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(54) Title: 5-PLEAT PHYSICALLY GUIDED SNUG-FIT FACE MASK

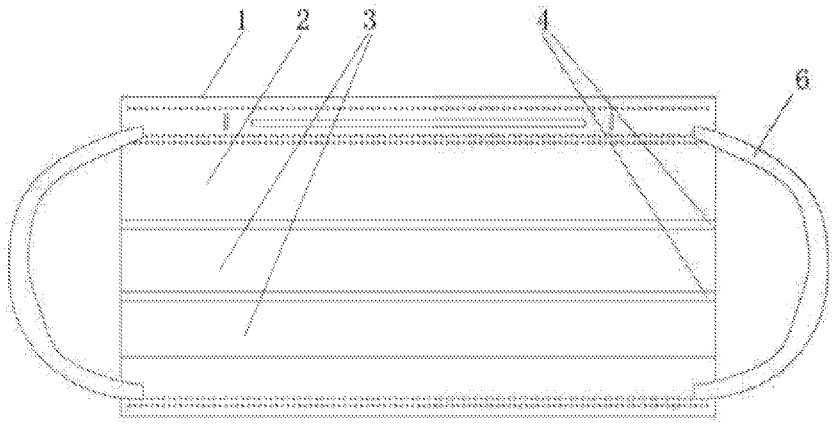


FIG. 1

(57) Abstract: A 5-pleat physically guided snug-fit face mask which relates to the technical field of face masks is provided. The 5-pleat physically guided snug-fit face mask includes a main body (1). A one-way pleat (2) is arranged on a surface of the main body (1), and two I-shaped pleats (3) are arranged on the surface of the main body (1) and below the one-way pleat (2). A front soft body buffer area (4) is arranged between the two I-shaped pleats (3) and the one-way pleat (2), the front soft body buffer area (4) is located at edges on two sides of an outer surface of the main body (1), each of the two I-shaped pleats (3) and the one-way pleat (2) is provided with a back soft body buffer area (5), which is located in a middle of an inner surface of the main body (1), and an elastic ear band (6) is provided on the outer surface of the main body (1). When the mask body is not pleated and worn, at this time, the upper, middle and lower overlapping parts of the two I-shaped pleats (3) will be squeezed against the soft buffers at the edges of the two sets of front soft buffers and the two sets of back soft buffers.

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[Continued on next page]

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5-PLEAT PHYSICALLY GUIDED SNUG-FIT FACE MASK

FIELD OF THE DISCLOSURE

[0001] The present disclosure relates to the technical field of face masks, in particular, to a 5-pleat physically guided snug-fit face mask.

BACKGROUND OF THE DISCLOSURE

[0002] Masks are a must for our daily protection. Conventional masks absorb most of the germs and viruses on the surface layer and the meltblown layer in the middle of the mask through their own filtering effect. In terms of protection and safety, each mask is a blocker of bacteria and viruses. Because the filtered pathogens are still deposited in the mask, it is extremely dangerous to deposit a large amount of pathogens in the mask. The high temperature and humidity at the mouth and nose due to the long-term wearing of the mask easily lead to dermatitis and eczema at the mouth and nose, which also increases the risk of infection.

[0003] When the industry's conventional 3-pleat masks are in use, the edges on the left and right sides of the mask are normally tilted outwards, which will form leakage gaps. Viruses are more likely to enter from the gaps on both sides, which will reduce the protective ability and increase the infection rate of medical staff.

SUMMARY OF THE DISCLOSURE

[0004] The purpose of the present disclosure is to provide a 5-pleat physically guided snug-fit face mask, which solves the technical problem proposed in the background art.

[0005] In order to achieve the aforementioned purpose, the present disclosure provides a 5-pleat physically guided snug-fit face mask, comprising: a main body, wherein, a one-way pleat is arranged on a surface of the main body, and I-shaped pleats are arranged on the surface of the main body and below the one-way pleat, a number of the I-shaped pleats is two, a front soft body buffer area is correspondingly arranged between the two I-shaped pleats and between one of the two I-shaped pleat and the one-way pleat, the front soft body buffer area is located at edges on two sides of an outer surface of the main body, each of the two groups of the I-shaped pleats and the one-way pleat is provided with a back soft body buffer area, the back soft body buffer area is located in a middle of an inner surface of the main body, and an elastic ear band is provided on the outer surface of the main body.

