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(54) **SHIELDING MASK**

SCHUTZMASKE

MASQUE DE PROTECTION

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Description

[0001] The present invention relates to a protective mask which comprises a mantle covering the wearer's face and having a visor of a transparent material, inside the mantle an inner mask surrounding the nose and the mouth, and inhale and exhale conduits communicating with the inner mask.

[0002] In the protective mask, serving as a breathing mask, the breathable air or oxygen is directed via a tube coming from a container or via a filter belonging to the mask to the interior of the mask, into the region of the visor. This flow of oxygen or air continues via a valve to the inner mask inside the mantle, from where it is finally discharged as exhaled air into the exhale conduit of the mask. The purpose of the inflow stream bypassing the visor is to maintain the visor clear, i.e. free from moisture condensed from the wearer's exhaled air.

[0003] The structure of known protective masks covering the wearer's face is usually relatively stiff, and donning such masks usually difficult, especially for wearers of eyeglasses. In general it is not possible to wear eyeglasses in masks, because they would cause in an otherwise impervious mantle a leakage point at each shaft, and therefore it has been necessary, instead, to equip masks with wearer-specific lenses corresponding to eyeglasses. In practice such a system is, of course, inconvenient and expensive.

[0004] The object of the present invention is to provide a simple protective mask, fitting as such most wearers, in which mask the above-mentioned deficiencies of known masks are avoided. It is characteristic of the invention that the mantle of the mask is made up of a hood of a membrane-like rubber or plastic material, enclosing the wearer's entire head and sealing around the wearer's neck, and that the visor is of an elastic plastic material flexing together with the hood, the thickness of the material being at maximum approx. 1 mm.

[0005] In the mask according to the invention the seal is effected by means of a resilient collar which seals against the wearer's neck irrespective of the size of the neck. A loose, elastic hood of a membrane-like material can thus be dimensioned so as to be sufficiently loose to fit different wearers regardless of head size and potential wearing of eyeglasses. No lenses or other such wearer-specific fittings are necessary in the mask according to the invention.

[0006] The visor belonging to the membrane-like loose hood is according to the invention of a thin elastic plastic material which adjoins smoothly the material of the hood, flexing together with it. The thin visor provides the advantage that it can be warmed up rapidly with a hand in order to dry any moisture possibly condensed on its inside. The material thickness of the visor is suitably 0.5-1 mm, optimally approx. 0.75 mm, a suitable material being for example PVC.

[0007] The collar portion of the hood may according to the invention be, for example, of a resilient latex rubber having a thickness within the range 0.05-1.5 mm. The hood may be, for example, of PVC, and it may be equipped with a textile coating. The thickness of the hood may be within the range 0.05-2 mm, preferably within the range 0.15-0.5 mm.

[0008] The protective mask according to the invention may be equipped with a filter which purifies the inhale air, or it may alternatively be connected by means of a tube to an oxygen or compressed-air container. When a filter is used, a vacuum is formed inside the mantle of the mask, and when oxygen or air supplied from a container is used, an overpressure is generated. In either case the resilient, sealing collar part of the hood will prevent leakages between the interior of the mask and the outside air.

[0009] The invention is described below in greater detail with the help of an example, with reference to the accompanying drawings, in which

Figure 1 depicts a front view of one protective mask according to the invention, and

Figure 2 depicts a side view of the mask, partly as a cutaway.

[0010] The mask 1 according to the drawings comprises a hood 2 which encloses the wearer's entire head, the collar 3 of the hood being arranged to seal around the wearer's neck. The hood 2 is of a flexible, membrane-like, uncoated, opaque plastic material, such as PVC, having a thickness of approx. 0.2 mm. The collar 3 is of a resilient latex rubber having a thickness of approx. 0.2 mm. The purpose of the collar 3 is to prevent any leakages between the interior of the hood 2 and the outside air.

[0011] The hood 2 of the mask is further equipped with a visor 4, which is of a clear, transparent plastic material, such as PVC, having a thickness of approx. 0.75 mm. The elastic visor 4 bends together with the hood 2 portions surrounding it; this facilitates the handling of the mask and improves its durability, for example, by reducing the susceptibility of the mask to rupture.

