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(71) Applicant: **NETPAK AMBALAJ SANAYİ TİCARET ANONİM ŞİRKETİ** [TR/TR]; Akçaburgaz Mah. 3065. Sok. No:2/12, Esenyurt/İstanbul (TR).

(72) Inventor: **AVCI, Ali**; Akçaburgaz Mah. 3065. Sok. No:2/12, Esenyurt/İstanbul (TR).

(74) Agent: **ADRES PATENT TRADEMARK INTELLECTUAL PROPERTY RIGHTS LTD.**; Büyükdere Cad. No:62 Lale Iş Merkezi Kat:1, Mecidiyeköy, 34387 Istanbul (TR).

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(54) Title: A COMFORTING APPARATUS FOR SINGLE-USE MEDICAL MASKS

(57) Abstract: This invention is related to a comforting and reusable apparatus developed for single-use medical masks ensuring breathing from the outside medical mask for the sake of comfortable and clean respiration. The present invention, as shown in Drawing 3, is characterized to include a nose channel (1), remaining underneath a single-use medical mask, reusable many times, and enabling placement onto the nose, and at least one channel (5) assuring submandibular respiration, and filters (3) positioned at the end of channels (55) and used for filtering the inhaled air, and channel filters (4) ensuring re-filterability of air coming from these channels (5) and inhaled in the respiratory zone.

A COMFORTING APPARATUS FOR SINGLE-USE MEDICAL MASKS

TECHNICAL FIELD

This invention is related to a comforting and reusable apparatus developed for single-use medical masks ensuring breathing from the outside medical mask for the sake of comfortable and clean respiration.

PRIOR ART

There are many types of masks used in the medical field since very old times. Medical masks used in our day are, in general, surgical masks, dust masks, allergen masks, and similar other single-use masks. Also, some other masks for viruses, bacteria, and similar other microorganisms have been developed. Furthermore, washable masks have also become widespread in our day. Surgical masks are loose-fitting, single-use masks covering the face and mouth. These are generally used to protect patients from microorganisms that may be spread over by healthcare professionals such as nurses, caregivers, and doctors via saliva and respiratory tract secretions. Masks also protect mask wearers, but they cannot prevent inhalation of very tiny particles. These masks should be used only once and then be scrapped. The most important disadvantage of these masks is the inability of the wearer to draw in an easy and fresh breath and then to exhale the breath. After some time, this reduces the breathing quality of the wearer and diminishes his comfort. Besides, this is also proportional to the filtering performance of coating material used for the mask. The less the filtering performance is, the more the breathing quality is, but this time to use the mask becomes riskier. Furthermore, even during the use of mask, the wearer can draw in his normal breathing the viruses spread over by people he faces in daily life. Microorganisms spread by other people may penetrate the mask through normal inhalation of breath by the wearer. In addition to the fact that medical masks lose their function and make breathing more difficult after some time of use, temperature changes occurring during the use

of these masks may also cause steaming up of spectacle glasses for mask users wearing eyeglasses. In this case, mask user is required to wipe his spectacle glasses frequently, and it paves the way for the risk of carriage of microorganisms on his hands onto his personal belongings.

In the document, publication number CN109498950, the invention is described as follows: “paediatric internal medicine introduces the smart respiratory apparatus which is covered by the field of medical devices. The respiratory device is comprised of a respiratory mask, an air vent, a chin fixed tray, and ‘Y’ shaped fixed straps. Fixed rings are fitted to two outer side ends and to bottom part of the respiratory mask, while ‘Y’ shaped fixed straps are fitted onto fixed wires of two ends of the respiratory mask. A rubber strap is fitted to the fixed ring of the bottom of the respiratory mask, and a chin fixed tray is linked to one end of the rubber strap. Respiratory apparatus is comprised of a respiratory mask, a chin fixed tray, a tray fixed arch, an anchorage belt, an elastic belt, ‘Y’ shaped fixed straps, fixed rings, and a silicone rubber case. Thus, the respiratory mask covers the mouth and nose of the child with the help of an elastic belt fixed on the back of the head of the child. Chin fixed tray is fitted to the bottom of the chin of the child and is fixed along the fixed strap of the tray. The apparatus is adequately fixed on the face of the child to avoid any probable fall of the mask during use.”

