Abstract: The invention provides a pre-cut, pre-shaped protective strip with adhesive on one side protected by a peel-off tape strip. In certain embodiments, a cut-out section may be provided to accommodate the bridge of the medical professional’s nose. In other embodiments, a raised nasal accommodator may be provided in the protective strip. In other embodiments, a protective strip may be incorporated into the surgical mask itself.
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TITLE OF THE INVENTION

Devices for Preventing Fogging of Medical Personal Protective Eyewear

CROSS-REFERENCE TO RELATED APPLICATIONS

This application claims the benefit of US application number 62/197,692, entitled "Surgical Mask Tape" and filed on July 28, 2015; and US application number 62/239,501, entitled "Devices and Methods for Preventing Fogging of Medical Personal Protective Eyewear" and filed October 9, 2015, the entire contents of which are incorporated herein by reference.

INVENTORS

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BACKGROUND OF THE INVENTION

[001] Field of the Invention

[002] The present invention relates generally to devices and methods for providing a surgical tape mask that prevents fogging of protective eyewear during medical procedures.

[003] Brief Summary of the Invention

[004] Various embodiments of the present invention comprise a pre-cut, pre-shaped protective strip with adhesive on one side protected by a peel-off tape strip. In certain embodiments, a cut-out section may be provided to accommodate the bridge of the medical professional's nose. In other embodiments, a raised nasal accommodator may be provided in the protective strip. In other embodiments, a protective strip may be incorporated into the surgical mask itself.
[005] Description of the Related Art

[006] Generally, current surgical or medical masks comprise built-in adhesives designed to stick to the medical professional's facial skin, but fail to consistently provide the necessary protection and fit against the skin. In addition, the known masks fail to extend to the medical professional's protective eyewear for fogging prevention. As the surgical mask adhesive fails, moisture-filled air from the medical professional's breathing leaks upwardly and out of the surgical mask and onto the lenses of the protective eyewear resulting in unwanted fogging. Elimination of vision-obscuring fogging is a high priority for medical professionals involved in a medical or surgical procedure.

[007] The figures and the detailed description which follow more particularly exemplify these and other embodiments of the invention.

[008] BRIEF DESCRIPTION OF THE DRAWINGS

[009] The invention may be more completely understood in consideration of the following detailed description of various embodiments of the invention in connection with the accompanying drawings, which are as follows.

[010] FIG. 1 illustrates a known surgical mask and protective eyewear arrangement worn by a medical professional.

[011] FIG. 2 illustrates a front view of one embodiment of the present invention.

[012] FIG. 3 illustrates the embodiment of FIG. 2 applied to surgical mask and face of the medical professional of FIG. 1.

[013] FIG. 4 illustrates one embodiment of the present invention applied to the surgical mask and face of the medical professional of FIG. 1.
FIG. 5 illustrates a front view of the embodiment of FIG. 4.

FIG. 6 illustrates a side view of one embodiment of the present invention.

DETAILED DESCRIPTION OF THE INVENTION, INCLUDING THE BEST MODE

While the Invention is amenable to various modifications and alternative forms, specifics thereof are shown by way of example in the drawings and described in detail herein. It should be understood, however, that the intention is not to limit the invention to the particular embodiments described. On the contrary, the intention is to cover all modifications, equivalents, and alternatives falling within the spirit and scope of the invention.

FIG. 1 provides an illustration of a medical professional wearing known protective gear, including protective glasses 10 having protective lenses 12. The protective lenses 12 cover the medical professional's eyes during a medical or surgical procedure comprises a lower edge 13 that extend a distance D1 below the medical professional's lower eyelid 14.

The known protective gear further consists of a surgical or medical mask 20 as shown. The mask 20 covers the medical professional's mouth and nose, generally comprises an adhesive (not shown) that enables the mask 20 to adhere to the medical professional's facial skin. The mask 20 extends upwardly, generally leaving a slight gap D2 between the top edge 22 of mask 20 and the lower edge 13 of protective lenses 12. Mask 20 further comprises side edges 24.

