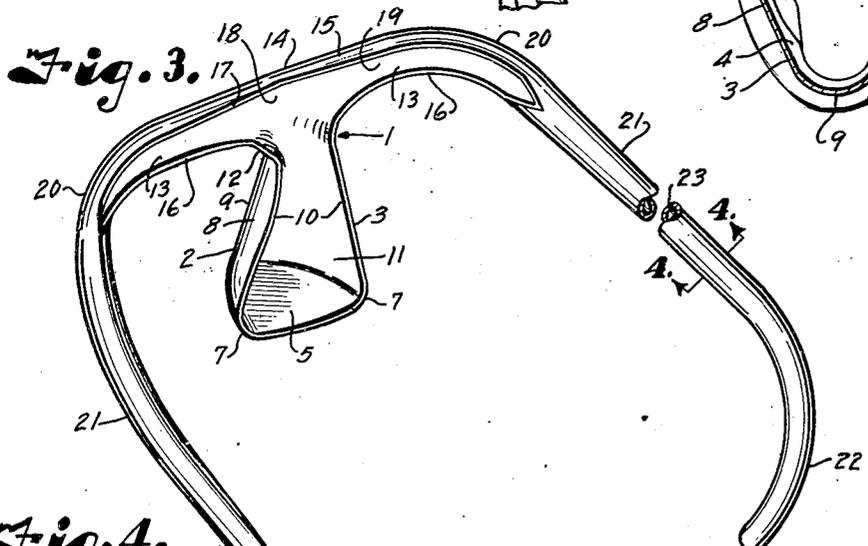


Fig. 3.

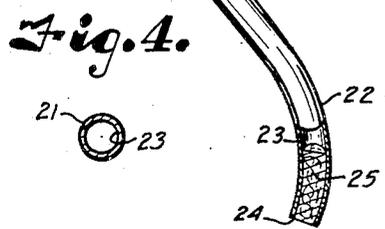


Fig. 4.

Inventor

William E. Tiffany

BY

Fichtburn & Mullendore

Attorneys

UNITED STATES PATENT OFFICE

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NASAL AND SINUS PROTECTOR AND WARMER

William E. Tiffany, Shawnee, Okla.

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5 Claims. (Cl. 128—148)

1

This invention relates to a device for protecting nasal and sinus tissues from the effects of cold air, smoke, pollen, dust and the like, and more particularly to a device utilizing body heat and exhaled breath for warming air being inhaled and warming the nasal and sinus areas, the inhaled air being suitably filtered if desired.

Persons having sensitive nasal and sinus tissues often experience considerable discomfort in winter weather due to irritating effects of cold air inhaled through the nose and contacting sinus passages. The cold air causes some people to have the effect of a common cold. Others have headaches or pain around the sinus areas and in some cases the reaction is similar to an asthmatic condition. It has been found that many of the persons having the difficulties due to cold air do not have any difficulty in a warm room. Also available humidity is reduced in the presence of extreme cold. Therefore, the inhalation of cold air results in the drying out of nasal membranes.

The principal objects of the present invention are to provide a device for protecting sensitive nasal and sinus areas from contact with cold air; to provide a device shaped to substantially conform to facial contours for covering various facial areas and warm said areas by exhaled breath; to provide a device utilizing exhaled breath and body heat for warming inhaled air; to provide a device which will warm air inhaled and the nose for retarding the loss of moisture by the nasal membranes; to provide a device which can be made of desirable size and color to match the face of the wearer, cover selected areas and warm same by exhaled breath and body heat to protect said areas most sensitive to cold air; and to provide a simple, efficient device, relatively comfortable to wear for protecting nasal and sinus areas.

In accomplishing these and other objects of the present invention, I have provided improved details of structure, the preferred forms of which are illustrated in the accompanying drawings, wherein:

Fig. 1 is a perspective view of a nasal and sinus protector and warmer as mounted on a wearer.

Fig. 2 is a horizontal sectional view on the line 2—2, Fig. 1.

