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NONFREEZING MOUTHPIECE

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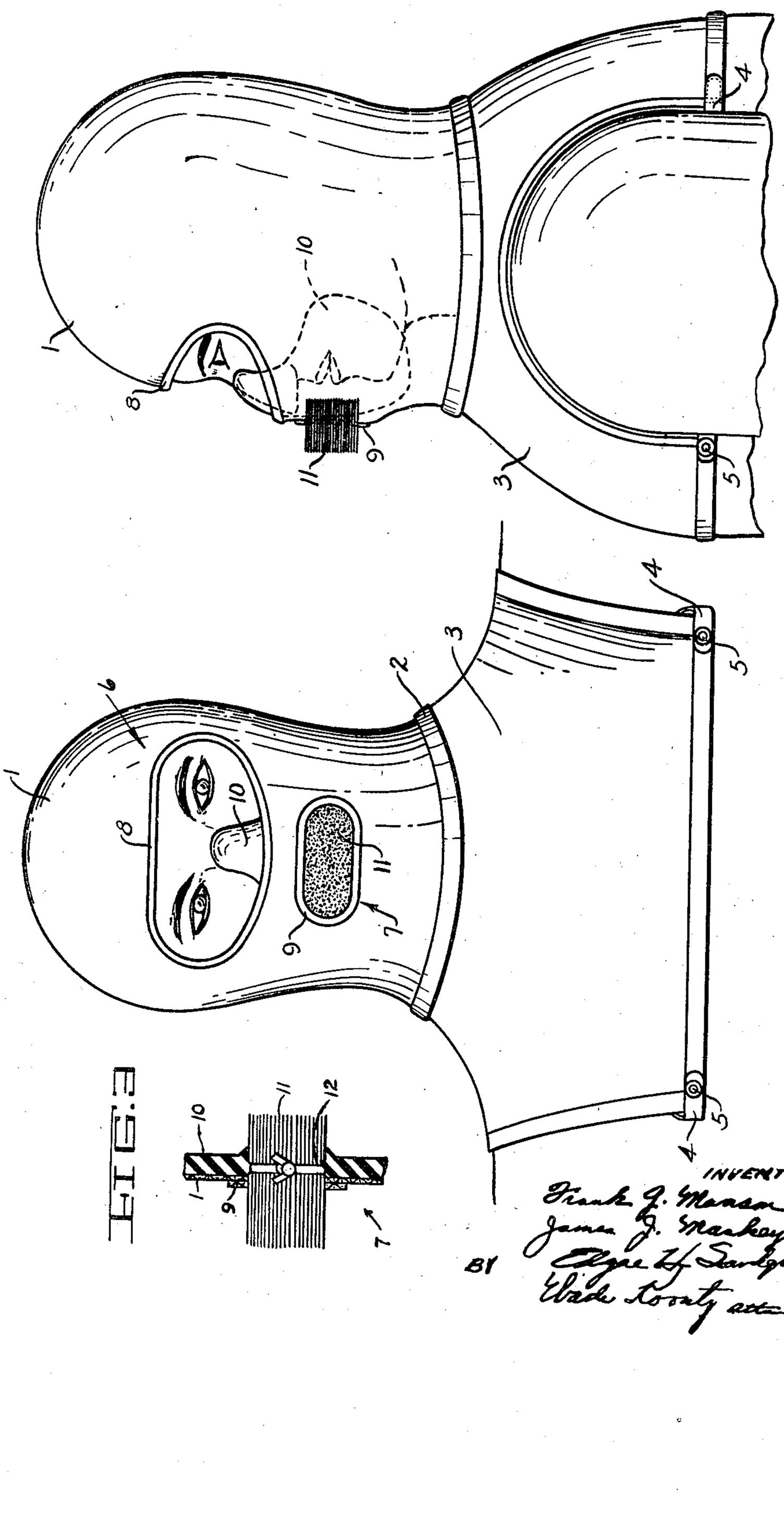

FIG. 1

FIG. 2

FIG. 3

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NONFREEZING MOUTHPIECE

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7 Claims. (Cl. 128—146)

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The invention described herein may be manufactured and used by or for Government for governmental purposes, without the payment to us of any royalty thereon.

