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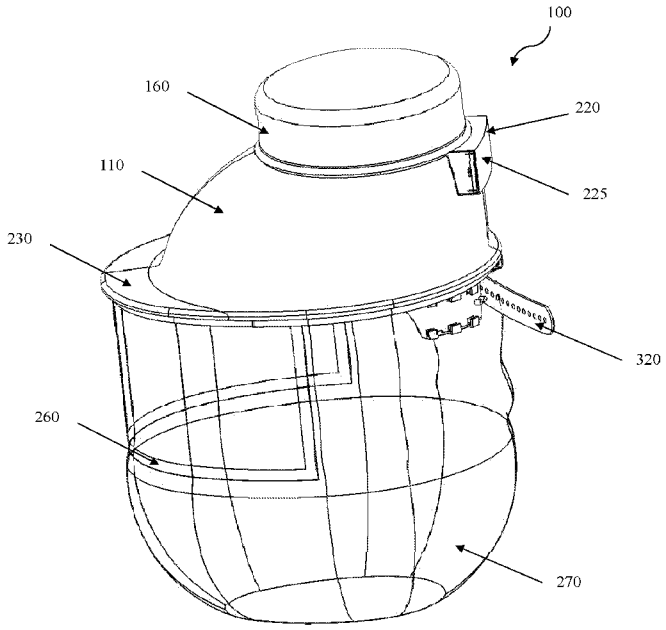


FIGURE 1

(57) Abstract: In general, the present invention discloses a face shield (100) comprising a base member (110), a cap (160), a plurality of support members, a transparent screen (260) and a fabric (270), a pocket (220) with a removable cover (225) for storing a power source; a head belt (320) for adjusting and securing the face shield (100); and a blower (300) mounted within a blower support member (210) for drawing an inflow of air through a circumferential gap (170) and a vertical gap (180) into the blower support member (210) via a filter (310) enclosing a plurality of air openings of the filter support member (140) for defining a filtered in-built ventilated air passage of the face shield (100) via a circumferentially operative hollow space (245), ensuring continuous circulation of a filtered air flow into the face shield (100).

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A FACE SHIELD FOR PROTECTION

TECHNICAL FIELD

[001] The present invention relates to the field of face shields that offers protection to a user.

BACKGROUND

[002] Generally, face shields or masks are used in various fields to offer a protection to a user. For example, face shields or masks are used by medical practitioner to protect them against contagious diseases while dealing with a patient diagnosed with such diseases. The face shields play a vital role as they prevent entry of viruses, bacteria or other harmful microorganisms into body of the user through nose, mouth, eyes, or ears. The face shields and masks are also used by patients infected with the contagious diseases to prevent spread of virus from them. Recently, the use of the face shields or masks has been increased substantially due to the outbreak of the pandemic caused due to Covid-19 virus. Nowadays, the face shields or masks are extensively used by medical as well as non-medical people to safeguard them against the Covid-19 virus.

[003] A face mask is typically used to cover nose and mouth of a person. The mask is used to prevent entry of virus into the nasal cavity. However, conventional face masks available in the market typically cover only nose and mouth leaving other susceptible areas, such as eyes and ears, exposed to the environment. There are few masks available in the market, which employ a filter therein. However, a user has to put extra efforts to inhale air through the filter. Thus, breathing through a mask is difficult for a user. The masks have limited life.

The masks get contaminated easily, and thus, need to be replaced with new one after few days of usage.

[004] Face shields are used to prevent the virus as well as infected droplets from coming in contact with the face part of a wearer. The face shields are also used by a person tested positive for Covid-19 to prevent mixing of infected droplets having virus into the environment. Further, the face shields prevent frequent contact of the face of the user with other body parts of the user himself or an infected patient or any other potentially infected objects. For better protection against the exposure to external agents face shields along with masks are needed to be worn continuously and regularly. However, breathing through the combination of conventional face shields and masks is uncomfortable for a user, especially when they have to be worn for long hours - the user may feel suffocated as there is no ventilation available in the shield/mask. Further, the shield/mask may get wet due to perspiration, and may require to be removed and cleaned or replaced with a new one frequently.

[005] Therefore, there is a need of a face shield that alleviates and to address and overcome one or more problems of the aforementioned drawbacks of conventional face masks and face shields.

SUMMARY

[006] This summary is provided to introduce concepts related to a face shield. This summary is neither intended to identify essential features of the present

invention nor is it intended for use in determining or limiting the scope of the present invention.

[007] Accordingly, an aspect of the present invention discloses a face shield for protection, the face shield comprising a base member having a first section; a cap removably mounted onto said first section, defining a circumferential gap between said cap and said first section and a vertical gap between said cap and a filter support member; a plurality of support members having a first support member and a second support member, removably secured within the first section and the base member of the face shield; a transparent screen and a fabric configured to said base member; a pocket with a removable cover, said pocket in communication with a blower support member located on an outer surface of the base member for storing a power source; a head belt for adjusting and securing the face shield; and a blower mounted within the blower support member for drawing an inflow of air through the circumferential gap and the vertical gap into the blower support member via a filter enclosing a plurality of air openings of the filter support member for defining a filtered in-built ventilated air passage of the face shield via a circumferentially operative hollow space, ensuring continuous circulation of a filtered air flow into the face shield.

BRIEF DESCRIPTION OF ACCOMPANYING DRAWINGS

[008] The above and other aspects, features, and advantages of certain exemplary embodiments of the present invention will be more apparent from the

following description taken in conjunction with the accompanying drawings in which:

[009] Figure 1 illustrates an isometric view of an exemplary indicative implementation of a face shield, according to an aspect of the present invention;

[0010] Figure 2 illustrates a sectional front view showing the exemplary indicative implementation of the face shield, according to the embodiment of the present invention;

[0011] Figure 3 illustrates an isometric view showing detailed view of a first section, according to the embodiment of the present invention;

[0012] Figure 4 illustrates an isometric view showing detailed inner view of a base member and the first section, according to the embodiment of the present invention;

[0013] Figure 5 illustrates an isometric view showing detailed inner view of a cap, according to the embodiment of the present invention;

[0014] Figure 6 illustrates an isometric view showing detailed view of a first support member, according to the embodiment of the present invention;

[0015] Figure 7 illustrates detailed view of a filter, according to the embodiment of the present invention;

[0016] Figure 8 illustrates an isometric view showing sectional back view of the face shield, according to the embodiment of the present invention; and

[0017] Figure 9 illustrates a schematic view of a face shield to be worn by a user, and air flow in the face shield, according to the embodiment of the present invention.

[0018] Persons skilled in the art will appreciate that elements in the figures are illustrated for simplicity and clarity and may have not been drawn to scale. For example, the dimensions of some of the elements in the figure may be exaggerated relative to other elements to help to improve understanding of various exemplary embodiments of the present disclosure. Throughout the drawings, it should be noted that like reference numbers are used to depict the same or similar elements, features, and structures.

