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(54) **NBC FILTER**

ABC-FILTER

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(73) Proprietor: **Officine Meccaniche Galli S.r.l.**
00155 Roma (IT)

(72) Inventor: **GALLI, Giuseppe**
I-00155 Roma (IT)

(74) Representative: **Sarpi, Maurizio**
Studio Ferrario S.r.l.
Via Collina, 36
00187 Roma (IT)

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Description

[0001] The present invention relates to the NBC protection sector, and in particular, refers to an NBC filter to be applied to the inlet of an NBC face mask. Said filter may be either the type having an asymmetrical fastening, the axis of symmetry of which is off-centred with respect to the main axis of the filter itself, or the type having a centralized fastening, the axis of symmetry of which coincides with the main axis of the filter itself.

[0002] Recently, traditional metal filters have been replaced by plastic filters allowing reduced costs.

[0003] However, a first drawback of the plastic filters currently on the market is that the essentially cylindrical body of the filter is formed by two parts, one anterior and one posterior, fixed together by means of a resin-based glue, which does not ensure the stable fixing of said parts, and which are thus liable to come apart over time. A further drawback is constituted by the fact that said glue releases toxic vapours inside the filter, with the risk of these being inhaled by the individual using the filter itself.

[0004] A third drawback is given by the fact that, as a result of shock, or the accidental dropping of the filter, its filtering capacity may be significantly reduced over time, if not indeed lost entirely.

[0005] An example of the prior art is shown in document US 5 038 775 A.

[0006] The main scope of the present invention is that of providing an NBC filter made from a reinforced plastic material, preferably fibreglass, capable of resisting accidental, and even repeated shock, while at the same time maintaining its filtering capacity, and avoiding the use of adhesives which can lead to the above-described drawbacks.

[0007] This has been achieved, according to the present invention, by the features of claim 1. The interior of said filter is fitted with a central pin which spaces apart two membranes, which delimit a space filled with activated charcoal particles, in order to avoid said membranes to bent outwards and give rise to empty or dead spaces, which could reduce the filtering activity of said particles and thus the filtering capacity of the filter itself.

[0008] According to a further preferred characteristic of the invention, the anterior and posterior parts, forming the filter body, are hot blade welded together so that said parts are stably fixed together, avoiding any gluing which can give rise to the above-described drawbacks.

[0009] Improved understanding of the invention will be obtained from the following detailed description and by referring to the enclosed figures which show, purely by way of example, a preferred embodiment.

[0010] In the figures:

figure 1A is a diametral cross-section through the centre of the fastening of the embodiment of an NBC filter having an asymmetrical fastening;
figure 1B is an enlarged detail of the preceding figure;
figures 2A and 2B show a diametral cross-section and a plan view of a valve pusher respectively;
figures 3A and 3B show the outer and inner surfaces of the anterior base of the NBC filter of figure 1A respectively;
figure 4 shows the posterior base of the NBC filter of figure 1A;
figure 5 is a perspective diametral cross-section through the centre of the fastening of an NBC filter not according to the invention having a central fastening.

[0011] With reference to figures 1A to 3B, the essentially cylindrical body of the NBC filter 1 consists of two parts, anterior A and posterior B. The anterior part A comprises a base A1, fitted with an asymmetrical fastening 2 and a valve pusher 3, a first perforated membrane 4, an area 5 containing the activated charcoal particles, with a pin 6 passing through centrally, and a second perforated membrane 7, while the posterior part B comprises a first perforated disk 11, an antiaerosol pack 12 constituted by a glass microfibre paper cartridge, a second perforated disk 13, and a base B1 with an inlet hole fitted with a plug 14 of known type.

[0012] The asymmetrical fastening 2 of the filter 1 is essentially constituted by a cylindrical collar which protrudes from the base A1 and is positioned so that part of its outer perimeter is aligned with the outer edge of the filter 1 (figure 3A).

[0013] It is appropriate to point out that there are four fins distributed angularly along the inner edge of the asymmetrical fastening 2, with two additional fins arranged facing one another along the outer edge, and two housings formed in the ribbed protrusions which aid fitting of the filter 1 onto the face mask, and at the same time defining the end stops.

[0014] The valve' pusher 3 is inserted into a dedicated through hole 8 in the base A1 which is located inside the asymmetrical fastening 2 and runs parallel to it.

[0015] Said valve pusher 3 is essentially constituted by a cylindrical collar protruding from the base A1 along the inner edge of which are a series of radiating equidistant fins 9 protruding below, and facilitating the correct positioning of said valve pusher 3 inside the through hole 8, by inserting it in appropriate "U" shaped housings 21, as will be explained in more detail below (figures 2A and 2B).