In the useful model, publication number CN208129509, the invention is described as a multi-functional mask breathing for medical treatment. It is comprised of a gauze patch mask body, a breathing vent, trachea “a”, trachea “b”, a crosswise filter cartridge, active carbon, a prosthesis fixation device base, a channel and a silica gel pad. Installation is done by fitting the respiratory vent inside the internal tank of the top end of gauze patch mask body, and trachea “a” and trachea “b” onto both sides of right-hand component, respectively into the respiratory vent, trachea “a” and trachea “b” right-hand component. The useful model is comprised of a gauze patch mask body, a breathing vent, trachea “a”, trachea “b”, a crosswise filter cartridge, active carbon, a prosthesis fixation device base, a rolling channel and a silica gel pad. Breathing vent may follow gauze patch mask body, and could be coated over the nose of the patient, and can draw in a breath, and may directly

make way for tube “a” during treatment, and is directly linked to oxygen therapy pipe via trachea “b” during treatment, and this internal prosthesis fixation device base of gauze patch mask may be linked to the external water pipe on the prosthesis fixation device base, and is convenient for injection water or liquid medicine to be administered to the oral cavity of the patient, and is rather practical, and is fit for the common introduction and use in general.

DESCRIPTION OF INVENTION

The present invention is related to a medical mask apparatus developed to eliminate the aforementioned disadvantages and to bring new advantages to the related technical field.

Purpose of the present invention is to create an apparatus composed of an end remaining underneath the medical mask put on the face, and coinciding with mouth portal and/or nose portal, and of another end reaching out the bottom side of the face, preferably mandible, outside the mask, and having at least one filter at the end. An apparatus comprised of an ergonomic structure fit the shape of the face at parts of the face such as particularly cheeks in contact with nose and face, and a respiratory space remaining underneath the mask and fixed to the mask is applied onto the part of apparatus coinciding with the nose. In this apparatus containing at least one channel, terminal parts of channels remain underneath the mask. The fixation area of apparatus located on the nose may be made of a flexible material, or may alternatively include a spring-loaded joint ensuring a type of refraction, for the sake of easy motion and stretching with a view to fixation after adjustment according to shape and width of the nose. By doing so, the apparatus is made usable according to various face shapes as well. In the general framework, this apparatus will enable submandibular respiration in such a manner to ensure easier breaching and as a clear oxygen field.

Another purpose of the invention is to create a mask which does not disturb our life comfort, noting that masks were normally used for one hour or a few hours in the past, but now due to such viruses as coronavirus, we are obliged to use the mask

all day long, and besides, it is not certainly known yet for how many months or years we are required to use masks. The purpose is to facilitate inhalation and exhalation, and to create air circulation within this area of the mask, thanks to the respiratory space remaining underneath the mask and to be fixed to the nose part of the mask. This air circulation will also prevent the steaming up of spectacle glasses particularly for mask users wearing eyeglasses. In addition to filter fitted on the external end of the apparatus, another filter is also positioned at the air vent in the respiratory space.

Another purpose of the present invention is to produce a washable and sterilisable apparatus reusable many times, independently from disposable masks. Thus, the mask used once may be reused after sterilization of apparatus, rather than being disposed of.

Drawings

Applications of the present invention which is briefly summarized in the preceding paragraphs and is to be thoroughly described in more detail herein below may be understood with reference to the example applications of the invention as depicted in the drawings attached hereto. However, it should also be clearly stated that the drawings attached hereto depict and describe only the typical applications of this invention, and as the invention may also permit other equipotent applications, for this reason, the drawings will in no event be assumed to have limited or restricted the scope of this invention.

Drawing 1 is the front view of the invented apparatus as applied to a medical mask.
Drawing 2 is the perspective view of the invented apparatus as applied to a medical mask.
Drawing 3 is the top perspective view of the invented apparatus as applied to a medical mask.

For the sake of clarity, if possible, identical reference numbers are used to refer to the identical elements used jointly in the drawings. Drawings are not scaled, and

may be further simplified for clarification purposes. It is believed that the elements and specifications of an application may be usefully included in or transferred to other applications as well, without any further description thereon.

Description of Details in Drawings

Reference numbers used and shown in the drawings are listed herein below:

1- Apparatus-under-mask

2- Nose channel

3- Filter

4- Respiratory hole

4a- Channel filter

5- Channel

6- Mask

DETAILED DESCRIPTION OF INVENTION

The preferred alternatives referred to in this detailed description of the apparatus covered by this invention are depicted and described herein solely for the sake of clarity and in such manner not to lead to any restrictive or limiting effect thereon.