[0006] In preferred embodiments, five pleats are correspondingly arranged between the one-way pleat and the one of the two I-shaped pleats, between the two I-shaped pleats, and between another one the two I-shaped pleats and the main body.

[0007] In preferred embodiments, a pleats of the one-way pleat is arranged with one side downward.

[0008] In preferred embodiments, one side of each of pleats of the two I-shaped pleats is arranged upward and another side of each of the pleats of the two I-shaped pleats is arranged downward.

[0009] In preferred embodiments, a number of the front soft body buffer area and a number of the back soft body buffer area are both two.

[0010] In preferred embodiments, two ends of the elastic ear band are respectively bonded to an upper side and a lower side of the outer surface of the main body.

[0011] Compared with the related art, the 5-pleat physically guided snug-fit face mask provided by the present disclosure has the following beneficial effects.

[0012] 1. The present disclosure provides a 5-pleat physically guided snug-fit face mask. When the main body of the mask is unfolded and worn, the overlapping parts of upper, middle and lower of the two I-shaped pleats which are harder bodies may be squeezed to the edges of the two front soft body buffer areas and the two back soft body buffer areas. The edge squeezed by the harder body may naturally produce the advantage of physical orientation. The edges on both sides of the main body of the mask may automatically move inward to closely fit the user's face, so that the edges on both sides may not be lifted outwards, which increases the protective ability of the main body of the mask, effectively improves the protective effect, and reduces the probability of the wearer's infection of the virus.

[0013] 2. The present disclosure provides a 5-pleat physically guided snug-fit face mask. The production cost of the mask is the same as that of a traditional 3-pleat mask, such that there is no need to purchase a new production line. It can be mass-produced only by replacing a 5-pleat sheeting roller, so that the production efficiency of masks can be effectively improved.

BRIEF DESCRIPTION OF THE DRAWINGS

[0014] FIG. 1 is a top view of the present disclosure when it is unfolded.

[0015] FIG. 2 is a schematic structure diagram of the present disclosure.

[0016] FIG. 3 is a schematic structure diagram of a side view of the present disclosure.

[0017] Reference numeral: 1. a main body; 2. one-way pleat; 3. I-shaped pleats; 4. front soft body buffer area; 5. back soft body buffer area; 6. elastic ear band

DETAILED DESCRIPTION OF THE EXEMPLARY EMBODIMENTS

[0018] The technical solutions in the embodiments of the present disclosure will be clearly and completely described below with reference to the accompanying drawings in the embodiments of the present disclosure. Obviously, the described embodiments are only a part of the embodiments of the present disclosure, rather than all the implementations. For example, based on the embodiments of the present disclosure, all other embodiments obtained by persons of ordinary skill in the art without creative work shall fall within the protection scope of the present disclosure.

[0019] Embodiment

[0020] Reference is made to FIG. 1 to FIG. 3. The present disclosure provides a 5-pleat physically guided snug-fit face mask, which comprises a main body 1. A one-way pleat 2 is arranged on a surface of the main body 1, and I-shaped pleats 3 are arranged on the surface of the main body 1 and below the one-way pleat 2. A number of the I-shaped pleats 3 is two. A front soft body buffer area 4 is correspondingly arranged between the two I-shaped pleats 3 and between one of the two I-shaped pleats 3 and the one-way pleat 2, and the front soft body buffer area 4 is located at edges on both sides of an outer

surface of the main body 1. Each of the two I-shaped pleats 3 and the one-way pleat 2 is provided with a back soft body buffer area 5, the back soft body buffer area 5 is located in a middle of an inner surface of the main body 1, and an elastic ear band 6 is provided on the outer surface of the main body 1. Five pleats are correspondingly arranged between the one-way pleat 2 and the one of the two I-shaped pleats 3, between the two I-shaped pleats 3, and between another one of the two I-shaped pleats 3 and the main body 1. A pleat of the one-way pleat 2 is arranged with one side downward. A number of the front soft body buffer area 2 and a number of the back soft body buffer area 5 are both two. Two ends of the elastic ear band 6 are respectively bonded to an upper side and a lower side of the outer surface of the main body1.

