United States Patent [19]

McCosker

[11] **3,908,648**

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[54] **SANITARY FACE MASK**

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[21] Appl. No.: **338,208**

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 210,962, Dec. 22, 1971, Pat. No. 3,740,768.

[52] **U.S. Cl.** ..... **128/146.6;** 128/146.7; 2/9; 132/1 R

[51] **Int. Cl.**[2] **A62B 7/10**

[58] **Field of Search** ..... 128/146.6, 146.7, 146.2, 128/146.3, 146, 147, 141, 142.6, 132 R, 136, 163, 205, 142.7; 132/88.7, 1 R; 55/DIG. 35; D86/10; 2/9, 4, 8, 174, 173, 11, 14 W, 14 B

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[57] **ABSTRACT**

A frame defines a face mask. A flexible transparent disposable filter material is removably retained about the frame.

6 Claims, 9 Drawing Figures

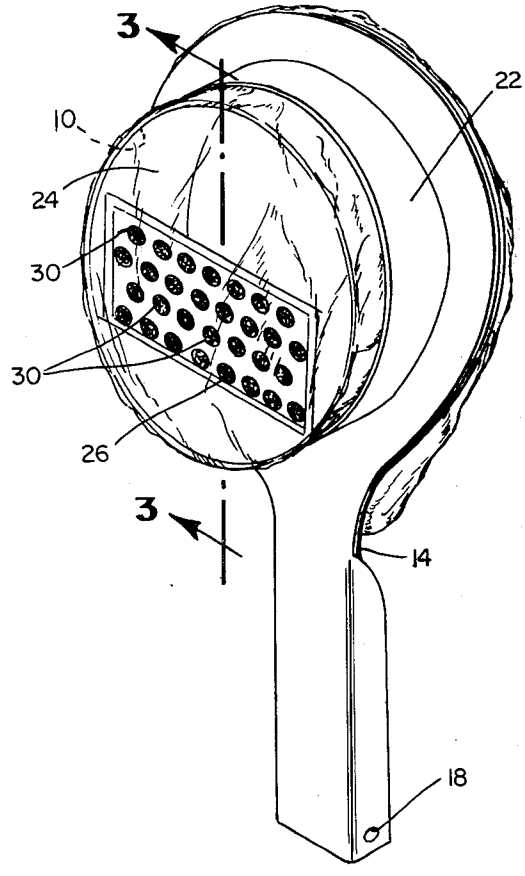


Fig. 2

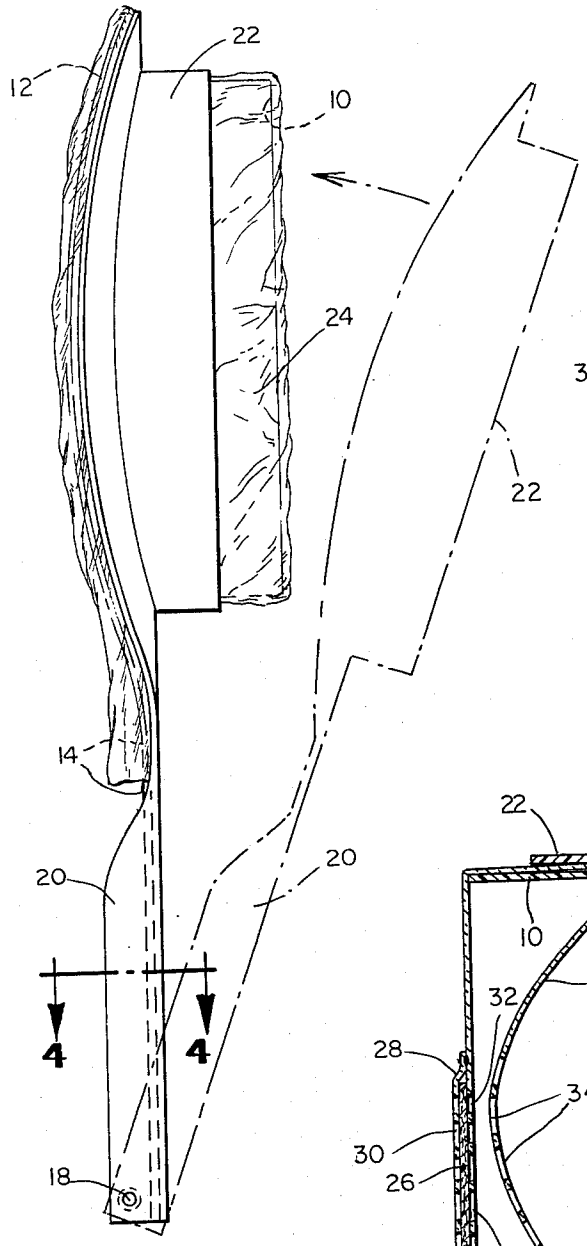
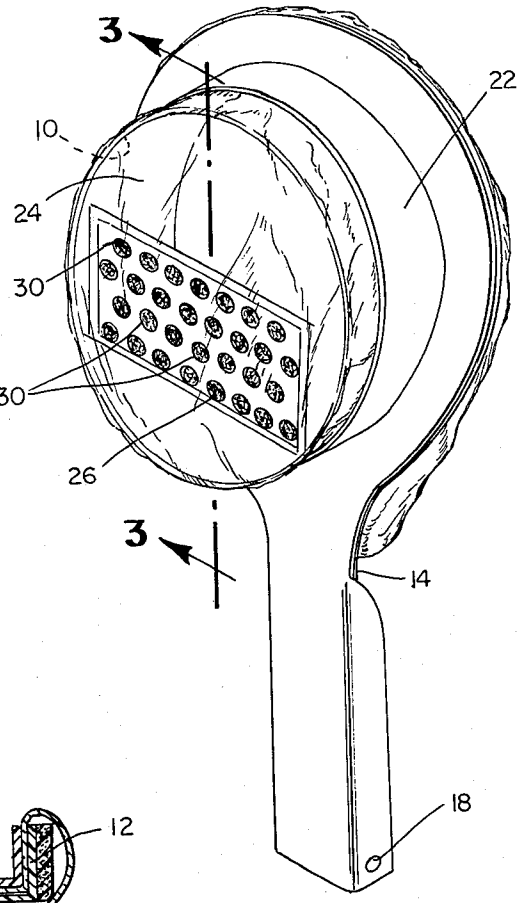