The present invention, as shown in Drawing 3, is characterized to include a nose channel (1), remaining underneath a single-use medical mask, reusable many times, and enabling placement onto the nose, and at least one channel (5) assuring submandibular respiration, and filters (3) positioned at the end of channels (55) and used for filtering the inhaled air, and channel filters (4) ensuring re-filterability of air coming from these channels (5) and inhaled in the respiratory zone.

In the invention, as seen in Drawing 1, the top section of apparatus (1) under the mask (6) is particularly structured and positioned to remain above the mouth and over the nose, and with its closed channels (5) descending downwards on both sides of the mouth. In the invention, as seen in Drawing 2, apparatus is fixed on the face by means of nose channel (2) formed according to the structure of the nose,

and this fixation is further supported and reinforced by mask (6) put on the face. Nose channel (2) may either be made of a flexible and easily formable material for the sake of adjustability according to different nose structures and widths or be built by a laminated spring-loaded or a similar system for the sake of adjustability of the width of this nose channel (2).

In the invention, as seen in Drawing 3, detachable, washable and disinfectable filters (3) are fitted to the end part of channels (5) used for ventilation from outside. These filters (3) are used for filtering of air ventilated from outside. There are respiratory holes (4) used for inhalation of air ventilated from outside on the surfaces of air channels (5) in the respiratory space inside the apparatus. Preferably, additional channel filters (4a) are used also on these respiratory holes (4).

In the application of apparatus (1), covered by the present invention, fixation may be ensured either by holding and hooking on the face through nose channel (2) and by giving support with mask (6) put on a face or through an application such as hook-and-loop fasteners ensuring holding and hooking on mask (6) at the surface of apparatus-under-mask (1) linking to the mask (6).

Apparatus-under-mask (1), covered by the present invention, may be made and manufactured of an easy to disinfect and easy to wash material. This material is at the same time an antibacterial and antiviral material preventing irritation of face.

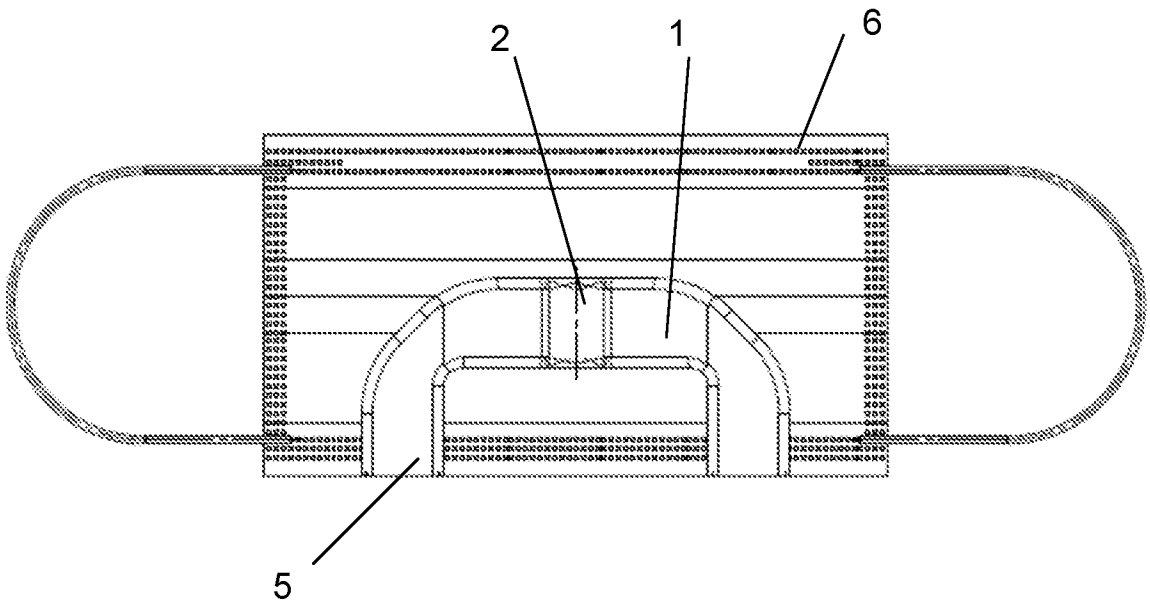
CLAIMS

1- The present invention is related to an apparatus developed for medical masks, characterized in that it includes a top section of apparatus under the mask (6) particularly structured and positioned to remain above the mouth and over the nose, and its closed channels (5) descending downwards on both sides of the mouth, and a nose channel (2) formed according to the structure of the nose and used for fixation of apparatus (1) on the face, and detachable filters (3) fitted to the end part of channels (5) used for ventilation from outside, and respiratory holes (4) positioned on surfaces of air channels (5) located in respiratory space inside the apparatus, and preferably additional channel filters (4a) of these respiratory holes (4).