[0021] In the present embodiment, when the main body 1 of the mask is unfolded and worn, the upper, middle, the overlapping parts of upper, middle and lower of the two I-shaped pleats 3 which are harder bodies may be squeezed to the edges of the two front soft body buffer areas 4 and the two back soft body buffer areas 5. The edge squeezed by the harder body may naturally produce the advantage of physical orientation. The edges on both sides of the main body 1 of the mask may automatically move inward to closely fit the user's face, so that the edges on both sides may not be lifted outwards, which increases the protective ability of the main body 1 of the mask. The production cost of the mask is the same as that of the traditional 3-pleat mask. There is no need to purchase a new production line, and it can be mass-produced only by replacing a 5-pleat sheeting roller, which effectively improves the mask's performance. The mask of the present disclosure effectively improves the

protection effect and reduces the probability of the wearer's infection of the virus.

[0022] Working principle: When using, the main body 1 of the mask is unfolded. At this time, the overlapping parts of upper, middle and lower of the two I-shaped pleats 3 which are harder bodies may be squeezed to the edges of the two groups of the front soft body buffer areas 4 and the two groups of the back soft body buffer areas 5. The edge squeezed by the harder bodies may naturally produce the advantage of physical orientation. The edges on both sides of the main body 1 of the mask may automatically move inward to closely fit the user's face, so that the edges on both sides may not be lifted outwards, which increases the protective ability of the main body 1 of the mask.

CLAIMS

WHAT IS CLAIMED IS:

1. A 5-pleat physically guided snug-fit face mask, comprising: a main body (1), wherein, a one-way pleat (2) is arranged on a surface of the main body (1), and I-shaped pleats (3) are arranged on the surface of the main body (1) and below the one-way pleat (2), a number of the I-shaped pleats (3) is two, a front soft body buffer area (4) is correspondingly arranged between the two I-shaped pleats (3) and between one of the two I-shaped pleat (3) and the one-way pleat (2), the front soft body buffer area (4) is located at edges on two sides of an outer surface of the main body (1), each of the two I-shaped pleats (3) and the one-way pleat (2) is provided with a back soft body buffer area (5), the back soft body buffer area (5) is located in a middle of an inner surface of the main body (1), and an elastic ear band (6) is provided on the outer surface of the main body (1).

2. The 5-pleat physically guided snug-fit face mask according to claim 1, wherein five pleats are correspondingly arranged between the one-way pleat (2) and the one of the two I-shaped pleats (3), between the two I-shaped pleats (3), and between another one of the two I-shaped pleat (3) and the main body (1).

3. The 5-pleat physically guided snug-fit face mask according to claim 1, wherein a pleat of the one-way pleat (2) is arranged with one side downward.

4. The 5-pleat physically guided snug-fit face mask according to claim 1, wherein one side of each of pleats of the two I-shaped pleats (3) is arranged upward and another side of each of the pleats of the two I-shaped pleats (3) is arranged downward.

5. The 5-pleat physically guided snug-fit face mask according to claim 1, wherein a number of the front soft body buffer area (4) and a number of the back soft body buffer area (5) are both two.

6. The 5-pleat physically guided snug-fit face mask according to claim 1, wherein two ends of the elastic ear band (6) are respectively bonded to an upper side and a lower side of the outer surface of the main body (1).