[0016] Once inserted, the valve pusher 3 is welded into place.

[0017] Each of the perforated membranes 4 and 7 delimiting the activated charcoal area 5 is lined internally with a non-woven fabric 10.

[0018] Near the first perforated membrane 4, there is a ring-shaped end-stop 15 which is held in place by a plurality of small teeth projecting from the inner surface of the side wall of the anterior part A, along the edge of the same.

[0019] The second perforated membrane 7 is fixed to the anterior part A held pressed against an inner edge

16 which arises from the inner face of the anterior part A, a short distance from its free end, and which runs parallel to it.

[0020] The central pin 6 is interposed between the first perforated membrane 4 and the second 7, and maintains the distance between said membranes, which in the case of shock and/or accidental dropping, with the membranes being bent outwards, could increase, giving rise to dead spaces, which, as already been mentioned, could reduce the filtration capacity of the filter 1.

[0021] In order to distribute the flow of air from outside the filter over the entire area 5, the base A1 has an internal surface with a plurality of ribs 20 running radially with respect to the centre of the through hole 8 into which the valve pusher 3 is inserted, channelling the air towards the valve pusher 3 itself (figure 3B) .

[0022] The height of each rib 20 increases towards the through hole 8.

[0023] It should be observed that a certain number of said ribs extend from the edge of the base A1 to the through hole 8, in the close proximity to which, the free end of each rib has a "U" shaped housing 21 which, as already been mentioned, can house a corresponding fin 9 from the valve pusher 3 when the latter is inserted.

[0024] It is obvious that the number of ribs 20 reaching the through hole 8 is equal to the number of fins 9 from the valve pusher 3.

[0025] One further advantageous characteristic of the invention is that the base A1 has two protruding lugs 18 at 90° to one another with respect to the centre of the through hole 8 acting as visual and tactile points of reference for the user, both for the correct insertion of the filter 1 onto the inlet of the NBC face mask, and for the direction of rotation which allows the user to fix said filter onto the inlet itself (figure 3A) .

[0026] In particular, said lugs are "L" shaped, with the long sides oriented radially with respect to the fastening 2 of the filter 1, and continuing downwards along the side surface of the filter 1 itself, stopping halfway along said surface, while the short sides are perpendicular to the former, giving the direction of rotation for a bayonet connector.

[0027] To enhance their roles as reference elements, it is preferable that the lugs 18 are a contrasting colour from that of the filter 1.

[0028] The posterior base B1 is fitted with an entry hole which is closed off by a central rubber stopper 14 which must be removed by the user in order to use the filer itself (figure 4).

[0029] According to one advantageous characteristic of the invention, the two parts, anterior A and posterior B, are fixed together by means of hot blade welding which, following the melting of the contact seams, stably fixes the free ends together, thus making a single body without the use of any adhesives.

[0030] The NBC filter, shown in figure 5, envisages a filter 1 the base of which A1 is fitted with a central fastening 2' not according to the invention the axis of symmetry of which coincides with the main axis of the filter itself. Said central fastening 2' is essentially constituted by a cylindrical collar with threading around the outer edge.

[0031] In this case, the central fastening 2' does not have the four fins distributed angularly around the inner edge, also the outer edge lacks the further two opposite facing fins and the two housings formed in the ribbed protrusions.

[0032] Furthermore, the base A1 lacks the valve pusher 3 and the lugs 18.

[0033] The antiaerosol pack 12 is fixed and sealed onto the posterior base B1 by means of non-toxic glue.

[0034] It should be remembered that the free end of the anterior part A just like that of the posterior part B are raised with respect to the corresponding side walls of each part, so that, once said ends are welded together, a circular lug is created which protrudes from the body of the filter 1 and facilitates holding for those wearing gloves and needing to handle the filter 1 itself.

[0035] The present invention has been described and illustrated in the preferred embodiment, but it is obvious that one skilled in the art might be able to bring about modifications and/or technically equivalent substitutions without embarking from the scope of protection of the present industrial patent.

Claims

1. An NBC filter (1) of the type comprising two parts, anterior (A) and posterior (B), fixed to one another, where the anterior part (A) comprises a base (A1), an asymmetrical fastening (2) the axis of symmetry of which is off-centred with respect to the main axis of the filter itself, a first perforated membrane (4), an area (5) containing particles of activated charcoal, and a second perforated membrane (7), while the posterior part (B) comprises a first perforated disk (11), an antiaerosol pack (12) constituted by a glass microfibre cartridge, a second perforated disk (13), and a base (B1) with an inlet hole, **characterised in that** the inlet hole is fitted with a plug (14) of known type, and **in that** in order to avoid the first perforated membrane (4) and/or the second perforated membrane (7) bending outwards, it is provided a central pin (6) which, by passing through said area (5), maintains a constant distance between said membranes, allowing said filter to be resistant to shock or accidental dropping, even repeated, while at the same time preserving the filtration capacity intact; wherein the asymmetrical fastening (2) of the filter (1) is essentially constituted by a cylindrical collar which protrudes from the base (A1) and is positioned so that part of its outer edge is aligned with the edge of the filter (1).