Fig. 1



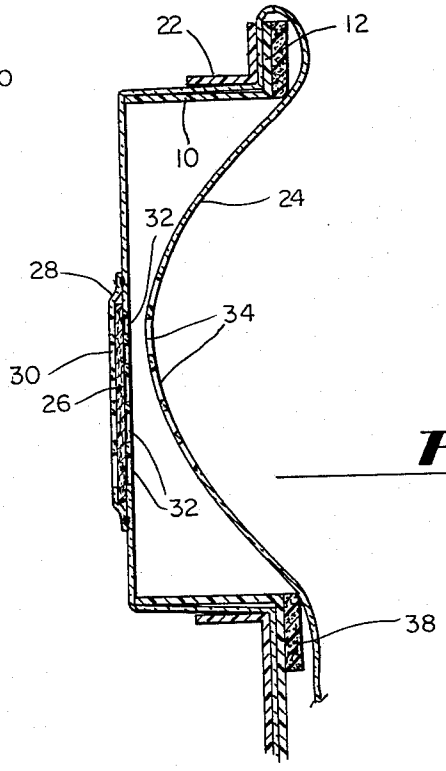


Fig. 3

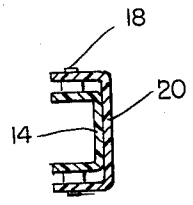


Fig. 4