DETAILED DESCRIPTION

[0019] In the following description, for the purpose of explanation, specific details are set forth in order to provide an understanding of the present invention. It will be apparent, however, to one skilled in the art that the present invention may be practiced without these specific details. In other instances, well-known structures are shown in diagram form to facilitate describing the invention. One skilled in the art will recognize that embodiments of the present invention, some of which are described below, may be incorporated into several applications.

[0020] In general, the present invention claims a face shield which facilitates air ventilation and can be used for long hours. The face shield comprises a base member. Support members are provided in the base member to support filter and blower within the base member. A cap is mounted on the base member such that a gap is defined between the base member and the cap to facilitate inflow of air in the face shield. The blower draws air in the face shield through the gap. Incoming air is filtered using the filter. In an embodiment, the blower is placed in the base

member below the filter. Air drawn by the blower is circulated in the face shield. A transparent screen is provided on the face shield such that the screen comes in front of the face when the face shield is worn by a user. A fabric can be provided to form continuous enclosure of the face shield.

[0021] While this invention is susceptible of embodiments in many different forms, there is shown in the drawings and will herein be described in detail, a preferred embodiment of the invention with the understanding that the present disclosure is to be considered as an exemplification of the principles of the invention and is not intended to limit the broad aspects of the invention to the embodiment illustrated. Other aspects, advantages, and salient features of the invention will become apparent to those skilled in the art from the following detailed description, which, taken in conjunction with the annexed drawings, discloses exemplary embodiments of the invention.

[0022] The terms and words used in the following description and claims are not limited to the bibliographical meanings, but, are merely used by the inventor to enable a clear and consistent understanding of the invention. Accordingly, it should be apparent to those skilled in the art that the following description of exemplary embodiments of the present invention are provided for illustration purpose only and not for the purpose of limiting the invention as defined by the appended claims and their equivalents. The skilled person will be able to devise various arrangements that, although not explicitly described herein, embody the principles of the present invention. All the terms and expressions in the description are only for the purpose of the understanding and nowhere limit the

invention. Accordingly, those of ordinary skill in the art will recognize that various changes and modifications of the embodiments described herein may be made without departing from the scope of the invention. In addition, descriptions of well-known functions and constructions are omitted for clarity and conciseness. Terms first, second, top, bottom, plurality, inner, outer, upper, lower, and the like are used to differentiate between objects having the same terminology and are in no way intended to represent a chronological order, unless where explicitly stated otherwise. Moreover, all statements herein reciting principles, aspects, and embodiments of the invention, as well as specific examples thereof, are intended to encompass equivalents thereof.

[0023] Referring figures 1-9, discloses a face shield (100), a base member (110), a first section (120), plurality of air openings (122), a plurality of external threads (125), second support member (130), plurality of vertically extending ribs (132), a top inwardly tapered surface (134a), a bottom flat surface (134b), a plurality of internal threads (135), a filter support member (140), a centrally configured hole (150), a cap (160), a circumferential gap (170), a vertical gap (180), a first support member/ plate (190), a disc / wheel like shape plate (192), a plurality of circumferentially extending ridges (196), a blower support member (210), a battery pocket (220), a battery cover (225), a second section (230), a base head ring (240), a hollow space (245), a plurality of ring support members (248), a first ring support member (248a), a second ring support member (248b), a transparent screen (260), a fabric (270), elastic straps (280), an ultraviolet (UV) source (290), a blower/ fan (300), a diaphragm shaped filter (310), and strap / head belt (320).

[0024] According to an aspect of the present invention, referring Figure 1, the face shield (100) comprises a base member (110), a cap (160), transparent screen (260), a fabric (270), a pocket (220) with a cover (225), straps / head belt (320). Referring Figure 2, the base member (110) has a hollow configuration. The base member (110) has a first section (120) and a second section (230). In an embodiment, the first section (120) is circular in shape. However, the first section (120) of the base member (110) can have any suitable shape in other embodiments of the present invention.

[0025] According to an aspect, the present invention discloses a face shield (100) for protection, the face shield (100) comprising a base member (110) having a first section (120); a cap (160) removably mounted onto said first section (120), defining a circumferential gap (170) between said cap (160) and said first section (120) and a vertical gap (180) between said cap (160) and a filter support member (140); a plurality of support members having a first support member (190) and a second support member (130), removably secured within the first section (120) and the base member (110) of the face shield (100); a transparent screen (260) and a fabric configured to said base member (110); a pocket (220) with a removable cover (225), said pocket (220) in communication with a blower support member (210) located on an outer surface of the base member (110) for storing a power source; a head belt (320) for adjusting and securing the face shield (100); and a blower (300) mounted within the blower support member (210) for drawing an inflow of air through the circumferential gap (170) and the vertical gap (180) into the blower support member (210) via a filter (310) enclosing a plurality of air

openings of the filter support member (140) for defining a filtered in-built ventilated air passage of the face shield (100) via a circumferentially operative hollow space (245), ensuring continuous circulation of a filtered air flow into the face shield (100).

[0026] Referring Figures 3 and 5, in an embodiment, the first section (120) has a plurality of external threads (125) at alternative surfaces on a top portion for engaging with a plurality of complementary internal threads (135) located in the cap (160). In other embodiments, the cap (160) can be secured to the first section (120) using any other suitable means.

[0027] According to the embodiment, referring Figures 2 and 4, a plurality of support members are arranged in the first section (120) in an abutting configuration. In an embodiment, there are two support members. A first support member/ plate (190) is arranged in the first section (120).

[0028] According to the embodiment, the second support member (130) has a plurality of vertically extending ribs (132), each said plurality of vertically extending ribs (132) is perpendicular to each other and circumferentially coupled to an inner surface of the base member (110) at a top portion at a predetermined angle and a base head ring (240) interconnects a bottom portion of the plurality of the ribs (132), said base head ring (240) is coupled with the head belt (320). In an embodiment, four ribs are located at the predetermined angle of 90 degrees. However, the ribs (132) may be arranged at any desired angle. The plurality of vertically extending ribs (132) have a top inwardly tapered surface (134a) and a bottom flat surface (134b). Each top inwardly tapered surface (134a) has central

hole for positive fixation / coupling with the inner surface of the base member (110). The bottom flat surface is coupled to a base head ring (240). The base head ring (240) interconnects the plurality of the ribs (132) and is coupled with a strap / head belt (320) for securing the face shield (100) onto the head of the user. The strap / head belt (320) has holes for adjusting to suit the head size of the user and a pin lock to secure the head belt. The positive fixation / coupling is achieved by removable screws and other suitable means. The configuration of the plurality of ribs (132), the base head ring (240) defines a hollow space (245) operative circumferentially thereof to facilitate air flow from the base member (110) to the face of the user. The base head ring (240) rests on the head of the user when he wears the face shield (100). The base head ring (240) is designed to provide comfort to the user. In other embodiments, any other suitable arrangement can be provided to secure the face shield (100) onto the head of the user.