Fig. 3 is a perspective view of the rear of the protector and warmer showing the open portions of the device wherein inhaled and exhaled air contact the skin of the wearer.

Fig. 4 is a transverse sectional view on the line 4—4, Fig. 3.

Referring more in detail to the drawings:

2

1 designates a nasal and sinus protector and warmer preferably molded of transparent plastic, glass, cloth, paper, papier-mâché or other suitable material preferably impervious or of such porosity that the passage of air therethrough will have immaterial effect on the temperature inside the protector. The material may be colored to substantially match the color of the face of the wearer.

The device consists of a mask 2 having a thin wall 3 shaped to conform to the facial contours of the wearer whereby the walls of the mask cover various sensitive facial areas and are suitably spaced therefrom as at 4. In the particular arrangement as shown, the mask 2 has a bottom wall 5 adapted to be spaced slightly below the lower portion of the nostrils, the rear edge 6 of said bottom being shaped to have substantially complete engagement with the face below the nose. The sides and front portion of the bottom 5 join as at 7 with upwardly and inwardly extending side walls 8, said side walls being connected at their forward portions by an arcuate portion of the mask 2, the walls 8 and portion 9 all being shaped to conform to the contours of the nose of the wearer to provide a space between said nose and said portions of the mask, the rear edges 10 of the walls 8 being shaped to substantially engage the facial contours. It is to be understood that the size and shape of the mask 2 varies depending on the person and the areas to be covered, for example the mouth and/or other areas of the face if desired, the opening 11 at the rear of the mask being slightly larger than the facial areas to be covered.

The mask may be terminated just above the eyes if desired and suitable means provided for securing the mask to the face, however it is preferable that the protector cover the sinus areas located above the eyes of the wearer. Connected to the mask 2, as at 12, are the lower walls 13 of a forehead covering portion 14, the upper wall 15 being spaced from the lower wall a suitable distance to cover the desired area of the forehead of the wearer when the rear edges 16 of the walls 13 engage the forehead just above the eyebrows. The rear edges 17 of the wall 15 are shaped to have contact with the forehead and the walls 13 and 15 are connected by a forward wall 18 spaced forwardly of the rear edges 16 and 17 to provide a passage 19 between the wall 18 and the forehead of the wearer. The forward portion 18 of the forehead covering member connects with the forward portion 9 of the mask 2 and the walls 13 connect with the walls 8 in such a manner that

3

the passage 19 has communication with the spaces 4 between the mask and the nose of the wearer whereby air may move from the passage 19 through the spaces 4 to the nostrils of the wearer for inhaling. Exhaled breath also travels through the spaces 4 and passage 19, the rear of the forehead member being open whereby the air will contact the skin on the forehead. The ends of the forehead covering member may terminate at the sides of said forehead and suitable fastening devices provided for securing the device to the wearer.

In the illustrated structure the ends of the forehead covering member terminate in curved portions 20 connected with tubular members 21 adapted to extend over the ears, the rear of said tubular members being bent downwardly to form ear engaging members 22, the passage 23 in the tubular members serving as a flow passage for air breathed by the wearer. The ends of the member 22 may be extended whereby the inlet opening 24 is located beneath the clothes of the wearer or may be terminated at the rear of the ears as shown in Fig. 1. The air inlet openings may be located at any suitable point in the tubular bow members on mask for providing desired length of travel of air through the device. Filtering material 25 is inserted in the air passages between the inlet openings at the neck to provide for filtering the air of smoke, fumes, pollen, dust and the like, said filter may be moistened for moistening the air inhaled by the wearer if the humidity is low. The tubular bow members are preferably shaped to provide substantial contact between said members and the sides of the wearer's head.