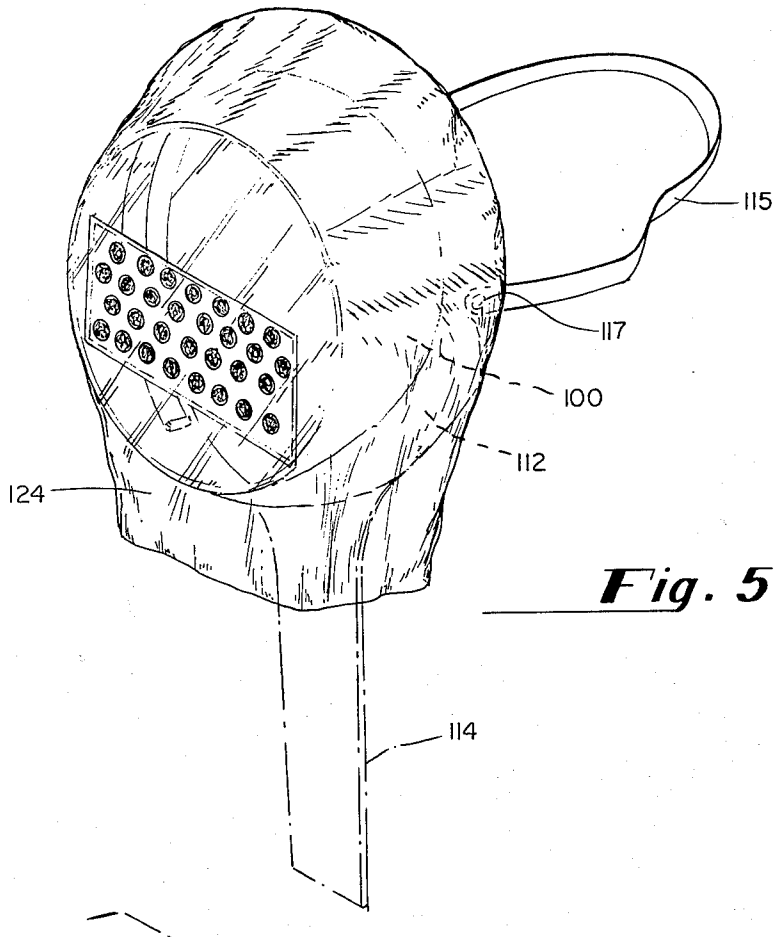


Fig. 5

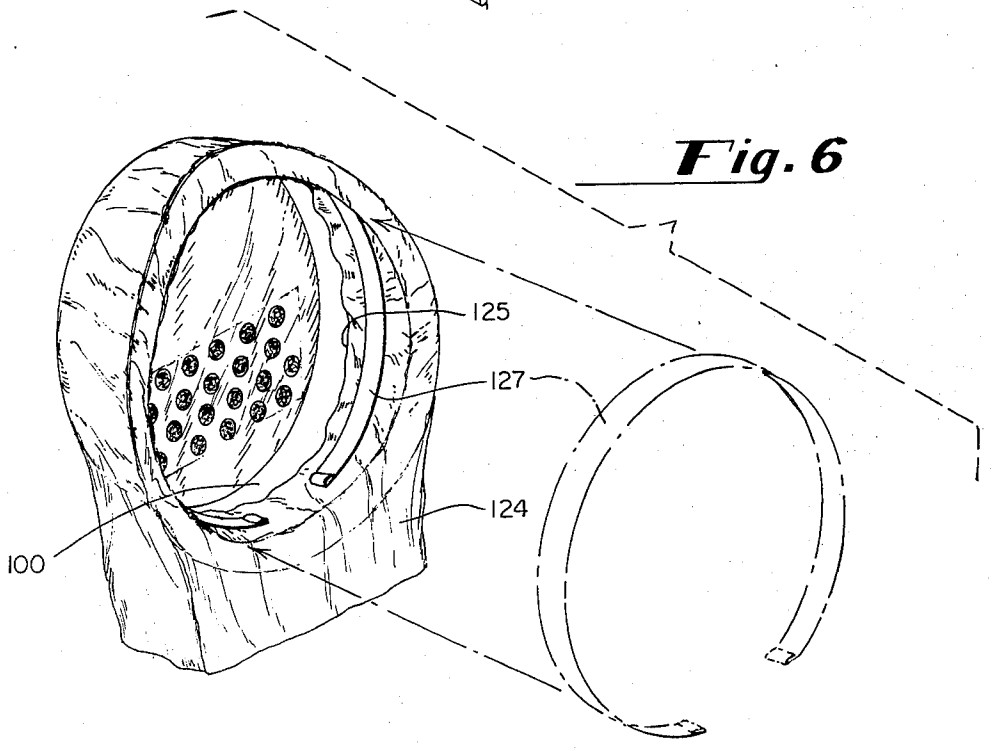
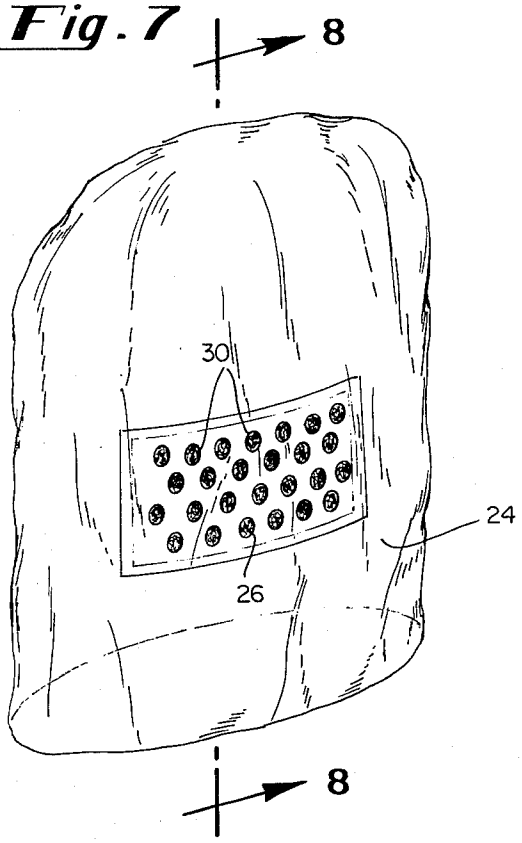