2. The filter (1) according to the preceding claim **char-**

acterised in that said fastening (2) has four fins arranged angularly around its inner edge, and two further fins facing one another around its outer edge and two housings formed in the ribbed protrusions.

3. The filter (1) according to claims 1 or 2 **characterised in that** it has a valve pusher (3) which is inserted into an appropriate through hole (8) in the base (A1); said valve pusher (3) being located inside the fastening (2) and coaxial with the same, and welded into place.

4. The filter (1) according to the preceding claim **characterised in that** said valve pusher (3) is essentially constituted by a cylindrical collar which protrudes from the base (A1) and along the inner edge of which are a series of radial fins (9) equidistant from one another and adapted to allowing the correct positioning of the valve pusher (3) itself in the appropriate "U" shaped housings (21) inside the through hole (8).

5. The filter (1) according to claim 1 **characterised in that** both the first perforated membrane (4) and the second perforated membrane (7) are lined internally with non woven fabric (10).

6. The filter (1) according to claim 1 **characterised in that** the anterior part (A) has one free end which is fixed to the corresponding free end of the posterior part (B) by means of hot blade welding which, by melting the layers in contact, stably fixes said parts (A) and (B), thus forming a single body.

7. The filter (1) according to the preceding claim **characterised in that** in order to aid holding by a user wearing gloves, the free end of the side wall of part (A) and that of part (B) are raised with respect to the corresponding side walls, so that, once welded together, a circular lug is created, projecting from the body of the filter (1).

8. The filter according to claims 6 or 7 **characterised in that** the second perforated membrane (7) is fixed to the anterior part (A) and held pressed against an inner edge (16) which arises from the inner face of the anterior part (A), at short distance from its free end, and running parallel to it.

9. The filter (1) according to claim 4 **characterised in that** in order to distribute the flow of air from the outside over the entire area (5), the base (A1) has an inner surface with a plurality of ribs (20) arranged radially with respect to the centre of the through hole (8) capable of channelling air towards the valve pusher (3).

10. The filter (1) according to the preceding claim **characterised in that** the height of each rib (20) increases towards the through hole (8).

11. The filter (1) according to claims 9 or 10 **characterised in that** each of said ribs (20) extends from the edge of the anterior base (A1) to the through hole (8) where, at the free end of each there are "U" shaped housings (21) suitable for housing the fins (9) of the valve pusher (3); the number of ribs (20) reaching the through hole (8) being equal to the number of fins (9).

12. The filter (1) according to one of the claims 1 to 11 **characterised in that** the anterior base (A1) has two lugs (18) separated angularly and able to act as visual and tactile reference elements for the user, both for the correct insertion of the filter (1) onto the inlet of an NBC face mask, and for the direction of rotation allowing the user to fix said filter onto the inlet itself.

13. The filter (1) according to the preceding claim **characterised in that** said lugs (18) are essentially "L" shaped, wherein the long sides, running radially with respect to the asymmetrical fixing (2) of the filter (1), proceed downwards along the side surface of the filter (1) itself, stopping halfway along said surface, while the short sides are essentially perpendicular to the long sides.

14. The filter (1) according to claim 1 **characterised in that** the antiaerosol pack (12) is fixed and sealed inside the filter (1) by means of a non-toxic adhesive.

15. The filter (1) according to the preceding claims **characterised in that** there is a ring-shaped end-stop element (15) which is held in place by a plurality of small teeth projecting from the inner surface of the side wall of the anterior part (A) running along the edge of the same.