This invention relates to improvements in cold weather wearing apparel, and more particularly to a non-freezing mouthpiece for use with such apparel.

In extremely cold climates, it is both necessary and desirable to have the outer garments designed for use in this climate to cover all of the face and head of the wearer except for the eyes and mouth so as to prevent frostbite of the cheeks, chin, nose, etc. Considerable difficulty has been experienced, however, with previous head coverings due to the freezing up of the mouth opening therein as a result of the breathing of the wearer through such opening. The moisture of the breath condenses and freezes as it passes through this opening, thus forming a layer of solid ice around the edges thereof. By gradual accretion this ice layer builds up until it finally comes into contact with the mouth and nostrils of the wearer, thus giving rise to the possibility of freezing these parts of the face.

Accordingly, an object of this invention is to provide a garment for covering the head and upper portion of the human body, which garment is provided with a novel non-freezing mouthpiece. By means of such mouthpiece, ice is prevented from forming around the mouth and nostrils of the wearer and the undesirable effects occasioned by this ice formation are avoided.

Another object of our invention is to provide a non-freezing mouthpiece for a parka or similar garment together with a mouthpiece supporting member for holding the former in position in front of the mouth of the wearer but spaced therefrom by a suitable distance.

A further object of our invention is to provide a non-freezing mouthpiece consisting of closely packed hairs or other filiform material laid horizontally in such a manner that the respiratory air will pass lengthwise along the hair or other material.

A preferred embodiment of the present invention will be hereinafter described with reference to the accompanying drawing, given merely by way of example, in which:

Figure 1 is a front view of the parka and mouthpiece in position over the face and head of the wearer; and

Figure 2 is a side elevation of the same, showing the arrangement of the mouthpiece in the supporting member and also the spacing between the mouthpiece and the mouth of the wearer.

Figure 3 is a fragmentary view of the mouthpiece element taken in cross section.

As shown in the drawing, a parka or bond 1 is shaped to conform in a general manner to the outlines of the human head. Around the lower edge of this hood is a seam 2 joining the latter to a shoulder portion 3 shaped to fit over the shoulders of the human body. Parts 1 and 3 may be constructed of any suitable material, but are preferably made of a water-proofed fabric which is lined with shirling or other insulating material. Straps 4 pass under the arm pits of the wearer and join the front and rear portions of the shoulder piece 3 so as to hold the garment in place on the body. These straps are provided with snaps 5 at their front ends, thus making it possible to conveniently loosen the straps when it is desired to remove the hood. An eye opening designated generally at 6 and a mouth opening similarly designated at 7 are provided in the head portion 1, these openings being provided with reinforcing bands 8 and 9, respectively. As seen from Figure 2, a mouthpiece supporting member 10 which is made preferably of a resilient material such as sponge rubber, lies behind the mouth opening 7 in the hood and is shaped to conform to the outline of the face around the nose, cheeks, and jaw of the wearer. The supporting member 10 may be secured to the hood 1 in any suitable manner such as by cementing, stitching, riveting, etc. In the front of this supporting member is a mouthpiece opening of a shape identical with that of the opening 7 in the hood and lying in registry therewith. A mouthpiece 11 having a shape similar to these two openings is inserted therein and is frictionally held in place by contact with the edges of the openings. By forming the supporting member 10 to conform to the contours of the face, the mouth and nose are sealed off from the rest of the face and also from the eye opening 6. Hence, all of the air inhaled and exhaled by the wearer is forced to pass through the mouthpiece 11 and cannot seek an outlet through the eye opening 6.

