

THREE DIMENSIONAL FACE MASK

BACKGROUND OF THE INVENTION

Field of the Invention

The present invention relates to a face mask, and more particularly
5 to a three dimensional non-woven face mask providing protection from
bacteria and dust.

Description of the Prior Art

Non-woven face masks are widely used in medical facilities, food
production factories, precision instruments manufacturing industry and other
10 sites requiring high sanitation. Even in public places, more and more people
are wearing face mask. Nowadays, face masks are used not only as medical
products but also as daily commodities, and peoples' requirements to the
face mask is becoming more and more strict. Hence, the practical, economic,
safety, aesthetic and comfortable properties of the face mask are very
15 important.

So far, the existing non-woven face masks are mostly two
dimensional, and in order to ensure a good filtration effect, the ends of the
two dimensional face masks have to be fastened tightly to the wearer's ears
or head, so that the wearer may feel difficult to breathe and talk, the ears may
20 feel unconformable, and the face may feel difficult to sweat. If such a face
mask is worn by a wearer wearing glasses, the wearer's breath will flow
through the clearance between the upper portion of the face mask and the
face of the wearer to the wearer's glasses, causing foggy glasses.

The present invention has arisen to mitigate and/or obviate the afore-described disadvantages.

SUMMARY OF THE INVENTION

The primary object of the present invention is to provide a three
5 dimensional non-woven face which ensures a good air tightness against the
face while leaving a large enough space between the three dimensional cup
and the nose and mouth area to ensure conformable wearing, good filtration,
making the wearer easy to breathe and talk. To achieve this object, a three
dimensional face mask provided by the present invention comprises: a three
10 dimensional cup, a three dimensional soft rubber washer, an elastic tape, and
an anti-skid band; it is characterized in that: the three dimensional cup is
made by hot pressing of multilayer of filtration material, the three
dimensional soft rubber washer is provided with a soft nose cushion and is
bonded to an outer periphery of the three dimensional cup by hot pressing,
15 the anti-skid band is bonded to a lower edge of the three dimensional cup,
the elastic tape has two ends symmetrically bonded to both sides of the three
dimensional cup.

When the face mask is worn, a large enough space will left between
the three dimensional cup and the nose and mouth area, the soft nose cushion
20 is fixed to a middle of an upper side of the three dimensional soft rubber
washer, and a shape of the three dimensional soft rubber washer is similar to
an outline of the face of a wearer, plus the three dimensional soft rubber
washer has a high elasticity, making the three dimensional soft rubber

washer fit snugly against the face and nose bridge of the wearer, while snugly wrapping around the portion of the nose above the nose tip. Furthermore, anti-skid band is bonded to the lower edge of the three dimensional cup to naturally form a pocket-like structure which will fit
5 snugly against the wearer's chin with the help of the elastic tape, so as to prevent the cap from sliding and facilitate comfortable and stable wearing of the face mask.

As compared with the traditional face mask, the face mask of the present invention provides a good air tightness against the face and
10 comfortable wearing by solving the problem of poor airtightness caused by the uneven outline of the nose and face.

Obviously, the present invention has the advantages of simple structure, practical, comfortable wearing, good air tightness and infiltration while allowing the wearer to easily breathe and talk.

15 BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is an exploded view of a three dimensional face mask in accordance with a preferred embodiment of the present invention;

Fig. 2A is a side view of the three dimensional face mask in accordance with the present invention;

20 Fig. 2B is a perspective view of the three dimensional face mask in accordance with the present invention;

Fig. 3A is a perspective view of a three dimensional cap of the three dimensional face mask in accordance with the present invention;

Fig. 3B is a top view of the three dimensional cap of the three dimensional face mask in accordance with the present invention;

Fig. 3C is a side view of the three dimensional cap of the three dimensional face mask in accordance with the present invention;

5 Fig. 4A is a side view of a three dimensional soft rubber washer in accordance with the present invention;

Fig. 4B is a top view of the three dimensional soft rubber washer in accordance with the present invention;

Fig. 4C is a perspective view of the three dimensional soft rubber
10 washer in accordance with the present invention; and

Fig. 5 is a perspective view of an elastic tape of the three dimensional soft rubber washer in accordance with the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The present invention will be clearer from the following description
15 when viewed together with the accompanying drawings, which show, for purpose of illustrations only, the preferred embodiment in accordance with the present invention.

Referring to Figs. 1, 2A and 2B, a three dimensional face mask in accordance with a preferred embodiment of the present invention comprises
20 a three dimensional cup 10, a three dimensional soft rubber washer 20, an elastic tape 30, and an anti-skid band 40. The outer periphery of the three dimensional cup 10 which is made by hot pressing of multilayer of filtration material, and the three dimensional soft rubber washer 20 are bonded to the

periphery of the elastic tape 30 by hot pressing. The anti-skid band 40 is bonded to the lower edge of the three dimensional cup 10. The elastic tape 30 is H-shaped and has two ends symmetrically bonded to both sides of the three dimensional cup 10.