Fig. 6

Fig. 7



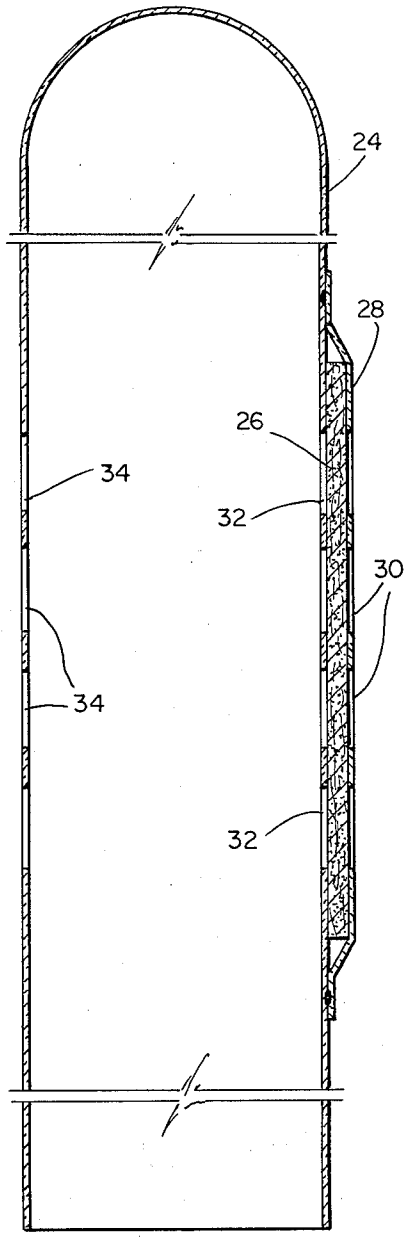


Fig. 8

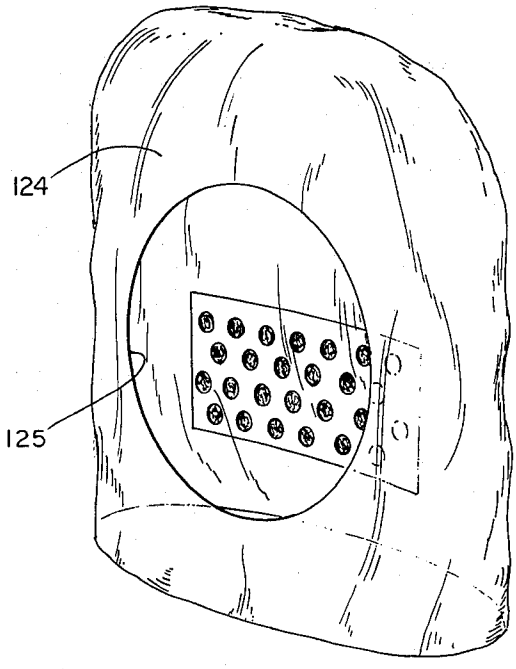


Fig. 9

SANITARY FACE MASK

CROSS-REFERENCE TO RELATED APPLICATION

This application is a continuation-in-part of my prior copending application Ser. No. 210,962, filed Dec. 22, 1971 and now U.S. Pat. No. 3,740,768, and incorporates by reference the disclosure of that application.

BACKGROUND OF THE INVENTION

This invention relates to a device used to protect the face of an individual and to aid in preventing the inhalation of toxic air during spraying, such as when spraying ingredients from an aerosol container during the application of hair spray, or in spraying room deodorants, insecticides, paint, and the like. In particular, the application pertains to a device which is provided with a disposable sanitary portion closest to the face of the individual.

In the prior art, face shields and masks are known for use during the application of hair sprays. See, for example, the device shown in U.S. Pat. No. D210,183. In general, it is known to provide a mask which has the outlines or contours of a face and which will fit against the forehead, under the chin and around the perimeter of the face, and which can be held in place by a handle or strap, as desired. See, for example, U.S. Pat. Nos. 825,288, 1,524,863, 3,015,105, 3,060,445, 3,103,667, **3,152,588, 3,317,921** and 3,488,772. This art shows various means for permitting an individual to breathe while using a mask. Further, it is known to use a transparent material to cover the face during the application of hair spray. A problem with these prior art devices is that they are basically unsanitary.

SUMMARY OF THE INVENTION

I have overcome the deficiencies of the prior art by providing a frame in a generally hollow semi-ovoid shape, and a transparent filter material which covers the frame along that portion of the frame which is in closest proximity to the face of the person utilizing the device during spraying.

In various embodiments both the frame and the filter material structure are modified to provide additional desirable end results. In one embodiment, I have provided a handle extending from the frame to form a manual support means and, in another embodiment, I have provided a strap on the frame so that the frame can be held against the face of the user.

Separate retaining means are also provided so that the filter material can be detachably retained to the frame. In one embodiment, the separate retaining means comprises a spring clip conforming to the inner surface of the frame to clamp the filter material along that surface. In another embodiment, the retaining means comprises a complementally configured frame which, for the sake of convenience in use, is pivotally attached to a manual support means extending from said frame and which coacts with the frame to retain the filter material during use.

Several embodiments of the filter are also shown in the present application. In one embodiment, the filter has a separate packet of charcoal impregnated material situated proximate to a plurality of breather holes.