Because the adherence of the mask 20 to the medical professional's facial skin is imperfect, failing often during the procedure, moist air from the medical professional's breath escapes upwardly out of the confines of the mask 20, rising into the air around the protective lenses 12, causing them to fog and obscuring the medical professional's
vision. Generally, this moisture will escape from gaps in the top edge 22 and/or the side edges 24, most typically in gaps proximate to, or adjacent with, the top edge 22.

[021] Figure 2 illustrates one embodiment of a protective strip 100 comprising a body 110 comprising a first non-adherent side 102 and a second side 104, an adhesive coating 120 on the second side 104 of body 110 as best shown in Figure 6. A removable protective tape 130 may be provided as removably adhered to the adhesive coating to protect the adhesive coating 120 until the medical professional is ready to use and apply the protective strip 100 to the facial skin and mask 20. Body 110 further comprises

[022] Protective strip 100 further comprises a nasal cutout 140 designed to provide a comfortable yet tight fit across the medical professional's nose and positioned generally centered along the lower edge 160 of body 110 of protective strip 100. Generally, the nasal cutout 140 comprises a curvilinear shape, though other shapes will readily present to the skilled artisan, each of which is within the scope of the present invention. Figure 3 illustrates protective strip 100 as adhered to the surgical mask in such a way so as to cover the top edge 22 of the mask 20. In addition, the protective strip 100 is adhered to the medical professional's facial skin where exposed by the mask 20 and the top edge 150 of the body 110 of protective strip 100 further extends upwardly, reducing and/or eliminating the distance D2 between the top edge 22 of mask 20 and the protective lenses 12 as shown in Fig. 1. In a most preferred embodiment, the top edge 150 of protective strip 100 extends upwardly beyond the lower edge 13 of lenses 12 a distance ω. Protective strip 100 may further cover at least a portion of the side edges 24 of mask 20. Alternatively, protective strip 100 may cover a portion of top edge 22 of mask 20. In this embodiment, protective strip will not cover a portion of the side edges 24 of mask 20 and will cover the area of the top edge 22 of mask 20 on either side of the medical professional's nose and a distance on either side of the nose, stopping short of the side edge 24.
[023] In this way, the surgical mask 20 is completely sealed by protective strip 100 against moist air escaping from the upper portion of the mask 20, thereby preventing fogging of the lenses 12.

[024] Figures 4 and 5 illustrate another embodiment of protective strip 200. In this embodiment, the body 210 of strip 200 comprises a curvilinear and, in some cases a raised or pre-formed, nasal accommodator 212 to provide tight adherence of the strip 200 to the medical professional's mask 20 and facial skin. Generally, the nasal accommodator 212 comprises a curvilinear shape, though other shapes will also be readily recognized by the skilled artisan, each shape within the scope of the present invention. Nasal accommodator 212 is generally centered along the top edge 220 of protective strip 200.

[025] As with the embodiment of Figs 2 and 3, an adhesive coating is provided on one side of the body 210 with a removable protective tape provided as removably adhered to protect the adhesive coating until the protective strip 200 is ready to be applied to the facial skin and mask 20 of the medical professional. Figure 6 illustrates these successive layers of protective strip body, adhesive coating and removable protective tape.

[026] As shown, the nasal accommodator 212 in Figures 4 and 5 extends vertically above the top edge 220 of mask a distance of D₄. As further shown, the protective strip 200 covers the top edge 22 of mask 20 and further extends upwardly so that the top edge 220 of protective strip 200 reduces and/or eliminates any gap between the lower edge 13 of protective lenses 12. Most preferably, and as illustrated in Fig. 4, the top edge 220 of protective strip 200 extends upwardly beyond the lower edge 13 of lenses 12 a distance of D₆. Protective strip 200 may further cover at least a portion of the side edges 24 of mask 20.

[027] Alternatively, protective strip 200 may cover a portion of top edge 22 of mask 20. In this embodiment, protective strip 200 will not cover a portion of the side edges 24 of mask 20 and will cover the area of the top edge 22 of mask 20 on either side of the
medical professional's nose and a distance on either side of the nose, stopping short of the side edge 24.