Patentansprüche

1. NBC Filter (1) vom Typ, welcher zwei Teile aufweist, ein Vorderteil (A) und ein Hinterteil (B), die aneinander befestigt sind, wobei das Vorderteil (A) eine Basis (A1), eine asymmetrische Befestigung (2), deren Symmetrieachse bezüglich der Hauptachse des Filters versetzt ist, eine erste perforierte Membran (4), einen Bereich (5), welcher Aktivkohlepartikel enthält, und eine zweite perforierte Membran (7) aufweist, während das Hinterteil (B) eine erste perforierte Platte (11), ein Anti-Aerosolpack (12), das aus einem Glasmikrofasereinsatz gebildet ist, eine zweite perforierte Platte (13) und eine Basis (B1) mit einer Einlassöffnung aufweist, **dadurch gekennzeichnet, dass** die Einlassöffnung mit einem bekannten Stopfen (14) versehen ist, und dass, um ein Nach-Außen-

Durchbiegen der ersten perforierten Membran (4) und/oder der zweiten perforierten Membran (7) zu verhindern, ein zentrischer Stift (6) vorgesehen ist, welcher beim Durchlaufen des Bereiches (5), einen konstanten Abstand zwischen den beiden Membranen aufrechterhält, wodurch es ermöglicht wird, dass der Filter auch wiederholt einem Stoß oder einem unbeabsichtigten Herunterfallen standhält, während gleichzeitig die Filterkapazität intakt erhalten bleibt; wobei die asymmetrische Befestigung (2) des Filters (1) im Wesentlichen durch eine zylindrische Manschette bereitgestellt wird, welche von der Basis (A1) hervorsteht und so angeordnet ist, dass ein Teil ihrer Außenkante mit der Kante des Filters (1) ausgerichtet ist.

2. Filter (1) nach dem vorhergehenden Anspruch, **dadurch gekennzeichnet, dass** die Befestigung (2) vier Lamellen, die an ihrer Innenkante abwinkelt angeordnet sind, ferner zwei an ihrer Außenkante gegenüberliegende Lamellen, und zwei Gehäuse aufweist, die in den rippenförmigen Vorsprüngen ausgebildet sind.

3. Filter (1) nach Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** er einen Ventildrücker (3) aufweist, der in eine geeignete Durchgangsöffnung (8) in der Basis (A1) eingeführt ist; wobei der Ventildrücker (3) innerhalb der Befestigung (2) angeordnet und mit dieser koaxial ausgerichtet und angeschweißt ist.

4. Filter (1) nach den vorhergehenden Ansprüchen, **dadurch gekennzeichnet, dass** der Ventildrücker (3) im Wesentlichen durch eine zylindrische Manschette gebildet ist, welche von der Basis (A1) und entlang der Innenkante hervorsteht, von welcher eine Reihe radialer Lamellen (9) in gleichem Abstand voneinander vorgesehen und ausgebildet sind, um eine korrekte Positionierung des Ventildrückers (3) selbst in dem geeignet "U"-förmigen Gehäuse (21) innerhalb der Durchgangsöffnung (8) zu ermöglichen.

5. Filter (1) nach Anspruch 1, **dadurch gekennzeichnet, dass** beide, die erste perforierte Membran (4) und die zweite perforierte Membran (7), innen mit einem nicht gewebten Stoff (10) ausgekleidet sind.

6. Filter (1) nach Anspruch 1, **dadurch gekennzeichnet, dass** das Vorderteil (A) ein freies Ende aufweist, welches an dem korrespondierenden freien Ende des Hinterteils (B) mittels Warmschildschweißen verbunden ist, durch Schmelzen der sich in Kontakt befindlichen Lagen, was die Teile (A) und (B) stabil befestigt, wodurch ein einziger Körper gebildet wird.

7. Filter (1) nach dem vorhergehenden Anspruch, **dadurch gekennzeichnet, dass** zum Erleichtern des Haltens durch einen Benutzer, welcher Handschuhe trägt, das freie Ende der Seitenwand des Teils (A) und das des Teils (B) hervorstehend ist bezüglich der korrespondierenden Seitenwände, so dass, wenn einmal zusammen geschweißt, ein kreisförmiger Vorsprung oder Absatz erzeugt wird, der von dem Körper des Filters (1) vorsteht.

8. Filter (1) nach einem der Ansprüche 6 oder 7, **dadurch gekennzeichnet, dass** die zweite perforierte Membran (7) an dem Vorderteil (A) befestigt ist und gegen eine Innenkante (16) gedrückt gehalten wird, welche an der Innenfläche des Vorderteils (A) in einem kurzen Abstand von dessen freien Ende beginnt und parallel zu diesem verläuft.

9. Filter (1) nach Anspruch 4, **dadurch gekennzeichnet, dass** die Basis (A1), um den Luftstrom von außen über den gesamten Bereich (5) zu verteilen, eine Innenfläche mit einer Vielzahl von Rippen (20) aufweist, die radial bezüglich der Mitte der Durchgangsöffnung (8) angeordnet sind, welche geeignet sind, um Luft zu dem Ventildrücker (3) zu leiten.

10. Filter (1) nach dem vorhergehenden Anspruch, **dadurch gekennzeichnet, dass** die Höhe jeder Rippe (20) in Richtung der Durchgangsöffnung (8) zunimmt.