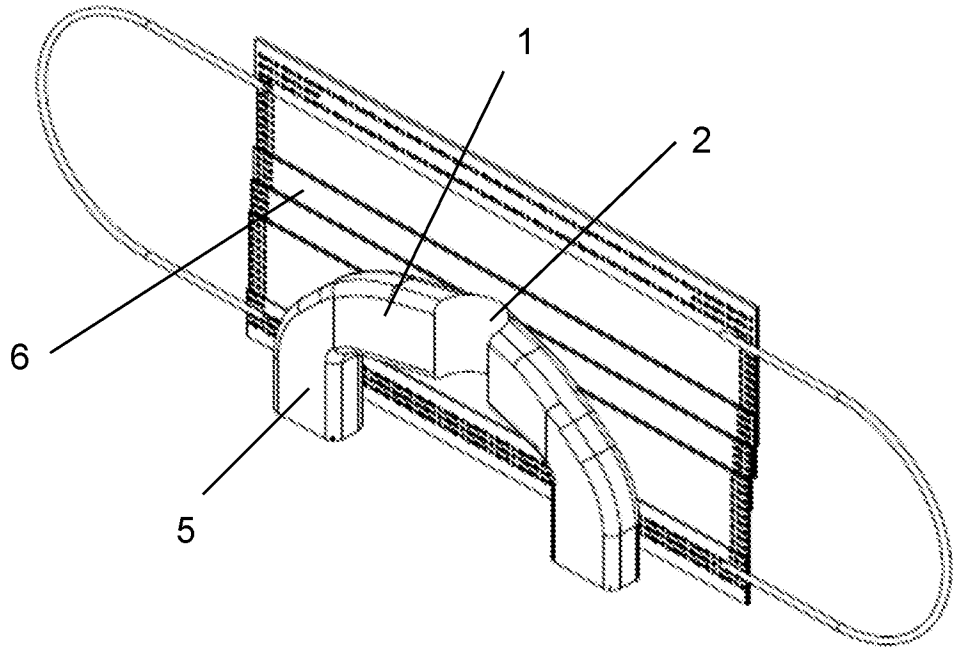
2- An apparatus according to Claim 1, characterized in that nose channel (2) may either be made of a flexible and easily formable material for the sake of adjustability according to different nose structures and widths or be built by a laminated spring-loaded or a similar system for the sake of adjustability of the width of this nose channel (2).

3- An apparatus according to any one of the claims described hereinabove, characterized in that fixation may be ensured either by holding and hooking on the face by means of nose channel (2) and by giving support with mask (6) put on the face, or by means of an application such as hook-and-loop fasteners ensuring holding and hooking on mask (6) at the surface of apparatus-under-mask (1) linking to the mask (6).