[0029] According to the embodiment, a plurality of ring support members (248) are located at bottom surface of the base member (110) and the second section (230) for providing support thereby forming a frame structure. The plurality of ring support members (248) are detachably interconnected to the inner surface of the base member (110) using suitable means not limiting to screws. The plurality of ring support members (248) includes a first ring support member (248a) and a second ring support member (248b). A skirt portion of a second section (230) extends from the bottom of the base member (110) for providing support to the transparent screen (260) and fabric (270), a circumferential area of said second ring support member (248b) is larger than a circumferential area of the first ring

support member (248a). The plurality of ribs (132), the base head ring (240), the plurality of ring support members (248) and the strap / head belt (320) may be rigid or may be made of elastic materials not limiting to plastic, rubber and the like.

[0030] Referring Figures 2 and 6, in an embodiment, the cap (160) is mounted on the first section (120) such that the cap (160) covers maximum part of the first section (120) and a circumferential gap (170) is defined between the first section (120) and the cap (160). The gap (170) facilitates inflow of air in the face shield (100). Further, the cap (160) prevents ingress of water particles during rainy season, and also prevents precipitation from entering into the face shield.

[0031] According to the embodiment, the first support member (190) can have a disc / wheel like shape plate (192), a centrally configured hole (150), a plurality of circumferentially extending ridges (196) with a plurality of radially located holes. The plurality of circumferentially extending ridges (196) of the filter support member (190) are interconnected to the internal surface of the first section (120).

[0032] According to the embodiment, referring Figures 2 and 4, the first support member (190) comprises a dome like filter support member (140) covering the centrally configured hole (150) mounted on its top surface and a blower support member (210) mounted at bottom surface co-axial to the centrally configured hole (150). The dome like filter support member (140) has plurality of air openings. The filter support member (140) is configured to facilitate maximum passage to air therethrough. The height of the filter support member (140) is determined such that when the cap (160) is mounted on the first section (120), a vertical gap (180)

is defined between the cap (160) and the filter support member (140) to facilitate inflow of air coming through the circumferential gap (170) and into the blower support member (210) via the filter support member (140). Referring Figure 7, in an embodiment, a filter (310) in the form of diaphragm shape is configured onto the to filter support member (140) to enclose the openings of the filter support member (140), the diaphragm shaped filter (310) filters incoming air from through the plurality of gaps (170), (180) of the cap (160). However, the filter (310) may be of any cross section and shape to match inner cavity of the cap. In an embodiment, the filter (310) is of N95 configuration.

[0033] In an embodiment, the blower support member (210) is arranged below the first support member (190) and is configured to support a blower (300) or a fan. The blower support member (210) may be a vertically extending housing having a plurality of holes at its bottom surface thereon. The blower (300) or fan is mounted within blower support member (210) such that the blower (300) or fan draws external air through the gaps (170), (180) and circulates the air into the face shield. The air for breathing is passed through the diaphragm shaped filter (310) before inhaled by a user. The blower (300) ensures continuous supply of fresh air in the face shield. This prevents suffocation of a user.

[0034] According to the embodiment, referring Figure 3, an outer surface of the first section (120), is defined by circumferentially located plurality of air openings (122) configured alternatively to pass air from the gap (170) into the cap (160) and further via gap (180) in the blower support member (210) via the filter support member (140). Each of the plurality of air openings (122) has U-shaped

cut-out at a top surface. A power supply is provided on the face shield (100) for powering the blower (300). A pocket (220) is formed on external surface of the base member (110) for storing a power source therein. The power source can be, but not limited to, DC batteries, solar cells, etc. The pocket (220) is provided with a removable cover (225). The pocket (220) is configured to be in communication with the blower support member (210) and is located at backside of the base member (110).

[0035] Referring Figure 1, in an embodiment, the second section (230) extends from the bottom of the base member (110) and may have a skirt like configuration to cover a head of a user. A transparent screen (260) is connected to the second section (230) of the base member (110). In an embodiment, the transparent screen (260) can be integrally formed with the base member (110). In other embodiments, the transparent screen (260) can be detachably/removably attached to the base member (110). In another embodiment, the transparent screen (260) can be directly connected to the bottom of the first section (120) if the base member (110) does not have the second section (230). The screen (260) can be made of fiber, plastic or glass or any other suitable transparent material. The screen (260) is connected to the second section (230) in such a way that the screen (260) comes in front of the face of a user with a gap defined therebetween when the face shield (100) is worn by the user. This facilitates a user to easily breathe through the face shield (100).

[0036] According to the embodiment, referring Figures 2, 7-8 and 9, the arrangement of the cap (160), the diaphragm shaped filter (310), the blower (300),

and the screen (260) define various air chambers abutting in the face shield (100). An inlet air chamber is defined above the filter area from where air enters the shield (100). A filtered air chamber is defined between the diaphragm shaped filter and the blower (300) where the air filtered from the filter gets accumulated. An outlet air chamber is defined below the blower (300) from where the filtered air enters the breathing air space defined between the screen (260) and the face of the user.

[0037] According to the embodiment, a fabric (270) is connected to the screen (260) and the second section (230) of the base member (110) to form a complete enclosure of the face shield (100). A part of the fabric (270) circumscribes the neck of the user. The fabric (270) can be a non-woven fabric or a woven fabric. The fabric (270) can be of any suitable material such as, but not limited to, cotton, polyester, and the like. The part of the fabric (270) circumscribing the neck portion is provided with sealing arrangement to adjust according to the neck size of the user. In an embodiment, the fabric (270) is provided with elastic straps (280) to adjust according to the neck size of the user. In other embodiments, the fabric (270) has any other suitable sealing arrangement such as straps, zips, Velcro, string, hooks, buttons etc.

[0038] According to the embodiment, an ultraviolet (UV) source (290) is provided on the base member (110) to disinfect air coming in the face shield (100) and the diaphragm shaped filter (310). The UV source (290) can be powered by the power source placed in the pocket (220).

[0039] According to the embodiment, a user wears the face shield (100) by engaging the straps / head belt (320) around his head. The user further switches the blower (300) in ON condition. The blower (300) draws air through the gaps (170), (180). The air drawn in the face shield (100) is passed through the diaphragm shaped filter (310) for filtering. The filtered air flows out of the base member (110) and is available for breathing. The flow of air in the face shield (100) is shown in Figure 8.