11. Filter (1) nach einem der Ansprüche 9 oder 10, **dadurch gekennzeichnet, dass** jede der Rippen (20) sich von der Kante der vorderen Basis (A1) zu der Durchgangsöffnung (8) erstreckt, wobei, an dem freien Ende jeder "U"-förmige Gehäuse (21) vorgesehen sind, die geeignet sind zum Aufnehmen der Lamellen (9) des Ventildrückers (3); wobei die Anzahl der Rippen (20), welche die Durchgangsöffnung (8) erreichen, gleich der Anzahl der Lamellen (9) ist.

12. Filter (1) nach einem der Ansprüche 1 bis 11, **dadurch gekennzeichnet, dass** die äußere Basis (A) zwei in einem Winkel beabstandete Vorsprünge (18) aufweist, welche geeignet sind als visuelle und taktile Bezugselemente für den Benutzer zu dienen, wobei beide vorgesehen sind für das korrekte Aufstekken des Filters (1) auf den Einlass einer NBC Gesichtsmaske und für die Drehrichtung, die dem Benutzer erlaubt, den Filter auf dem Einlass selbst zu befestigen.

13. Filter (1) nach dem vorhergehenden Anspruch, **dadurch gekennzeichnet, dass** die Vorsprünge (18) im Wesentlichen "L"-förmig sind, wobei zwei lange Seiten, die radial zu der asymmetrischen Befestigung (2) des Filters (1) verlaufen, sich nach unten entlang der Seitenfläche des Filters (1) erstrecken, und auf halbem Weg entlang der Oberfläche stoppen, während die kurzen Seiten im Wesentlichen senkrecht zu den langen Seiten ausgebildet sind.

14. Filter (1) nach Anspruch 1, **dadurch gekennzeichnet, dass** der Anti-Aerosolpack (12) in dem Filter (1) durch einen nicht-toxischen Kleber befestigt und abgedichtet ist.

15. Filter (1) nach den vorhergehenden Ansprüchen, **gekennzeichnet durch** ein ringförmiges Anschlagelement (15), welches **durch** eine Vielzahl von kleinen Zähnen gehalten wird, die von der Innenfläche der Seitenwand des Vorderteils (1) hervorstehen und entlang der Kante desselben verlaufen.

Revendications

1. Filtre NBC (1) de type comprenant deux parties, antérieure (A) et postérieure (B), fixées mutuellement, où la partie antérieure (A) comprend une base (A1), une fixation asymétrique (2), dont l'axe de symétrie est décentré par rapport à l'axe principal du filtre, une première membrane perforée (4), une zone (5) qui contient des particules de charbon activé, et une seconde membrane perforée (7), alors que la partie postérieure (B) comprend un premier disque perforé (11), un ensemble anti-aérosol (12) constitué d'une cartouche de microfibres de verre, un second disque perforé (13), et une base (B1) à trou d'entrée, **caractérisé en ce que** le trou d'entrée est doté d'un bouchon (14) de type connu, et **en ce que**, pour éviter la courbure vers l'extérieur de la première membrane perforée (4) et/ou de la seconde membrane perforée (7), il existe une broche centrale (6) qui, en passant à travers ladite zone (5), maintient une distance constante entre lesdites membranes, rendant ledit filtre résistant aux chocs ou aux chutes accidentels, même répétés, et préserve ainsi l'intégrité de la capacité de filtrage ; dans lequel la fixation asymétrique (2) du filtre (1) est essentiellement constituée d'un collier cylindrique qui fait saillie de la base (A1) et est positionné de sorte qu'une partie de son bord extérieur soit alignée avec le bord du filtre (1).

2. Filtre (1) selon la revendication précédente, **caractérisé en ce que** ladite fixation (2) comporte quatre ailettes agencées de manière angulaire autour de son bord intérieur, et deux autres ailettes se faisant face autour de son bord extérieur, ainsi que deux logements formés dans les protubérances en nervures.

3. Filtre (1) selon la revendication 1 ou 2, **caractérisé en ce qu'**il comporte un poussoir de vanne (3) qui est inséré dans un trou traversant approprié (8) dans la base (A1) ; ledit poussoir de vanne (3) étant situé à l'intérieur de la fixation (2), coaxial à celle-ci, et soudé pour rester en place.

4. Filtre (1) selon la revendication précédente, **caractérisé en ce que** ledit poussoir de vanne (3) est essentiellement constitué d'un collier cylindrique qui fait saillie de la base (A1) et, le long du bord intérieur de celui-ci, se trouve une série d'ailettes radiales (9) équidistantes l'une de l'autre et aptes à permettre le positionnement correct du poussoir de vanne (3) dans les logements en forme de « U » appropriés (21) à l'intérieur du trou traversant (8).