[028] In another embodiment, the protective strip 100 or 200 may be incorporated into the manufacture of an inventive surgical or medical mask 20, rather than adhesively secured as in the embodiments discussed above. In this case, and as made clear by the dashed lines of both Figures 2 and 5, the protective strip 100 or 200 are attached to the surgical mask 20, but extend vertically above the upper edge of the known surgical masks 20. In this embodiment, only the portion of the protective strip 100 or 200 visible above dashed lines as shown in Figs 2 and 5 will require an adhesive coating 120 on one side of the body 110 or 220 and, therefore, only that portion of the protective strip 100 or 200 receiving an adhesive coating will require a removable protective tape to protect the adhesive coating until the surgical mask is ready for use and the protective strip 100 or 200 is ready to be applied to the facial skin of the medical professional. In this embodiment, the protective strip 100 or 200 is attached to the mask 20 and, therefore, does not require adhesive for adherence thereto.

[029] In certain embodiments, the protective strip body 110 or 210 or at least a portion thereof, may comprise a hydrogel or silicone gel, or a similar compound. This construction assists in gripping the protective eyewear frame where there is contact between the bottom of the eyewear frame and the protective strip 100 or 200 as is illustrated in Figures 3 and 4. In addition, a cushioning effect is thus provided to add a degree of comfort to the medical professional.

[030] As discussed above, the protective strip 100 or 200, or as incorporated into a surgical mask, and the generally continuously sealed barrier provided thereby, may extend generally above the top edge of the mask 20. In addition, embodiments of the protective strip may extend generally beyond at least a portion of the side edges of the mask 20 in order to prevent moisture escaping the surgical mask 20 in areas proximate the protective lenses 12.
One of the advantages of the present invention's embodiments is that, when peeling the adhered protective strip away from the medical professional's facial skin, it is gentler on the skin and less irritating than the medical tape currently in use.

The present invention should not be considered limited to the particular examples described above, but rather should be understood to cover all aspects of the invention. Various modifications, equivalent processes, as well as numerous structures to which the present invention may be applicable will be readily apparent to those of skill in the art to which the present invention is directed upon review of the present specification.
WHAT IS CLAIMED IS:

1. A protective strip for sealed adherence to a surgical mask having a top edge and side edges, and to the facial skin of a medical professional, comprising:
   - a body having a first non-adherent side and a second side, a top edge and a lower edge;
   - adhesive coating on the second side of the body;
   - removable protective tape covering the adhesive coating; and
   - a curvilinear nasal cutout centered along the lower edge of the body, the protective strip adapted for adherence to the surgical mask to cover at least a portion of the top edge and extending vertically above the top edge of the mask a distance and adhered to the facial skin of the medical professional.

2. The protective strip of claim 1, wherein the protective strip covers the top edge and at least a portion of the side edges of the mask.

3. The protective strip of claim 1, the medical professional further wearing protective eyewear comprising lenses having a lower edge, wherein the top edge of the body of the protective strip extends above the lower edge of the lenses.

4. The protective strip of claim 3, further comprising the body partially formed of hydrogel for effective adhesion and non-irritating removal from the medical professional's facial skin.

5. The protective strip of claim 4, wherein the medical professional is wearing protective glasses with frames and wherein the non-adherent side provides a gripping function for the frames.
6. The protective strip of claim 3, further comprising the non-adherent side of the body comprising silicone gel for effective adhesion and non-irritating removal from the medical professional's facial skin.

7. The protective strip of claim 6, wherein the medical professional is wearing protective glasses with frames and wherein the non-adherent side of the body provides a gripping function for the frames when the frames are in contact with the non-adherent side of the body.