Accordingly, it is an object of this invention to provide a new and novel face mask of a filtering and sanitary type which overcomes the aforementioned deficiencies of the prior art. This and other objects of my

invention will become apparent from the following description with reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a perspective view taken from the front right side of a device in accordance with my invention;

FIG. **2** is a left side view on an enlarged scale of the embodiment shown in FIG. **1**, with an alternate position shown in phantom;

FIG. **3** is a section of an enlarged scale taken as indicated by the lines and arrows **3—3** in FIG. **1**;

FIG. **4** is a section taken as indicated by the lines and arrows **4—4** in FIG. **2**;

FIG. **5** is a perspective view taken from the front right side of another device in accordance with my invention, with an alternative portion shown in phantom lines;

FIG. **6** is an exploded perspective view taken from the right rear side of the device shown in FIG. **5**, with an alternate position of one part shown in phantom lines and with portions removed for the sake of clarity;

FIG. **7** is a perspective view taken from the left front side of a transparent filter material in accordance with my invention;

FIG. **8** is a foreshortened section on an enlarged scale taken as indicated by the lines and arrows **8—8** in FIG. **7**; and

FIG. **9** is a perspective view from the rear left side of a transparent filter material in accordance with another embodiment of my invention.

BRIEF DESCRIPTION OF THE PREFERRED EMBODIMENT

Although specific forms of the invention have been selected for illustration in the drawings, and the following description is drawn in specific terms for the purpose of describing these forms of the invention, this description is not intended to limit the scope of the invention which is defined in the appended claims.

Referring to the figures, various embodiments of my invention are shown, particularly in FIGS. **1** through **6**, wherein it will be noted that the invention comprises a frame means forming a hollow substantially semi-ovoid with a perimeter suitably contoured for a portion of the human face, and a separate flexible sheet material forming a transparent filter means positioned about the frame, preferably so that it overlaps the perimeter of the frame, in order to provide a sanitary disposable surface adjacent to the face of the person utilizing the device. FIGS. **1** through **4** show the basic frame **10** which consists of a lightweight plastic material suitably formed into the shape of a hollow semi-ovoid with an outwardly extending flange **12** forming a perimeter. The exact contour of the perimeter or margin **12** is not critical for the present invention; it being known in the art to provide a facial contour as can be readily ascertained from the above referenced patents.

Depending from the frame is a handle **14.** Pivotally mounted to the bottom thereof by means of the pin **18** is the handle **20** of a retaining means **22.** The handle portion **20** is complementally configured to the handle portion **14** and overlies it in the closed condition shown in FIGS. **1, 2** and **4.** The retaining means **22** is a body complementally configured to the frame **10,** so that they will fit together as shown.

A specially designed sheet of material **24** is utilized for the present invention. In this embodiment it consists

of a plastic bag. It is preferable to have it transparent and it is most desirable to have it made of a material which is, in part, semipermeable or foraminous, so that the material will pass air for breathing. Any suitable filter material available in sheet form which is sufficiently flexible can be used. Such filter material provides a means for filtering out the liquid particulate material and toxic gas being sprayed into the air about the head of the user, while still allowing the user to breathe normally.

The material **24** can be a composite of plastic and paper or other similar materials. The porous portion can be made of a lightweight paper in which a charcoal dust, or other particles having a similar function, have been implanted, so as to add to the purification of the air being breathed by the user. Further, the top half of the material may be a non-porous material, since only the bottom portion closest to the handle will be used in breathing. Thus, as in the example illustrated, the top is clear plastic and the bottom has a porous charcoal impregnated filter **26.**

Any suitable means can be used to join the composite sheets of material. In FIGS. **1** and **3** a separate sheet **28** of flexible plastic is attached to the material **24** to form an envelope for retaining the charcoal filter material **26.** Any suitable means or methods can be used to attach the two pieces of plastic together as, for instance, by heat fusing or by adhesive. Both the separate sheet **28** and the sheet **24** are perforated by a plurality of holes clearly shown in the drawings, as for example, at **30, 32** and **34,** so that air can be freely drawn through the mask and, in particular, through the filter material **26.**

In the preferred embodiment the material **24** is of such a size that the outer edge of the material extends outwardly beyond the perimeter of the mask in its assembled condition, so that the mating mask and retaining means **22** help the material **24** retain its shape during use. Further, it insures a sanitary surface against the face of the user. It will be noted in this regard that the device when fully assembled as in FIGS. **1, 2** and **3** provides the user with a mask entirely composed of sanitary, disposable material in that portion which is closest to the user's face. That is, no permanent portion of the device is in contact with the user's face.