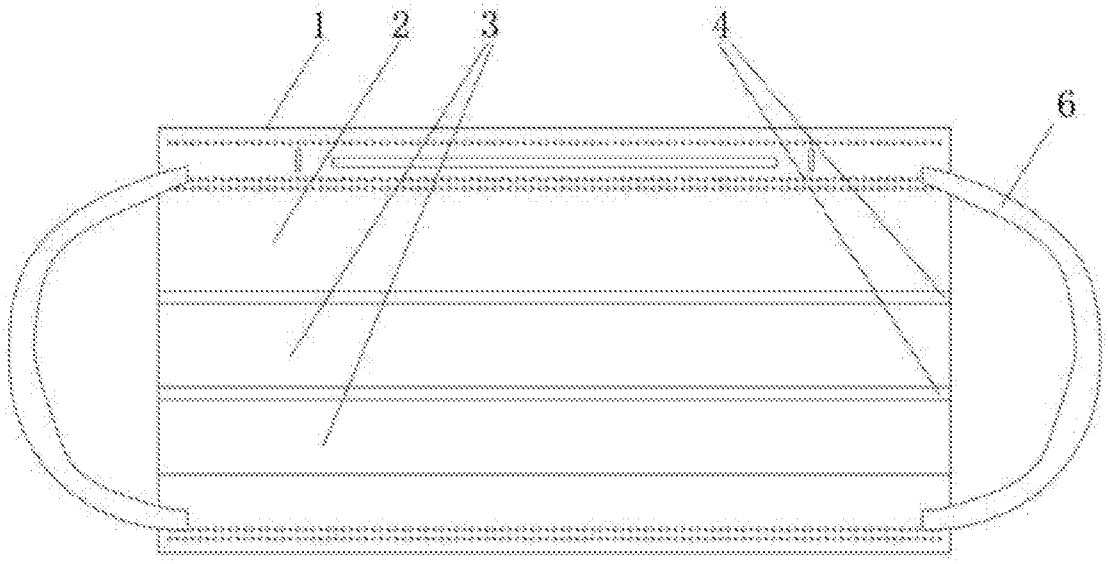


FIG. 1

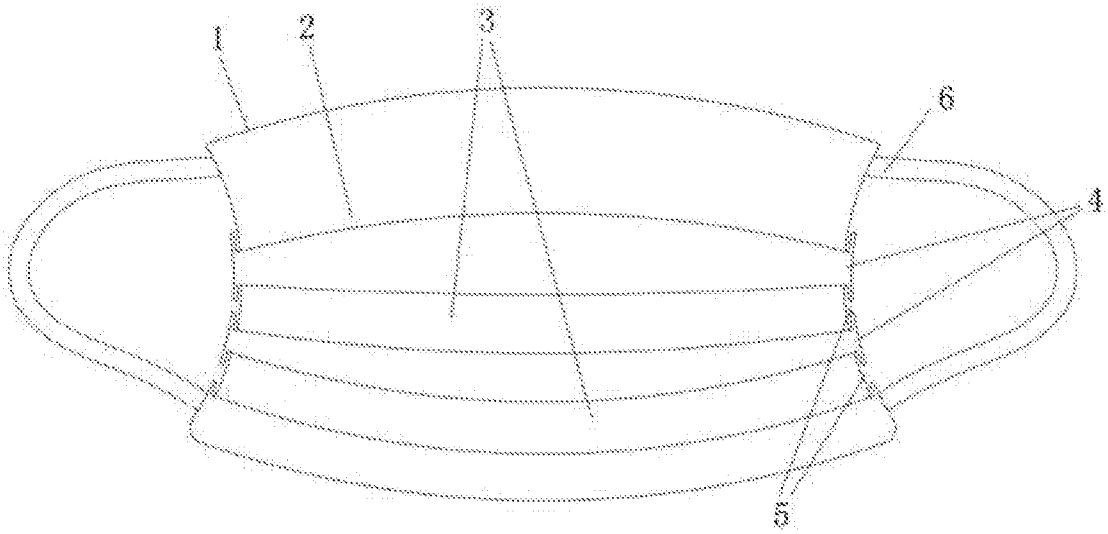


FIG. 2

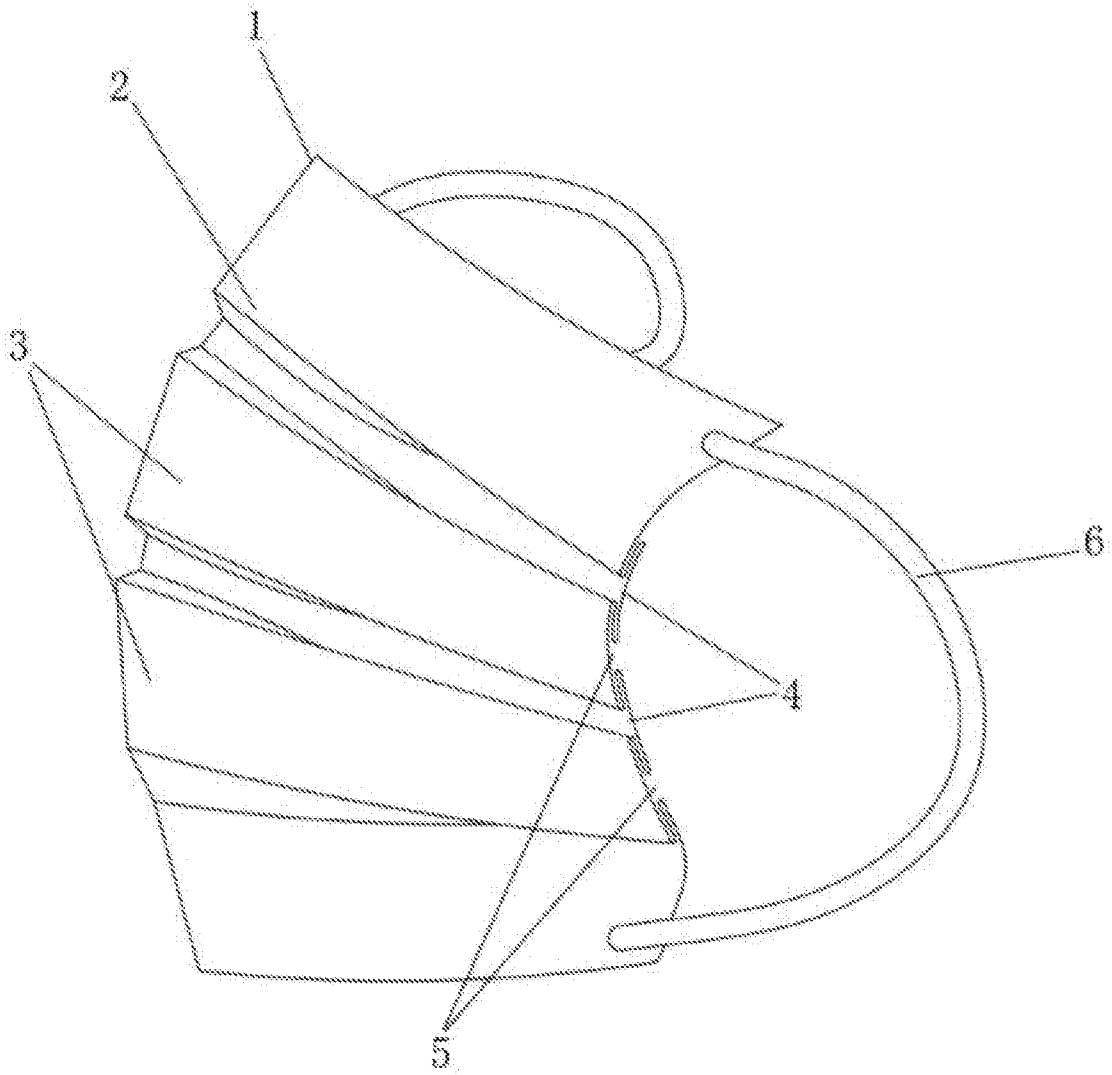


FIG. 3

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2022/131374

A. CLASSIFICATION OF SUBJECT MATTER

A41D 13/11(2006.01)i

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)

A41D

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)

CNPAT;CNKI;WPI;EPODOC: UNITY SUPPLIES, face mask, pleat, sung 1w fit, mask, one 1w way, I 1w shaped, buffer, soft, front, back

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
PX	CN 217065474 U (SUPPLY KING BUSINESS SUPPLIES CO., LTD.) 29 July 2022 (2022-07-29) description, paragraphs [0005]-[0022] and figures 1-3	1-6
A	CN 111770697 A (UNICHARM CORPORATION) 13 October 2020 (2020-10-13) description paragraphs [0037]- [0083], and figures 1-9	1-6
A	JP 2012105872 A (IMAIZUMI MASARU) 07 June 2012 (2012-06-07) the whole document	1-6
A	JP 2022019117 A (MEISEI SANSHO K.K.) 27 January 2022 (2022-01-27) the whole document	1-6
A	WO 2021131246 A1 (UNICHARM CORPORATION) 01 July 2021 (2021-07-01) the whole document	1-6
A	CN 107708458 A (UNICHARM CORPORATION) 16 February 2018 (2018-02-16) the whole document	1-6
A	CN 110381761 A (DAIO PAPER CORPORATION) 25 October 2019 (2019-10-25) the whole document	1-6

☐ 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
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Date of the actual completion of the international search	Date of mailing of the international search report
18 December 2022	**03 January 2023**
Name and mailing address of the ISA/CN **National Intellectual Property Administration, PRC** **6, Xitucheng Rd., Jimen Bridge, Haidian District, Beijing** **100088, China** Facsimile No. **(86-10)62019451**	Authorized officer **LIU,Chang** Telephone No. **86-（10）-53962364**

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CN2022/131374

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