5. Filtre (1) selon la revendication 1, **caractérisé en ce que** la première membrane perforée (4) et la seconde membrane perforée (7) ont un revêtement interne en matière non tissée (10).

6. Filtre (1) selon la revendication 1, **caractérisé en ce que** la partie antérieure (A) comporte une extrémité libre qui est fixée sur l'extrémité libre correspondante de la partie postérieure (B) au moyen d'une soudure de lame chaude qui, en faisant fondre les couches pour les mettre en contact, fixe de manière stable lesdites parties (A) et (B), en formant ainsi un corps unique.

7. Filtre (1) selon la revendication précédente, **caractérisé en ce que**, pour faciliter la préhension par un utilisateur portant des gants, l'extrémité libre de la paroi latérale de la partie (A) et celle de la partie (B) sont surélevées par rapport aux parois latérales correspondantes de sorte que, une fois qu'elles sont mutuellement soudées, il est créé un tasseau faisant saillie du corps du filtre (1).

8. Filtre selon la revendication 6 ou 7, **caractérisé en ce que** la seconde membrane perforée (7) est fixée sur la partie antérieure (A) et maintenue pressée contre un bord intérieur (16) qui monte de la face intérieure de la partie antérieure (A), à une courte distance de son extrémité libre, et qui est parallèle à celle-ci.

9. Filtre (1) selon la revendication 4, **caractérisé en ce que**, pour répartir l'écoulement d'air de l'extérieur sur toute la zone (5), la base (A1) comporte une surface intérieure avec une pluralité de nervures (20) agencées radialement par rapport au centre du trou traversant (8) capables de canaliser l'air vers le poussoir de vanne (3).

10. Filtre (1) selon la revendication précédente, **caractérisé en ce que** la hauteur de chaque nervure (20) augmente vers le trou traversant (8).

11. Filtre (1) selon la revendication 9 ou 10, **caractérisé en ce que** chacune desdites nervures (20) s'étend du bord de la base antérieure (A1) vers le trou traversant (8) où, à l'extrémité libre de chacune d'entre elles, il y a des logements en forme de « U » (21)

aptes à recevoir les ailettes (9) du poussoir de vanne (3) ; le nombre de nervures (20) atteignant le trou traversant (8) étant égal au nombre d'ailettes (9).

12. Filtre (1) selon l'une des revendications 1 à 11, **caractérisé en ce que** la base antérieure (A1) comporte deux tasseaux (18) séparés angulairement et capables d'agir comme des éléments de référence visuelle et tactile pour l'utilisateur, à la fois pour l'insertion correcte du filtre (1) sur l'entrée d'un masque de face NBC, et pour le sens de rotation en permettant à l'utilisateur de fixer ledit filtre sur l'entrée proprement dite.

13. Filtre (1) selon la revendication précédente, **caractérisé en ce que** lesdits tasseaux (18) sont essentiellement en forme de « L », dans lequel les côtés longs s'étendant radialement par rapport à la fixation asymétrique (2) du filtre (1) descendent le long de la surface latérale du filtre (1) en s'arrêtant à la moitié de ladite surface, alors que les côtés courts sont essentiellement perpendiculaires aux côtés longs.

14. Filtre (1) selon la revendication 1, **caractérisé en ce que** l'ensemble anti-aérosol (12) est fixé et rendu étanche à l'intérieur du filtre (1) au moyen d'un adhésif non toxique.

15. Filtre (1) selon les revendications précédentes, **caractérisé en ce qu'**il y a un élément de butée en forme d'anneau (15) qui est maintenu en place par une pluralité de petites dents se projetant de la surface intérieure de la paroi latérale de la partie antérieure (A) le long du bord de celle-ci.