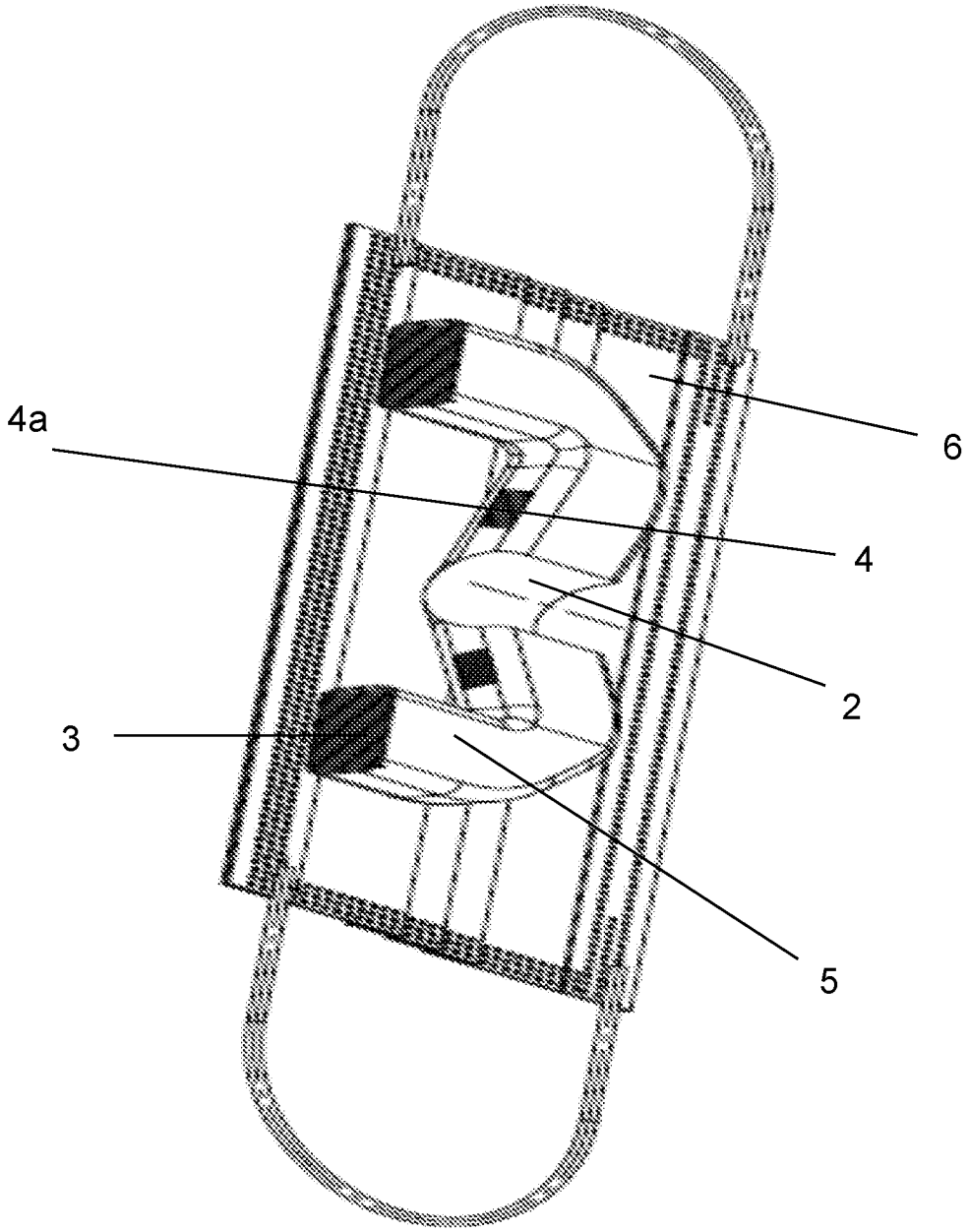
4- An apparatus according to any one of the claims described hereinabove, characterized in that it may be made and manufactured of an easy to disinfect and easy to wash and at the same time an antibacterial and antiviral material preventing irritation of face.



Drawing 1



Drawing 2



Drawing 3

INTERNATIONAL SEARCH REPORT

International application No.
PCT/TR2020/050504

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

Turkish Patent Database

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

WPI and EPODOC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 2015093733 A1 (JUNS-I) JUN S S25 June 2015 (2015-06-25) Figures	1-4
A	CN 205267059U U (BENY-N) BENYUAN GREENLAND BEIJING ENVIRONMENTAL PROTECTION TECHNOLOG01 June 2016 (2016-06-01) Abstract, Figures	1-4
A	CN 205492680U U (SUNK-I) SUN K24 August 2016 (2016-08-24) Abstract, Figures	1-4
A	CN 204132474U U (UYZZ) UNIV ZHENGZHOU04 February 2015 (2015-02-04) Abstract, Figures	1-4
A	KR 20180025098 A (SEOB-I) SEO B Y08 March 2018 (2018-03-08) Description paragraphs 17-19	1-4

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

* Special categories of cited documents:
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"P" document published prior to the international filing date but later than the priority date claimed
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"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"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 March 2021	**25 March 2021**

Name and mailing address of the ISA/TR	Authorized officer
Turkish Patent and Trademark Office (Turkpatent) **Hipodrom Caddesi No. 13** **06560 Yenimahalle** **Ankara** **Turkey** Telephone No. **(90-312) 303 11 82** Facsimile No. **+903123031220**	**İrem Tomak** Telephone No.

INTERNATIONAL SEARCH REPORT
Information on patent family members

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PCT/TR2020/050504

Patent document cited in search report			Publication date (day/month/year)	Patent family member(s)			Publication date (day/month/year)
WO	2015093733	A1	25 June 2015	CN	104853821	A1	19 August 2015
				CN	104853821B	B	16 November 2016
				KR	200474665Y	Y1	06 October 2014
CN	205267059U	U	01 June 2016	NONE			
CN	205492680U	U	24 August 2016	NONE			
CN	204132474U	U	04 February 2015	NONE			
KR	20180025098	A	08 March 2018	NONE			