[0012] Inside the hood 2 in the mask there is a separate inner mask 5, which is tightened by means of fastening straps 6 around the wearer's nose and mouth. The fastening straps 6 are adjustable in length and attached to the inner surface of the hood 2.

[0013] The protective mask 1 according to the drawings is equipped with an inhale filter 7 for purifying the inhale air entering the mask. Thus a vacuum is formed inside the hood 2 as the sealing collar 3 prevents leakages from the outside air into the mask. Alternatively the mask 1 can be connected to a pressurized oxygen or air tube (not shown) leading from a container, in which case overpressure is formed inside the mask as the collar 3 prevents any outward leakages.

[0014] The inhale conduit leading via the filter 7 to the interior of the hood 2 of the mask is shown in Figure 2 by an arrow 8 indicating the inflow air stream. The air

stream enters the visor space 9 surrounding the inner mask 5, and in this space it is used for keeping the visor 4 clean of moisture which would otherwise tend to condense from the exhale air onto the inner surface of the visor. From the visor space 9 the air stream continues, in accordance with arrow 10 in Figure 2, via the flap valves 11 in the inner mask 5, to serve as inhale air inside the inner mask. Exhale air leaves the inner mask 5 along the exhale conduit shown by arrow 12 in Figure 2 to the outside air.

[0015] For an expert in the art it is clear that the various embodiments of the invention are not limited to that presented above by way of example, but may vary within the accompanying claims.

Claims

1. A protective mask (1) which comprises a hood (2) of a membrane-like rubber or plastic material which encloses the wearer's entire head and seals around the wearer's neck, the hood being provided with a visor (4) of a transparent plastic material, and the mask further comprising inside the hood an inner mask (5) surrounding the wearer's nose and the mouth, and inhale and exhale conduits (8, 10, 12) communicating with the inner mask, **characterized** in that the visor (4) is of an elastic PVC-material which flexes together with the hood and has a thickness of at maximum approx. 1 mm.

2. A protective mask according to Claim 1, **characterized** in that the thickness of the PVC-material of the visor (4) is approx. 0.75 mm.

3. A protective mask according to claim 1 or 2, **characterized** in that the collar portion (3) of the hood (2) is of a resilient latex rubber.

4. A protective mask according to claim 1 or 2, **characterized** in that the inhale conduit (8) of the mask leads into the visor space (9) surrounding the inner mask (5) inside the hood (2), and that the inner mask is equipped with at least one flap valve (11) allowing the passage of inhale air or oxygen.

5. A protective mask according to any of the above claims, **characterized** in that the mask is equipped with an inhale filter (7).

6. A protective mask according to any of the above claims, **characterized** in that the inhale conduit (8) of the mask can be connected to an oxygen or compressed-air tube.

Patentansprüche

1. Schutzmaske (1), mit einer Haube (2) aus einem membranähnlichen Gummi- oder Kunststoffmaterial, die den gesamten Kopf des Trägers umschließt und um den Hals des Trägers abdichtet, wobei die Haube mit einem Visier (4) aus einem transparenten Kunststoffmaterial versehen ist und die Maske außerdem innerhalb der Haube eine Innenmaske (5), die die Nase und den Mund des Trägers umgibt, und Inhalations- und Exhalationskanäle (8, 10, 12) enthält, die mit der Innenmaske in Verbindung stehen, **dadurch gekennzeichnet**, daß das Visier (4) aus einem nachgiebigen PVC-Material besteht, das zusammen mit der Haube biegsam ist und eine Dikke von maximal etwa 1 mm hat.

2. Schutzmaske nach Anspruch 1, **dadurch gekennzeichnet**, daß die Dicke des PVC-Materials des Visiers (4) etwa 0,75 mm beträgt.

3. Schutzmaske nach Anspruch 1 oder 2, **dadurch gekennzeichnet**, daß der Kragenbereich (3) der Haube (2) aus einem elastischen Latexgummi ist.

4. Schutzmaske nach Anspruch 1 oder 2, **dadurch gekennzeichnet**, daß der Inhalationskanal (8) der Maske in den die Innenmaske (5) umgebenden Visierraum (9) innerhalb der Haube (2) führt und daß die Innenmaske mit zumindest einem Klappenventil (11) versehen ist, um das Durchlassen von Inhalationsluft oder Sauerstoff zu ermöglichen.