[0040] According to the embodiment, the face shield (100) covers the entire face and has an inbuilt ventilation system which makes it portable without having to be connected to a dedicated air supply. The cap of the face shield ensures that rainwater does not seep into the face shield. This allows the user to wear the face shield outdoors during precipitation. The UV source in the face shield facilitates on-the-go sterilization of the incoming air and the diaphragm shaped filter. The filter is replaceable allowing the face shield to be reused over a long period of time. The face shield can be used by everyone to protect themselves against contagious diseases. Also, the face shield can also be used for protection against pollution, pollen, dust particles, strong wind and pesticides while pest controlling. In an embodiment, a storage box is provided in the inner cavity of the cap or within the blower support member. The storage box has provision to accommodate ice, thereby filtered and cooled air is provided to user.

List of Reference Numerals

100 – Face shield	210 – Blower support member

110 – Base member	220 –Battery Pocket
120 – First section	225 – Battery Cover
122 – Air openings	230 – Second section
125 – External threads	240 – Base head ring
130 – Second support member	245 – Hollow space
132 – vertically extending ribs	248a – First ring support member
134a – tapered surface	248b – Second ring support member
134b – flat surface	260 – Transparent screen
135 – Internal threads	270 – Fabric
140 – Filter support member	280 – Elastic strips
150 – Centrally configured hole	290 – UV source
160 – Cap	300 – Blower/fan
170 – Circumferential gap	310 – Filter
180 – Vertical gap	320 – Elastic Straps / head belt
190 – First support member/plate	
192 – Disc / wheel plate	
196 – Ridges	

[0041] There have been described and illustrated herein several embodiments of exemplary indicative implementation of the face shield (100) for the protection of

the user. It will be also apparent to a skilled person that the embodiments described above are specific examples of a single broader invention, which may have greater scope than any of the singular descriptions taught. There may be many alterations made in the description without departing from the scope of the invention. The present invention is simple in construction and design, integrated, portable, cost effective and easy to manufacture.

[0042] While particular embodiments of the invention have been described, it is not intended that the invention be limited said configuration disclosed thereto, as it is intended that the invention be as broad in scope as the art will allow and that the specification be read likewise. Thus, while particular structure specific type of arrangement of elements, type of configurations, numbers, have been disclosed, it will be appreciated that the embodiments may be manufactured with other design parameters and configurations as well. Accordingly, the thickness of the support members, type of materials of the base member, first and second section, head band and other members as described above nowhere limits the scope of the invention. Known materials may be used for the components of the face shield as per operational requirements and nowhere limits the scope of the invention. Thus, while particular structure with said configurations has been disclosed, it will be appreciated that the embodiments may be manufactured with other design parameters as well. The scope of the invention should, therefore, be determined with reference to the appended claims, along with the full scope of equivalents to which such claims are entitled. In the appended claims, the terms “including” is

used as the plain-English equivalent of the respective term “comprising” respectively.

Claims :

1. A face shield (100) for protection, the face shield (100) comprising:

a base member (110) having a first section (120);

a cap (160) removably mounted onto said first section (120), defining a circumferential gap (170) between said cap (160) and said first section (120) and a vertical gap (180) between said cap (160) and a filter support member (140);

a plurality of support members having a first support member (190) and a second support member (130), removably secured within the first section (120) and the base member (110) of the face shield (100);

a transparent screen (260) configured to said base member (110);

a pocket (220) with a removable cover (225), said pocket (220) in communication with a blower support member (210) located on an outer surface of the base member (110) for storing a power source;

a head belt (320) for adjusting and securing the face shield (100); and

a blower (300) mounted within the blower support member (210) for drawing an inflow of air through the circumferential gap (170) and the vertical gap (180) into the blower support member (210) via a diaphragm shaped filter (310) enclosing a plurality of air openings of the filter support member (140) for defining a filtered in-built ventilated air passage of the face shield (100) via a circumferentially operative hollow space (245), ensuring continuous circulation of a filtered air flow into the face shield (100).

2. The face shield (100) as claimed in claim 1, wherein the second support member (130) has a plurality of vertically extending ribs (132), each said plurality of vertically extending ribs (132) is perpendicular to each other and circumferentially coupled to an inner surface of the base member (110) at a top portion and a base head ring (240) interconnects a bottom portion of the plurality of the ribs (132), said base head ring (240) is coupled with the head belt (320) having a plurality of holes and a pin lock.

3. The face shield (100) as claimed in claim 1 or claim 2, wherein an arrangement of the cap (160), the diaphragm shaped filter (310), the blower (300), and the transparent screen (260) define a plurality of air chambers abutting in the face shield (100), an inlet air chamber is defined above the diaphragm shaped filter (310) area from where air enters the face shield (100), an filtered air chamber is defined between the filter (310) and the blower (300) where the air filtered from the filter gets accumulated and an outlet air chamber is defined below the blower (300) from where the filtered air enters the breathing air space defined between the transparent screen (260) and the face of a user.

4. The face shield (100) as claimed in any one of the preceding claims 1-3, wherein an outer surface of the first section (120) is defined by circumferentially located plurality of air openings (122) configured alternatively to pass air from the gap (170) into the cap (160) and via gap (180) into the blower support member (210) via the filter support member

(140), each of the plurality of air openings (122) has a U-shaped cut-out at a top surface.

5. The face shield (100) as claimed in any one of the preceding claims 1-4, wherein the plurality of vertically extending ribs (132) have a top inwardly tapered surface (134a) and a bottom flat surface (134b), each top inwardly tapered surface (134a) has central hole for positive fixation / coupling with the inner surface of the base member (110) and the bottom flat surface is coupled to the base head ring (240).

6. The face shield (100) as claimed in any one of the preceding claims 1-5, wherein the first support member (190) has a centrally configured hole (150), the filter support member (140) is mounted on a top portion of the first support member (190) and the blower support member (210) is mounted at a bottom portion of the first support member (190), co-axial to the centrally configured hole (150).

7. The face shield (100) as claimed in any one of the preceding claims 1-6, wherein the first section (120) has a plurality of external threads (125) at alternative surfaces on a top portion for engaging with a plurality of complementary internal threads (135) located in the cap (160).

8. The face shield (100) as claimed in any one of the preceding claims 1-7, wherein a plurality of ring support members (248) having a first ring support

member (248a) and a second ring support member (248b) are detachably interconnected at a bottom surface of the base member (110) and a skirt portion of a second section (230) extends from the bottom of the base member (110) for providing support to the transparent screen (260) and fabric (270), a circumferential area of said second ring support member (248b) is larger than a circumferential area of the first ring support member (248a).

9. The face shield (100) as claimed in any one of the preceding claims 1-8, wherein the first support member (190) has a disc / wheel shaped plate (192) and a plurality of circumferentially extending ridges (196) with a plurality of radially located holes interconnecting the internal surface of the first section (120).