8. A protective strip for sealed adherence to a surgical mask having a top edge and side edges, and to the facial skin of a medical professional, comprising:

   a body having a first side and a second side, a top edge and a bottom edge;

   adhesive coating on the second side;

   removable protective tape covering the adhesive coating; and

   a curvilinear nasal accommodator centered along the top edge of the body and rising vertically above the top edge of the body, wherein the protective strip adheres to the surgical mask and to the facial skin of the medical professional, thereby covering at least a portion of the top edge.

9. The protective strip of claim 8, the curvilinear nasal accommodator further comprising a form to accommodate the medical professional's nose therein.

10. The protective strip of claim 8, wherein the protective strip covers the top edge and at least a portion of the side edges of the mask.

11. The protective strip of claim 8, the medical professional further wearing protective eyewear comprising lenses having a lower edge, wherein the top edge of the body of the protective strip extends above the lower edge of the lenses.
12. The protective strip of claim 11, further comprising the body comprising hydrogel.

13. The protective strip of claim 12, wherein the protective lenses further comprise frames and wherein the non-adherent side of the body comprising hydrogel provides a gripping function for the frames when the frames are in contact with the non-adherent side of the body.

14. The protective strip of claim 11, further comprising the non-adherent side of the body comprising silicone gel.

15. The protective strip of claim 14, wherein the protective glasses further comprise frames and wherein the silicone gel provides a gripping function for the frames when the frames are in contact with the non-adherent side of the body.

16. A combination surgical mask and protective strip for a medical professional, comprising:

   a surgical mask portion having a top edge and side edges;

   a protective strip portion fixedly attached to the surgical mask and extending upwardly from the mask portion's top edge and covering at least a portion of the top edge of the mask portion, the protective strip portion comprising:

   a body having a first side and a second side, a top edge and a bottom edge;

   adhesive coating on the second side; and

   removable protective tape covering the adhesive coating, wherein the protective strip adheres to the facial skin of the medical professional.
17. The combination surgical mask and protective strip of claim 16, wherein the medical professional is wearing protective eyewear comprising lenses having a lower edge, wherein the top edge of the body of the protective strip portion extends above the lower edge of the lenses.

18. The combination surgical mask and protective strip of claim 17, further comprising the body of the protective strip portion having a curvilinear nasal accommodator centered along the top edge of the body and rising vertically above the top edge of the body, wherein the protective strip adheres to the facial skin of the medical professional.

19. The protective strip of claim 16, wherein the protective strip covers the top edge and at least a portion of the side edges of the mask.

20. The protective strip of claim 16, the medical professional further wearing protective eyewear comprising lenses having a lower edge, wherein the top edge of the body of the protective strip extends above the lower edge of the lenses.
### A. CLASSIFICATION OF SUBJECT MATTER

**IPC(8)**: A41D 13/11; A41I D 13/05; A62B 18/00; A62B 18/02; A62B 18/08; A62B 23/02 (2016.01)

**CPC**: A41D 13/1169; A41D 13/05; A41D 13/11; A41I D 13/1115; A41D 13/1161; A41D 13/1176 (2016.05)

According to International Patent Classification (IPC) or to both national classification and IPC

### B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

**IPC(8)**: A41D 13/05; A41D 13/11; A62B 18/00; A62B 18/02; A62B 18/08; A62B 23/02 (2016.01)

**CPC**: A41D 13/05; A41D 13/11; A41I D 13/1115; A41D 13/1161; A41D 13/1169; A41D 13/1176; A41D 13/1184; A62B 18/00; A62B 18/02; A62B 18/08; A62B 18/084; A62B 23/02; A62B 23/025 (2016.05)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched


Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

PatBase, Google Patents, Google, Google Scholar, YouTube

Search terms used: healthpartners, mask, surgical, adhesive, fog, tape

### C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
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<tbody>
<tr>
<td>Y</td>
<td>US 3,974,829 A (TATE, JR.) 17 August 1976 (17.08.1976) entire document</td>
<td>1-20</td>
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<tr>
<td>Y</td>
<td>US 6,055,982 A (BRUNSON et al) 02 May 2000 (02.05.2000) entire document</td>
<td>4, 5, 12, 13</td>
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