It will be seen from what has been disclosed that the invention provides a sanitary and air purifying face mask for use during spraying.

In operation, a user, having been provided with a dispenser of prepared flexible filter sheets, need only insert a sheet over the mask frame **10,** close the handle portion **20** over the handle portion **14,** and then spray while holding the protected margins of the mask against the face. Once spraying has been completed, the mask can be removed, the handles opened and the sheet material quickly disposed of.

To make the use of this device even more comfortable, I have provided a resilient material **38** along the margin **12.** This resilient material can be foam rubber in a thin strip attached by adhesive to the plastic flange **12.** It acts to cushion the force of the mask against the face of the user, and as a seal. FIGS. **5** and **6** show additional modifications to the basic invention. Herein, the frame **100** is identical to the frame **10** in FIGS. **1** and **2.** However, instead of providing a manual support means in the form of a handle **14** as shown in FIG. **2,** the manual support means **114** shown in phantom lines in FIG. **5** can be dispensed with. In order to hold the mask to the face of the user, a strap **115** is provided suitably attached at both ends by means of a rivet as, for example, shown at **117** in FIG. **5,** to the outwardly extending margin **112** of the frame **100.**

In either event, it will be noted that in the embodiment shown in FIGS. **5** and **6,** the retaining means **22** is not utilized. Instead, the transparent filter bag **124** is modified in its construction and a separate retaining means is used to hold the bag to the frame **100.** In particular, the bag has its inner surface cut out in a semi-ovoid hole (a portion of the periphery of which is designated as **125,** FIG. **6**) so that as the bag is positioned over the frame **100,** the hole lines up with the hole in the frame. Sufficient material remains in the the bag so that it extends inwardly along the inner surface of the frame **100** and is retained therein by means of the spring steel clip **127,** FIG. **6,** as clearly illustrated. Other than that modification, the bag is identical to the bag **24** previously described.

It will be understood that various changes in the details of construction could be made within the scope of this invention and, in particular, it should be clear that the handle **114** could be provided on the frame **100** if desired, instead of the strap **115.**

A perspective view of the bag shown in FIGS. **5** and **6** is shown from the rear in FIG. **9.** It will be understood from what has been said that such a bag could be used with various mask frames and/or with various retaining means, all within the scope of the present invention.

A perspective view of the bag shown in FIGS. **1, 2** and **3** is shown in FIG. **7,** taken from the front. A greatly enlarged section, which has been foreshortened for the sake of clarity, is shown in FIG. **8.** It will be appreciated that this bag also can be used with various types of frames and/or retaining means for the same purposes and to achieve the same results as those disclosed and claimed herein.

It will be understood that various changes in the details, materials and arrange of parts which have been described and illustrated in order to explain the nature of this invention, may be made by those skilled in the art within the principle and scope of the invention as expressed in the appended claims.

It will further be understood that the "Abstract of the Disclosure" set forth above is intended to provide a non-legal technical statement of the contents of the disclosure in compliance with the Rules of Practice of the U.S. Patent Office, and is not intended to limit the scope of the invention described and claimed herein.