5. Schutzmaske nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet**, daß die Maske mit einem Inhalationsfilter (7) ausgestattet ist.

6. Schutzmaske nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet**, daß der Inhalationskanal (8) der Maske mit einem Sauerstoff- oder Druckluftschlauch verbunden werden kann.

Revendications

1. Un masque de protection (1) qui comprend une cagoule (2) sous la forme d'une membrane en caoutchouc ou en matière plastique, qui entoure la tête entière de l'utilisateur et entoure hermétiquement la nuque de l'utilisateur, la cagoule étant équipée d'une visière (4) en matière plastique transparente, et le masque comprenant en outre, à l'intérieur de la cagoule, un masque intérieur (5) entourant le nez et la bouche de l'utilisateur, et des conduits d'inhalation et d'exhalation (8, 10, 12) communiquant avec le masque intérieur, **caractérisé en ce que** la visière (4) est en matériau-PVC élastique qui fléchit ensemble avec la cagoule et a une épaisseur d'au

maximum, approximativement, de 1 mm.

2. Un masque de protection selon la revendication 1, **caractérisé en ce que** l'épaisseur du matériau-PVC de la visière (4) est approximativement de 0,75 mm.

3. Un masque de protection selon la revendication 1 ou 2, **caractérisé en ce que** la partie (3) formant le col de la cagoule (2) est constituée de caoutchouc latex résilient.

4. Un masque de protection selon la revendication 1 ou 2, **caractérisé en ce que** le conduit d'inhalation (8) du masque conduit dans l'espace (9) de la visière entourant le masque intérieur (5), à l'intérieur de la cagoule (2), et en ce que le masque intérieur est équipé d'au moins une soupape à clapet (11) permettant le passage de l'air inhalé ou de l'oxygène.

5. Un masque de protection selon n'importe laquelle des revendications ci-dessus, **caractérisé en ce que** le masque est équipé d'un filtre d'inhalation (7).

6. Un masque de protection selon n'importe laquelle des revendications ci-dessus, **caractérisé en ce que** le conduit d'inhalation (8) du masque peut être connecté à un tube d'air comprimé ou d'oxygène.