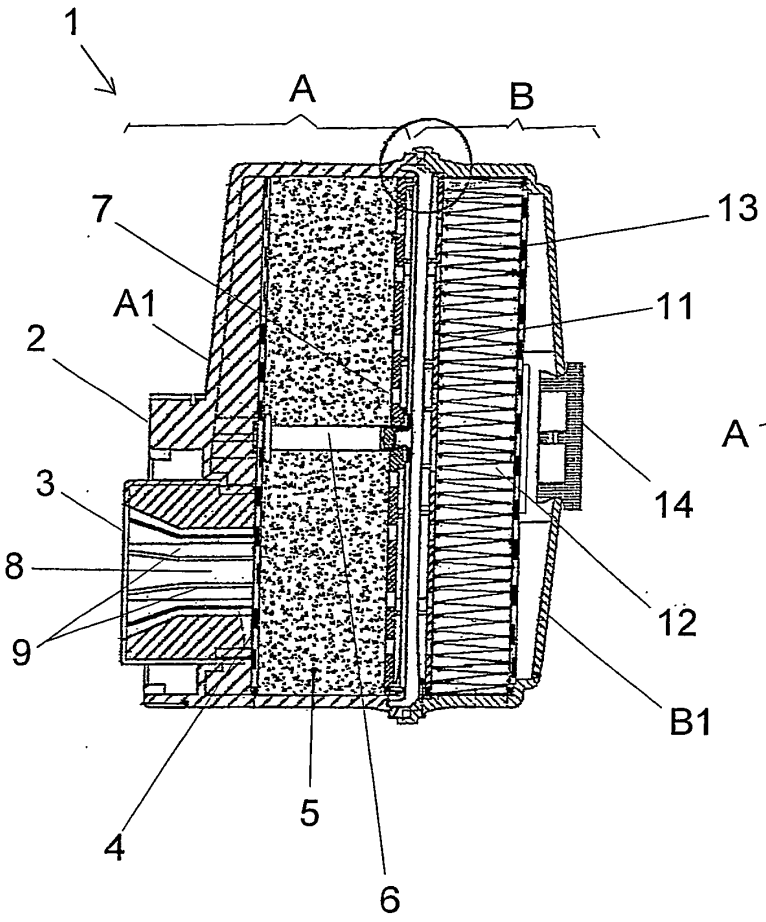

Fig. 1A

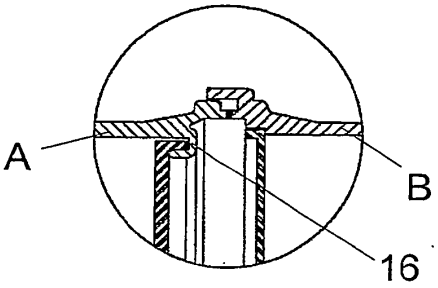

Fig. 1B

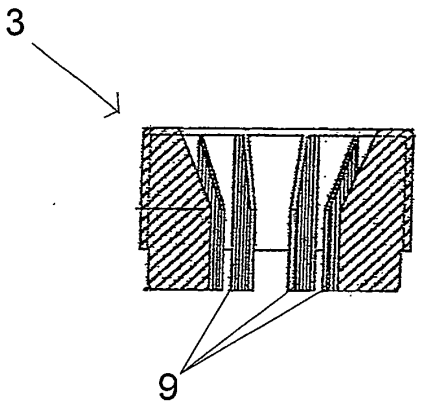

Fig. 2A

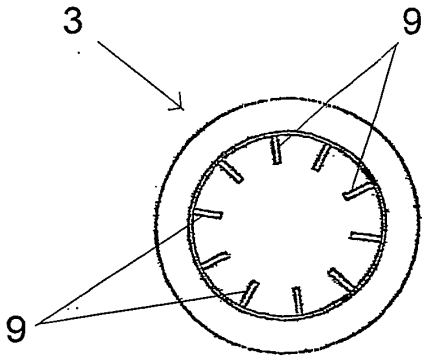