10. The face shield (100) as claimed in any one of the preceding claims 1-9, wherein a fabric (270) with a sealing arrangement is connected to the transparent screen (260) and the second section (230) of the base member (110) to form a complete enclosure of the face shield (100) and an ultraviolet (UV) source (290) is located on the base member (110) to disinfect air coming into the face shield (100) and the diaphragm shaped filter (310) for ensuring on-the-go sterilization.

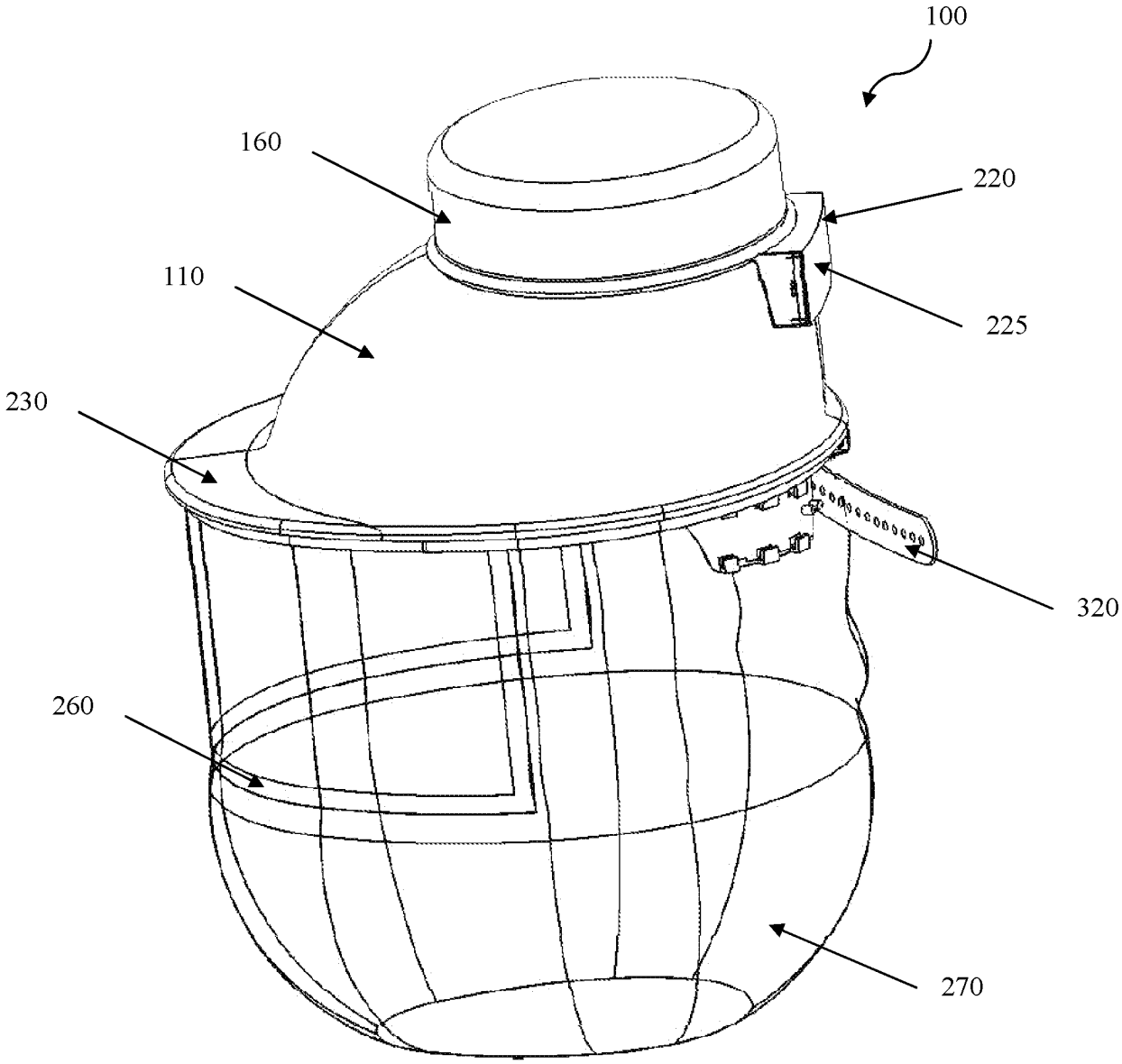


FIGURE 1

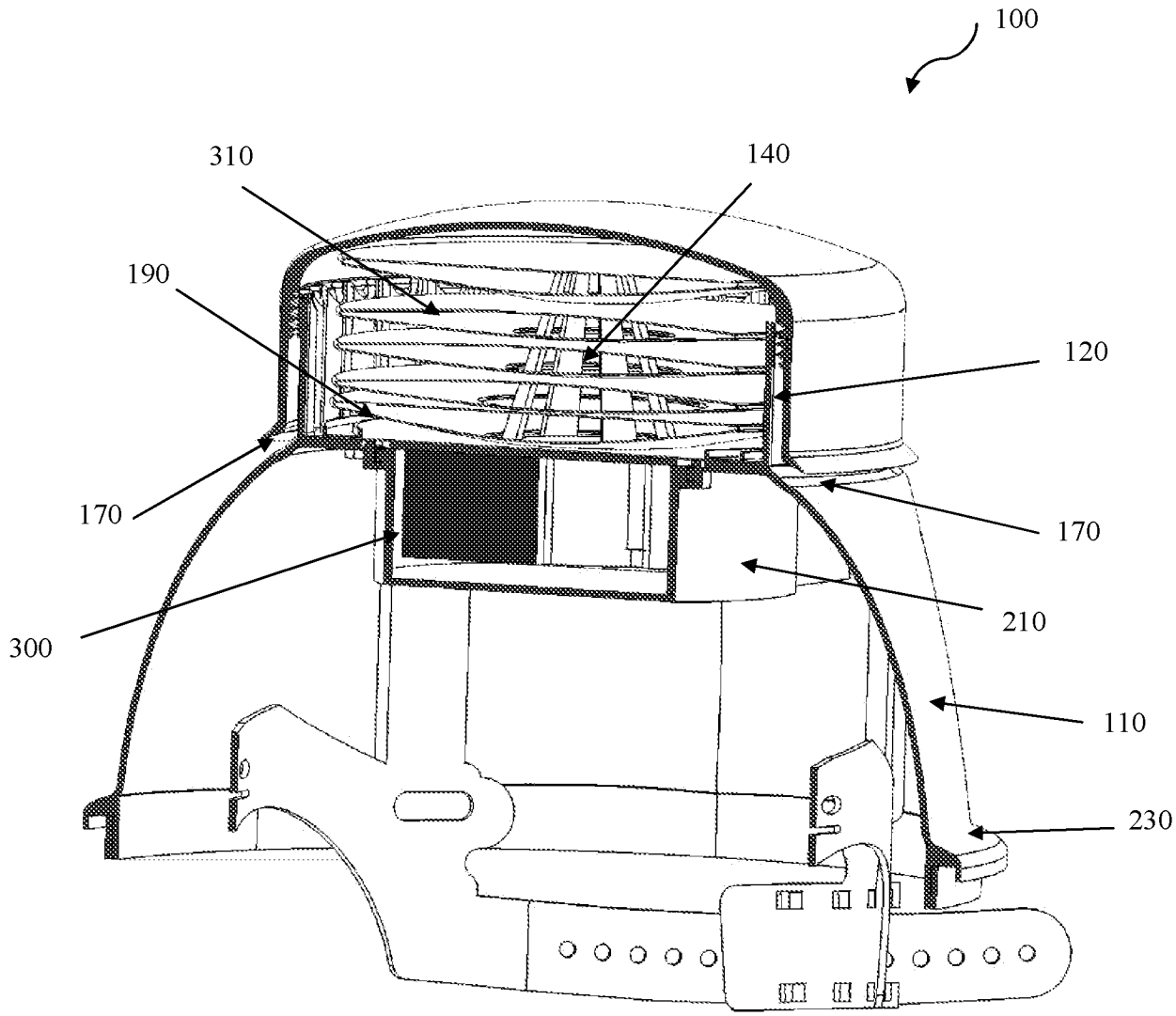


FIGURE 2

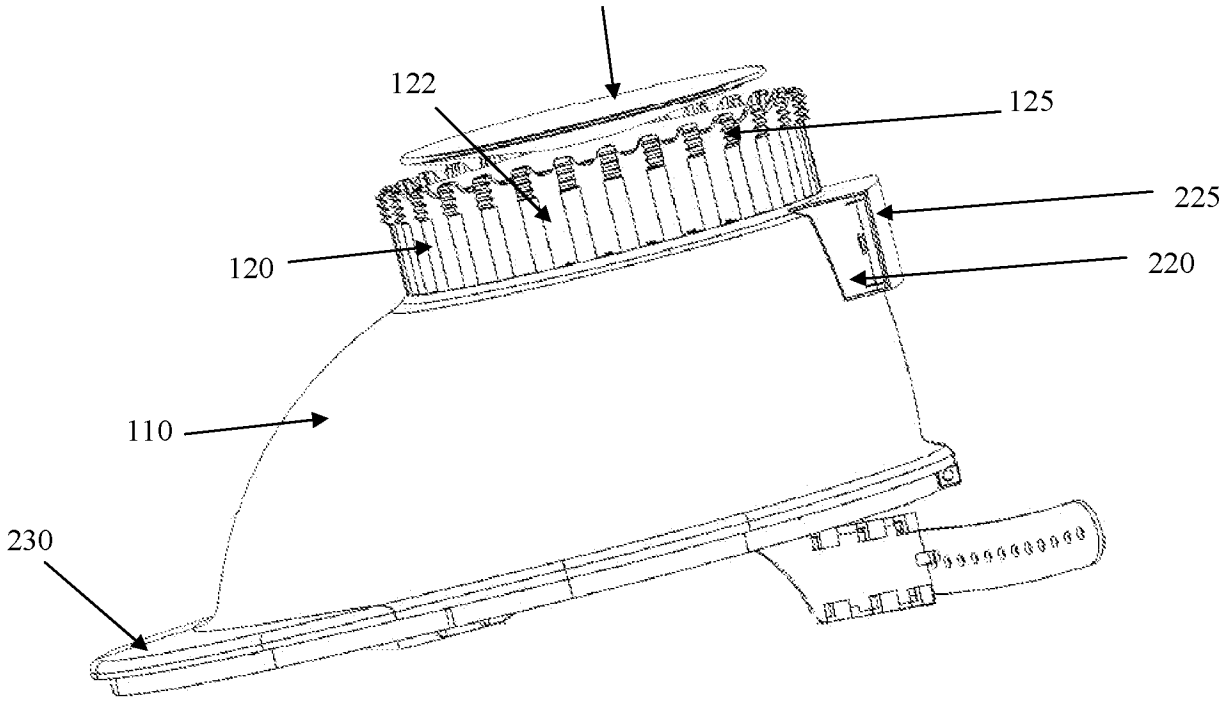


FIGURE 3

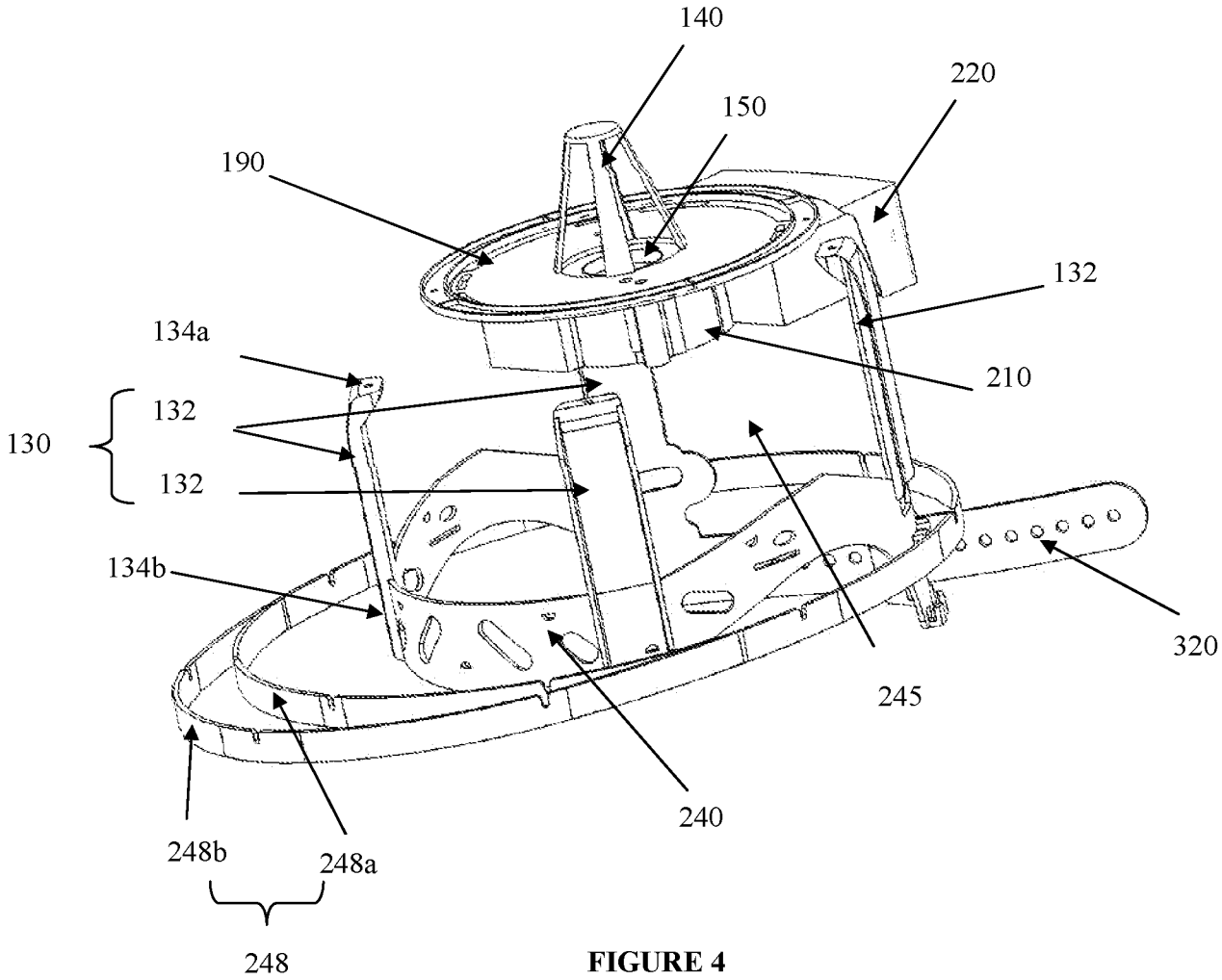

140
220
150
190
132
134a
210
132
130
132
134b
320
245
240
248b
248a
248