The mouthpiece 11 is comprised of a large number of filiform elements which are laid parallel to their length and bound together by a wire or other tying band 12 passing around the periphery of the filter and located substantially midway between the ends thereof. The elements comprising the mouthpiece may consist of any suitable filiform material which possesses the characteristic of resisting the solid formation of

ice thereon. Not all materials possess this quality and in fact it has been found that the hair from sheep and rabbits is unsuited for use in the mouthpiece, since a solid cake of ice will be formed on the outer ends of these hairs when breathed through at very low temperatures. With other materials, however, such as horse hair and wolverine hair, the moisture from the breath will merely form a frost at the outer ends of the mouthpiece, which frost may be easily dislodged at intervals by a sweep of the hand over the ends of the hairs. It has been found, in fact, that when the head is in motion, the movement of the outer ends of the hairs is sufficient in and of itself to dislodge the frost which forms thereon. It is apparent that other filiform materials having the desired characteristic of preventing solid ice formation may be determined by means of making simple tests with the same in a cold chamber.

The operation of our device is as follows:

When the wearer inhales, the air from the outside atmosphere is drawn in through the interstices existing between the elements of the mouthpiece and passes into the mouth or nostrils of the wearer. Upon exhaling, the moisture-laden air from the mouth or nostrils is forced out through these same interstices to the outer end of the mouthpiece. The moisture in the exhaled air will condense as it approaches the outer ends of the mouthpiece elements and will freeze thereon in a finely divided form. This ice deposit or frost may be easily dislodged at intervals by passing the hand over the outer ends of the elements, or, as stated above, when the wearer is moving about, the natural motion of the head is sufficient to dislodge the frozen particles from the ends of the elements. Due to the close fit of the supporting member 10 around the nose, cheeks, and chin, all of the air of respiration is confined to the mouthpiece 11 and cannot, by passing through the eye opening 6, cause ice to form around the edges of this opening.

Having thus described our invention in connection with one possible embodiment thereof, it will be seen that we have devised a novel and useful non-freezing mouthpiece which may be used with various types of cold weather equipment and which is not limited to the specific modification herein shown and described.

What we claim as new and desire to secure by Letters Patent is:

1. A cold weather garment comprising a hood entirely covering the face and head of the wearer and provided with a mouth opening, and a non-freezing mouthpiece located in said opening for preventing the formation of ice around the edges thereof, said mouthpiece including a plurality of contiguously and parallelly disposed filiform elements characterized by their ability to prevent the formation of solid ice thereon, said mouthpiece being so disposed in said mouth opening that the air of respiration will pass lengthwise along said elements.

2. A cold weather garment comprising a hood entirely covering the face and head of the wearer and provided with a mouth opening, a non-freezing mouthpiece located in said opening, said mouthpiece including a plurality of contiguously and parallelly disposed filiform elements characterized by their ability to prevent the formation of solid ice thereon, and a supporting member for holding said mouthpiece in front of and spaced from the mouth of the wearer, said mouthpiece being so disposed in said mouth opening and in said member that the air of respiration shall pass lengthwise along said elements.

3. A non-freezing mouthpiece for use in cold weather equipment comprising a bunch of contiguously and parallelly disposed filiform elements characterized by their ability to prevent the formation of solid ice thereon, said mouthpiece being so disposed that the respiratory air from the wearer's mouth will pass through said bunch along the length of said elements.

4. The invention as defined in claim 3 wherein said bunch of filiform elements are loosely held in cooperating relationship with each other by means of a retaining element passing around said bunch in a direction perpendicular to the length of said elements.

5. A non-freezing mouthpiece for use in cold weather equipment comprising a plurality of contiguously and parallelly disposed hairs characterized by their ability to prevent the formation of solid ice thereon, said mouthpiece being so disposed that the respiratory air from the wearer's mouth will pass through said mouthpiece along the length of said hairs.

6. A non-freezing mouthpiece for use in cold weather equipment comprising a plurality of contiguously and parallelly disposed wolverine hairs characterized by their ability to prevent the formation of solid ice thereon, said mouthpiece being so disposed that the respiratory air from the wearer's mouth will pass through said mouthpiece along the length of said hairs.

7. A non-freezing mouthpiece for use in cold weather equipment comprising a plurality of contiguously and parallelly disposed horse hairs characterized by their ability to prevent the formation of solid ice thereon, said mouthpiece being so disposed that the respiratory air from the wearer's mouth will pass through said mouthpiece along the length of said hairs.

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