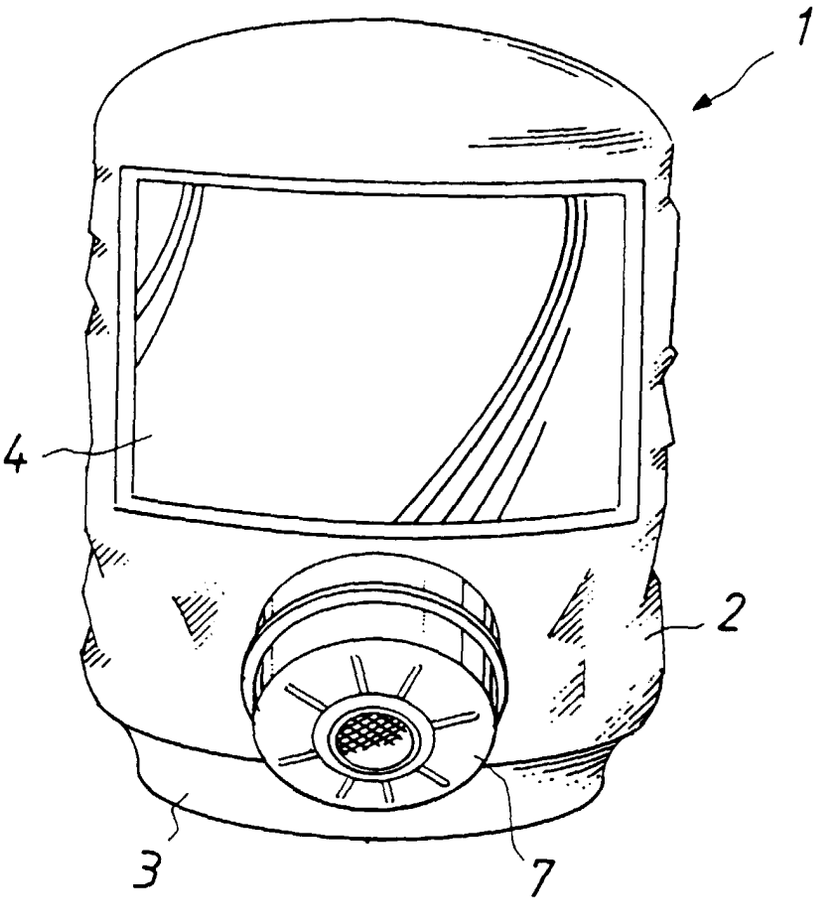

Fig.1

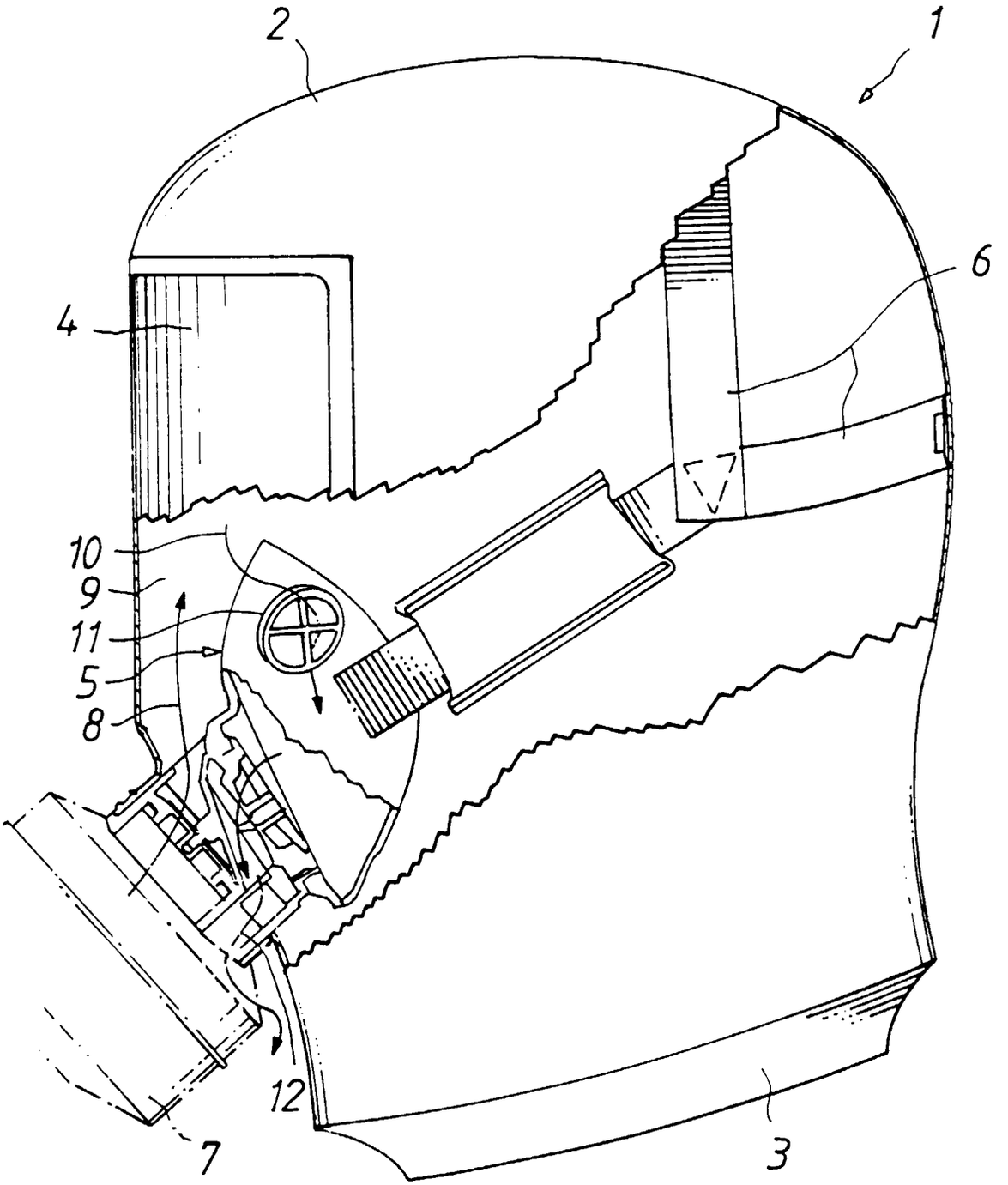

Fig.2