In using a device constructed as described and of such size and shape to conform to the particular facial contours of the wearer before entering a cold area, as by leaving a warm house and going outside during winter weather, the device is placed on the wearer in such a manner that the mask 2 covers the nose, the forehead portion 14 extends across the forehead, and the bows placed over the ears in such a manner that the edges 6, 10, 16 and 17 all engage the skin of the wearer, with sufficient pressure to substantially prevent air from escaping around the edges, yet lightly enough that there is no discomfort experienced by the wearer. As the person breathes, air is drawn through the filter 25 and passages 23 in the tubular bows 21, absorbing some heat from the person by transmission thereof through the walls of the tubular members in contact with the side of the person's head. The air then passes through the passageway 19 in contact with the skin of the forehead and through the spaces 4 to the nostrils. As the breath is exhaled it passes through the space 4, passageway 19, passage 23 and is discharged at the opening 24 of the tubular bows. Movement of the warm breath being exhaled warms the device and the skin contacted by the breath, that is the areas enclosed by the edges 6, 10, 16 and 17 of the respective walls of the device. As the wearer then inhales, the cold outside air absorbs some of the heat transmitted to the walls of the device by the outgoing breath. In this manner, all the air breathed into the nose and in contact with the sinus tissues is warmed as are the nasal and sinus areas covered by the device, thereby protecting the sensitive areas of the person from the effects of the cold air.

It will, of course, be understood that the protection may be of any suitable shape and size to cover selected sensitive areas of the face and head

4

to protect same from cold air and warm the areas by the breath of the person. Also changes may be made in the intake and passage of air through the space between the device and the face without departing from the invention.

What I claim and desire to secure by Letters Patent is:

1. In a device of the character described, walls forming a mask adapted to cover the nose and selected areas of a person's face, said walls being spaced from the areas to be covered, edges on the walls substantially conforming to the facial contours adjacent the areas to be covered for engagement with the face, and means for securing the mask on the face, said means having an air passage therein communicating with the space between the walls and the covered portion of the face remotely of the nostril covering portion whereby air inhaled and exhaled by the person must pass through the spaces in contact with the skin of the covered portion of the face.

2. A device of the character described comprising, walls of substantially impervious material forming a mask adapted to cover the nose and selected areas of a person's face, said walls being spaced from the areas to be covered, edges on the walls substantially conforming to the facial contours adjacent the areas to be covered for engagement with the face, and tubular members each having one end shaped to engage over the ears of the person and having the other end connected with the walls of the mask, said tubular members having through passages therein communicating with the space between the walls and the covered portion of the face whereby air inhaled and exhaled by the person passes through the spaces in warming contact with the skin of the face and through the tubular members.

3. A device of the character described comprising, walls of material forming a mask adapted to cover the nose and selected areas of a person's face, said walls being spaced from the areas to be covered, edges on the walls substantially conforming to the facial contours adjacent the areas to be covered for engagement with the face, tubular members each having one end shaped to engage over the ears of the person and having the other end connected with the walls of the mask, said tubular members having through passages therein communicating with the space between the walls and the covered portion of the face, and air filters in the tubular members, whereby air inhaled and exhaled by the person passes through the spaces in warming contact with the skin of the face and through the tubular members and air filters therein.

4. A device of the character described comprising, a mask adapted to cover the nose, portions of the forehead immediately above the eyes and selected areas of a person's face in spaced relation thereto, edges on the mask substantially conforming to the facial contours adjacent the areas to be covered for engagement with the face, and tubular means for securing the mask on the face, said tubular means having passages therein communicating with the space between the mask and the covered portion of the forehead whereby air inhaled and exhaled by the person passes through the spaces in contact with the skin of the face warming same.

5. A device of the character described comprising, an impervious mask adapted to cover the nose and selected areas of a person's face in spaced relation thereto, edges on the mask substantially

5

conforming to the facial contours adjacent the areas to be covered for engagement with the face, means on the mask remotely from the portion adjacent the nostril for securing the mask on the face, said means having passages therein communicating with the space between the mask and the covered portion of the face remotely of the nostril covering portion whereby air inhaled and exhaled by the person passes through all of the space between the nostrils of the person and the passage in contact with the skin of the face warming same, and air filters in said passages.

WILLIAM E. TIFFANY.

6

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