5 The elastic tape 30 is made of material with high elasticity, so that it can be slightly pulled over the back of the wearer's head. The anti-skid band 40 takes the form of a wide band and is bonded to the lower edge of the three dimensional cup 10 to naturally form a pocket-like structure which will fit snugly against the wearer's chin when the face mask is worn, so as to
10 prevent the cap 10 from sliding and facilitate comfortable and stable wearing of the face mask.

Referring then to Figs. 3A, 3B and 3C, the three dimensional cup 10 which is made by hot pressing multilayer of non-woven filtration fabric together into a three dimensional shape. From front view, the shape of the
15 three dimensional cup 10 is similar to the shape of the triangular area of the nose and mouth of the wearer, and from side view, the shape of the three dimensional cup 10 conforms to the outline of wearer's nose and mouth. The thickness of the filtration layer is determined by filtration function and the number of layers of the filtration material. The periphery 11 of the three
20 dimensional cup 10 is made by hot pressing, the middle portion 12 of the three dimensional cup 10 is protruded outward, so that the outer peripheral edge of the three dimensional cup 10 is shaped in a three dimensional manner in the outline of the nose and mouth area, leaving a large enough

space between the three dimensional cup 10 and the nose and mouth area to ensure conformable wearing, good filtration, making the wearer easy to breathe and talk.

Referring then to Figs. 4A, 4B and 4C, the three dimensional soft rubber washer 20 in accordance with the present invention is a ring-shaped structure made by plastic injection. From front view, the shape of the three dimensional soft rubber washer 20 is similar to the shape of the triangular area of the nose and mouth of the wearer, and from side view, the shape of the three dimensional soft rubber washer 20 conforms to the outline of wearer's nose and mouth. The outer peripheral edge 23 of the three dimensional soft rubber washer 20 is bonded to the periphery 11 of the three dimensional cup 10 by hot pressing. The structure of the outer peripheral edge 23 and a contacting surface 22 (for contacting the wearer's face) of the three dimensional soft rubber washer 20 conform to the peripheral structure of the nose and mouth of the wearer. When the face mask is worn, the contacting surface 22 fits snugly against the face of the wearer with the help of the elastic tape 30, ensuring an ideal air tightness against the face and a comfortable wearing.

To the middle of the upper side of the three dimensional soft rubber washer 20 is fixed a soft nose cushion 21 which is laminated and made by plastic injection simultaneously with the three dimensional soft rubber washer 20. When the wearer wears the face mask, the soft nose cushion 21 will snugly wrap around the portion of the nose above the nose tip, ensuring

a super air tightness effect, solving the problem of poor airtightness caused by the uneven outline of the nose and face and the problem of foggy glasses. Especially, doctors wearing glasses won't have foggy glasses, and thus reducing medical mistakes during operation.

5 Referring to Figs. 5 and 2B, the elastic tape 30 is H-shaped and has two ends symmetrically bonded to both sides of the three dimensional cup 10. When the face mask is worn, the elastic tape 30 elastically wraps around the back of the wearer's head, forcing the three dimensional soft rubber washer 20, the nose cushion 21 and the anti-skid band 40 to closely fit against the
10 face, the nose, and the chin of the wearer, respectively.

While we have shown and described various embodiments in accordance with the present invention, it is clear to those skilled in the art that further embodiments may be made without departing from the scope of the present invention.

WHAT IS CLAIMED IS:

1. A three dimensional face mask comprising: a three dimensional cup, a three dimensional soft rubber washer, an elastic tape, and an anti-skid band; characterized in that: the three dimensional cup is made by hot pressing of multilayer of filtration material, the three dimensional soft rubber washer is provided with a soft nose cushion and is bonded to an outer periphery of the three dimensional cup by hot pressing, the anti-skid band is bonded to a lower edge of the three dimensional cup, the elastic tape has two ends symmetrically bonded to both sides of the three dimensional cup.

2. The three dimensional face mask as claimed in claim 1, wherein three dimensional cup is protruded outward, and the outer periphery of the three dimensional cup is shaped in an outline of the face of a wearer, leaving a large enough space between the three dimensional cup and the face of the wearer.

3. The three dimensional face mask as claimed in claim 1, wherein the soft nose cushion is fixed to a middle of an upper side of the three dimensional soft rubber washer and made by plastic injection simultaneously with the three dimensional soft rubber washer, the three dimensional soft rubber washer is a ring-shaped structure made by plastic injection, and a shape of the three dimensional soft rubber washer is similar to an outline of the face of a wearer.

4. The three dimensional face mask as claimed in claim 1, wherein the anti-skid band is bonded to the lower edge of the three dimensional cup

to naturally form a pocket-like structure.

5. The three dimensional face mask as claimed in claim 1, wherein the elastic tape is H-shaped and has two ends symmetrically bonded to both sides of the three dimensional cup.