FIGURE 4

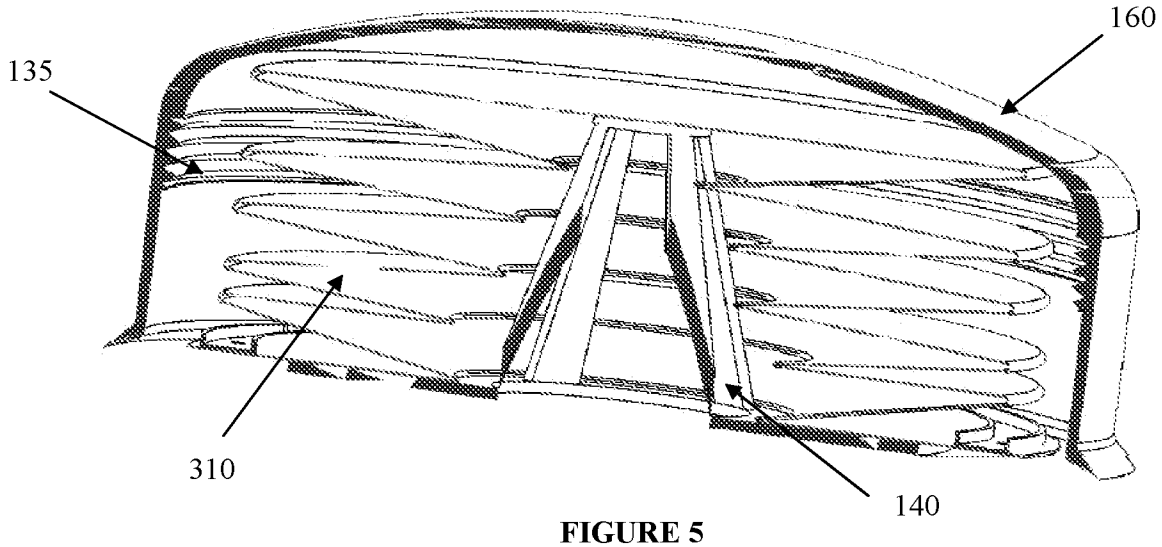


FIGURE 5

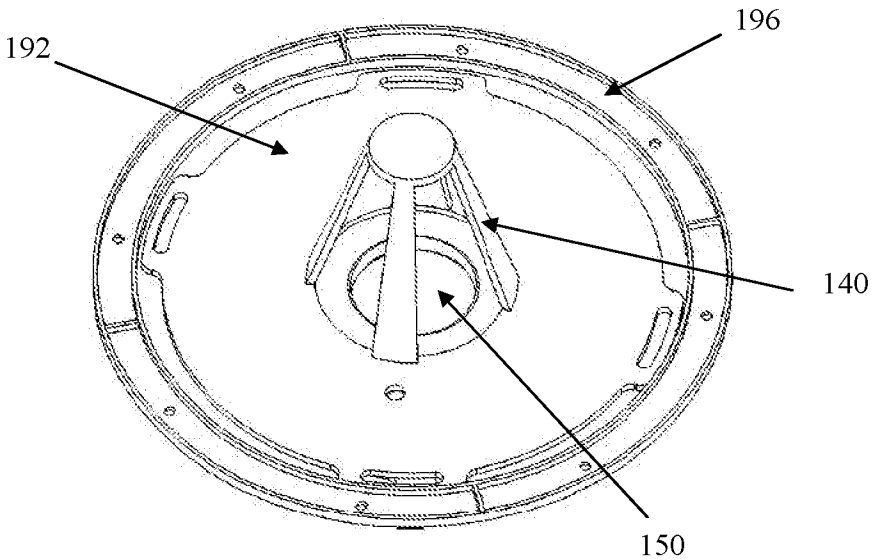


FIGURE 6

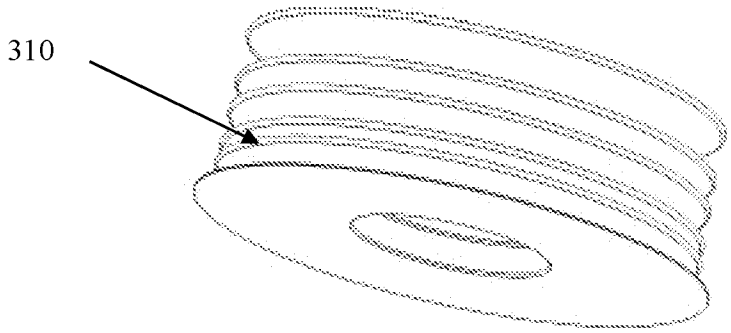


FIGURE 7

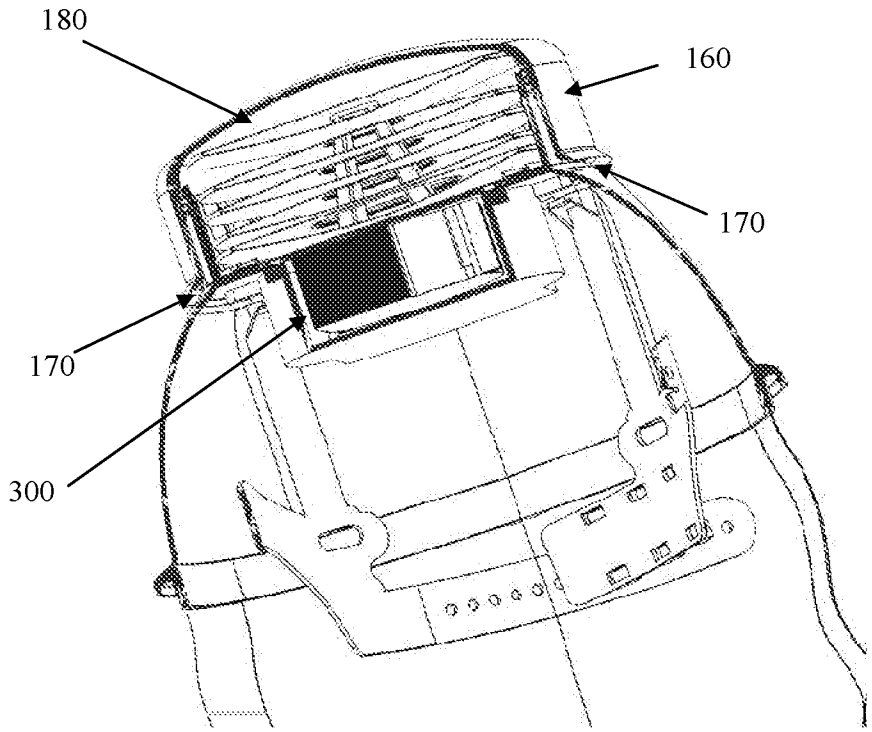


FIGURE 8

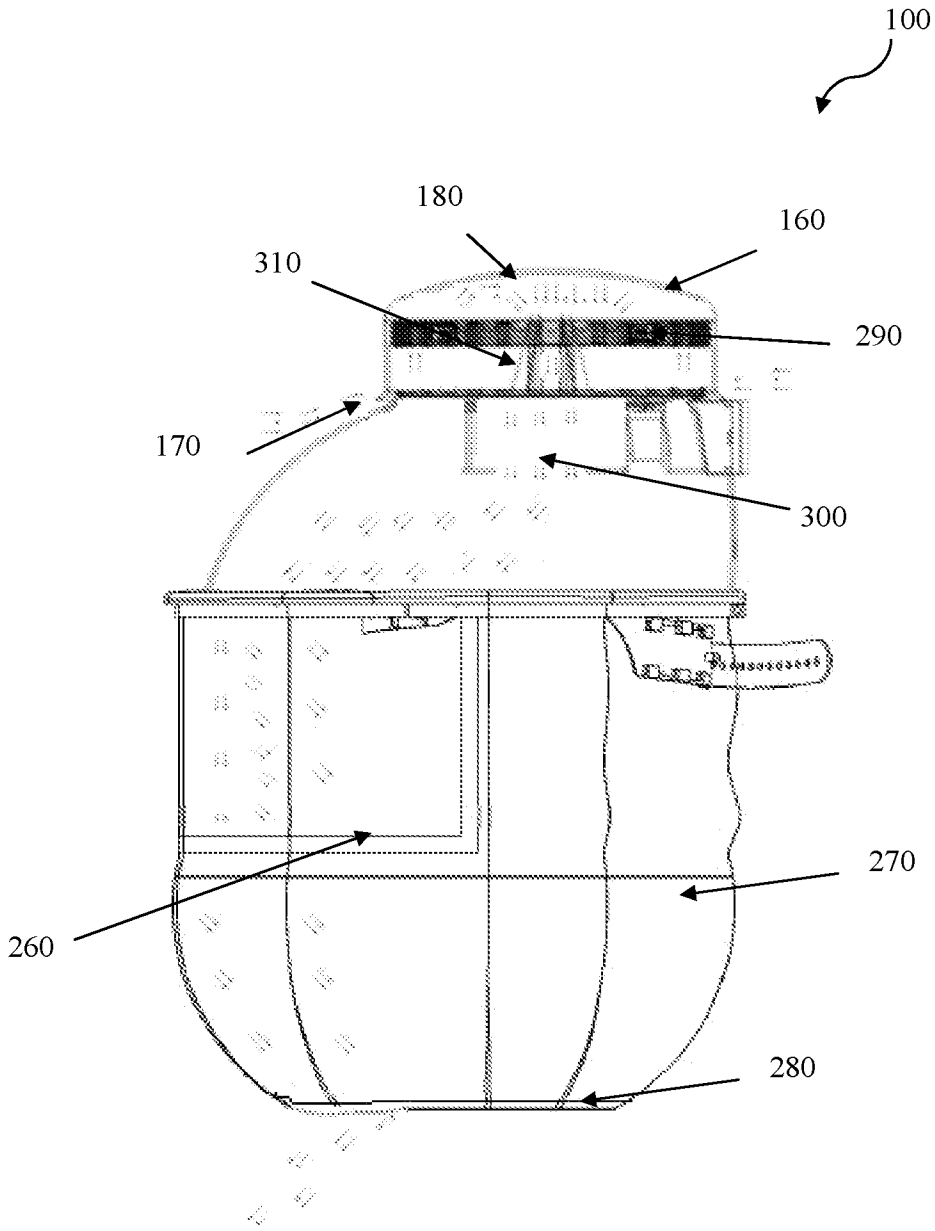


FIGURE 9

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IN2021/050962

A. CLASSIFICATION OF SUBJECT MATTER
A41D13/11,A42B3/20 Version=2022.01

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: A41D13/11, A42B3/20

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)

PatSeer

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	EP1862199B1 (PABBAN DEVELOPMENT INC) September 12,2012 (12/09/2012) Figures 1-6; Paras [0011-0013], [0023-0028], [0050-0054], [0058-0062]; Claims 1-5.	1,10