What is claimed is:

1. A sanitary face mask for use by an individual during spraying, comprising, in combination:

a. mask frame means forming a hollow substantially semi-ovoid with a perimeter suitably contoured for, and adapted to be placed in contact with, a portion of a human face;

b. a separate flexible filter material means removably retained on said mask frame means overlapping the suitably contoured perimeter of said mask frame means;

c. wherein said separate flexible filter material means comprises a composite sheet of material having a filter material portion and a transparent portion;

d. wherein said composite sheet comprises two pieces of material suitably joined to form a pocket for retaining a filter material, said pocket having holes

therethrough whereby air can pass through said pocket and said filter material;

e. wherein said separate flexible filter material means is in the form of a bag and is adapted to envelope said mask frame means;

f. wherein manual support means are connected to said mask frame means for supporting said mask frame means manually;

g. wherein retaining means are provided separated from said mask frame means adapted to engage said filter material means to position and retain said filter material means on said mask frame means;

h. wherein said retaining means are complementally configured to said mask frame means and adapted to engage said filter material means in assembled condition with said mask frame means to conform said filter material means to the complementally configured portion of said mask frame means;

i. wherein said retaining means are complementally configured to said manual support means so that said retaining means is manually supported against said manual support means.

2. A sanitary face mask for use by an individual during spraying, comprising, in combination:

a. mask frame means forming a hollow substantially semi-ovoid with a perimeter suitably contoured for, and adapted to be placed in contact with, a portion of a human face;

b. a separate flexible filter material means removably retained on said mask frame means overlapping the suitably contoured perimeter of said mask frame means;

c. wherein manual support means are connected to said mask frame means for supporting said mask frame means manually;

d. wherein retaining means are provided separated from said mask frame means engaging said separate flexible filter material means to position and retain said separate flexible filter material means on said mask frame means; and

e. wherein said retaining means is pivotally connected to said manual support means.

3. A sanitary face mask for use by an individual during spraying, comprising, in combination:

a. mask frame means forming a hollow substantially semi-ovoid with a perimeter suitably contoured for, and adapted to be placed in contact with, a portion of a human face;

b. a separate flexible filter material means removably retained on said mask frame means overlapping the suitably contoured perimeter of said mask frame means;

c. wherein retaining means are provided separated from said mask frame means engaging said separate flexible filter material means to position and retain said separate flexible filter material means on said mask frame means;

d. wherein said retaining means are complementally configured to said mask frame means and engage said separate flexible filter material means in assembled condition with said mask frame means to conform said separate flexible filter material means to the complementally configured portion of said mask frame means; and

e. wherein manual support means are connected to said mask frame means for supporting said mask frame means manually and wherein said retaining means are complementally configured to said manual support means so that said retaining means is manually supported against said manual support means.

4. A sanitary face mask for use by an individual during spraying, comprising, in combination:

a. mask frame means forming a hollow substantially semi-ovoid with a perimeter suitably contoured for, and adapted to be placed in contact with, a portion of a human face;

b. a separate flexible filter material means removably retained on said mask frame means overlapping the suitably contoured perimeter of said mask frame means; and

c. wherein said separate flexible filter material means is in the form of a bag and is adapted to envelope said mask frame means.

5. The invention of claim **4** wherein holes are provided in said separate flexible filter material means so that air can be drawn through said material means when said mask frame means is positioned against the face of the user of said sanitary face mask.

6. A sanitary face mask for use by an individual during spraying to close off from spray the eyes, nose, and mouth of the individual, comprising, in combination:

a. mask frame means forming a hollow substantially semi-ovoid with a perimeter suitably contoured to embrace at least that portion of a human face comprising eyes, nose, and mouth;

b. a separate flexible filter material means removably retained on said mask frame means overlapping the suitably contoured perimeter of said mask frame means;

c. wherein manual support means are connected to said mask frame means for supporting said mask frame means manually;

d. wherein said separate flexible filter material means comprises a composite sheet of material having a filter material portion and a transparent portion;

e. wherein said composite sheet comprises two pieces of material suitably joined to form a pocket having holes therethrough whereby air can pass through said pocket and said filter material;

f. wherein retaining means are provided separated from said mask frame means adapted to engage said filter material means to position and retain said filter material means on said mask frame means;

g. wherein said retaining means are disposed within said mask frame means; and

h. wherein the transparent portion of said filter material means provides an unobscured view through a substantial portion of the surface area circumscribed by said suitably contoured perimeter.

* * * * *