A	Figures 1-6; Paras [0011-0013], [0023-0028], [0050-0054], [0058-0062]; Claims 1-5.	2-9
Y	US3822698A (RACAL AISTREAM INC) July 09, 1974 (09/07/1974). Figures 1-2; Column 1, line 65-column 2, line 24; Column 4, lines 50-55; Column 6, lines 47-51; Claims 1-5.	1,10
A	Figures 1-2; Column 1, line 65-column 2, line 24; Column 4, lines 50-55; Column 6, lines 47-51; Claims 1-5.	2-9
Y	US20200001123A1 (STRYKER CORP) January 02, 2020 (02/01/2020) Figures 2-6; Paras [0009-0011].	10
A	US20200001123A1 (STRYKER CORP) January 02, 2020 (02/01/2020) Figures 2-6; Paras [0009-0011].	

☒ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"D" document cited by the applicant in the international application
"E" earlier application or patent but published on or after the international filing date
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"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
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"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
25-01-2022	25-01-2022
Name and mailing address of the ISA/ Indian Patent Office Plot No.32, Sector 14,Dwarka,New Delhi-110075 Facsimile No.	Authorized officer Nitish Mondal Telephone No. +91-1125300200

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IN2021/050962

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
		1-9

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/IN2021/050962

Citation	Pub.Date	Family	Pub.Date
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