Fig. 2B

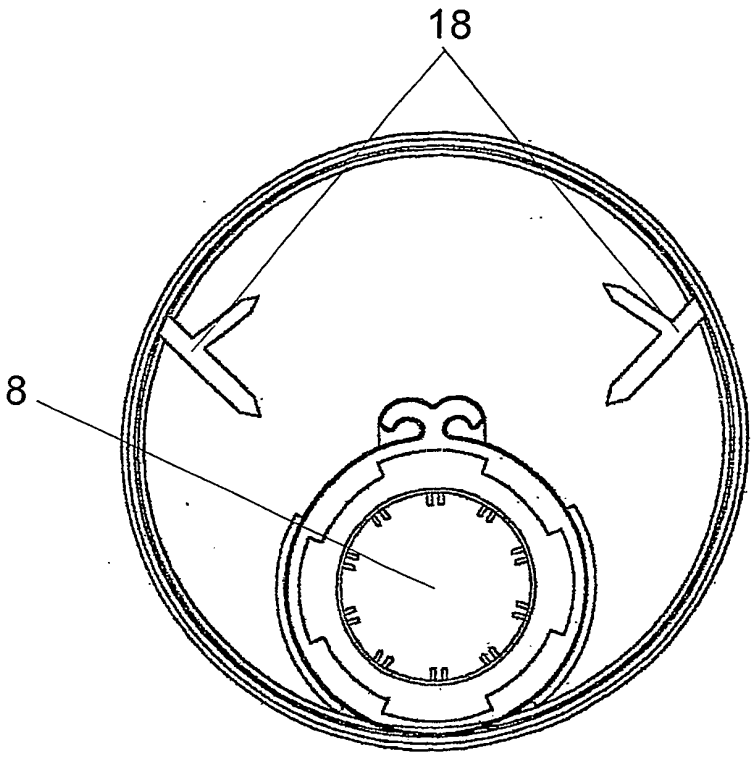

Fig. 3A

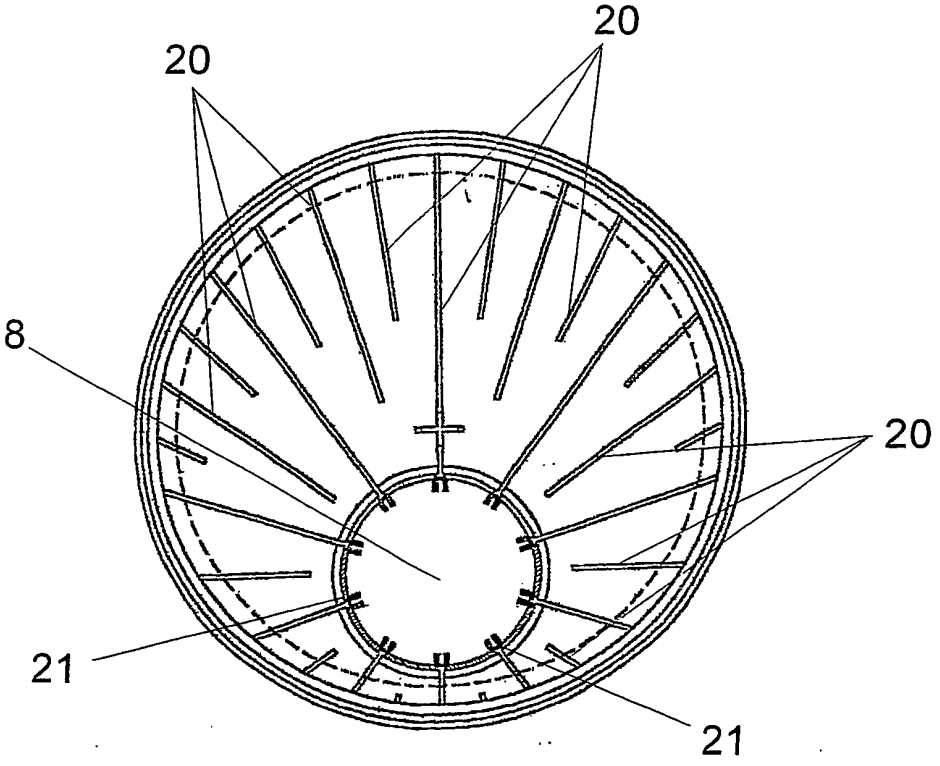

Fig. 3B

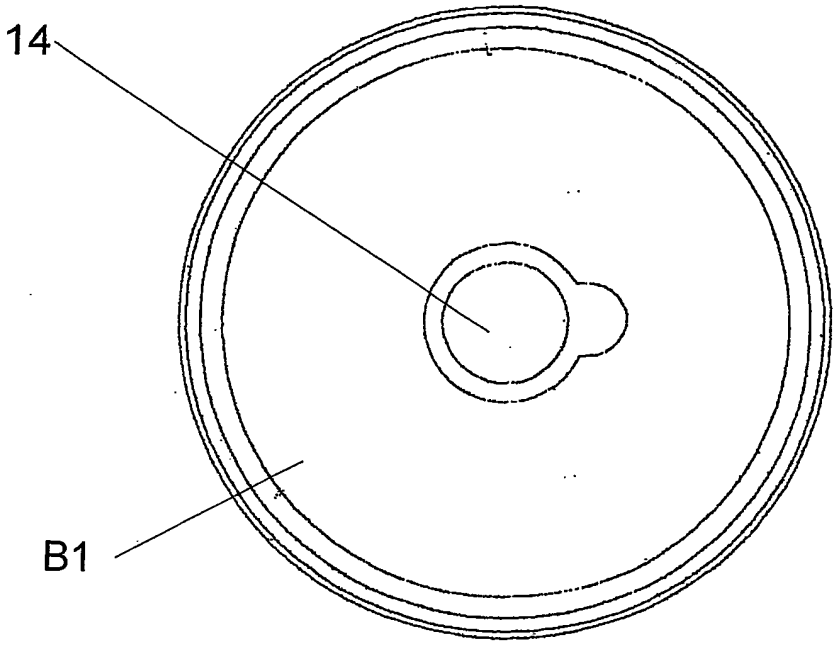

Fig. 4

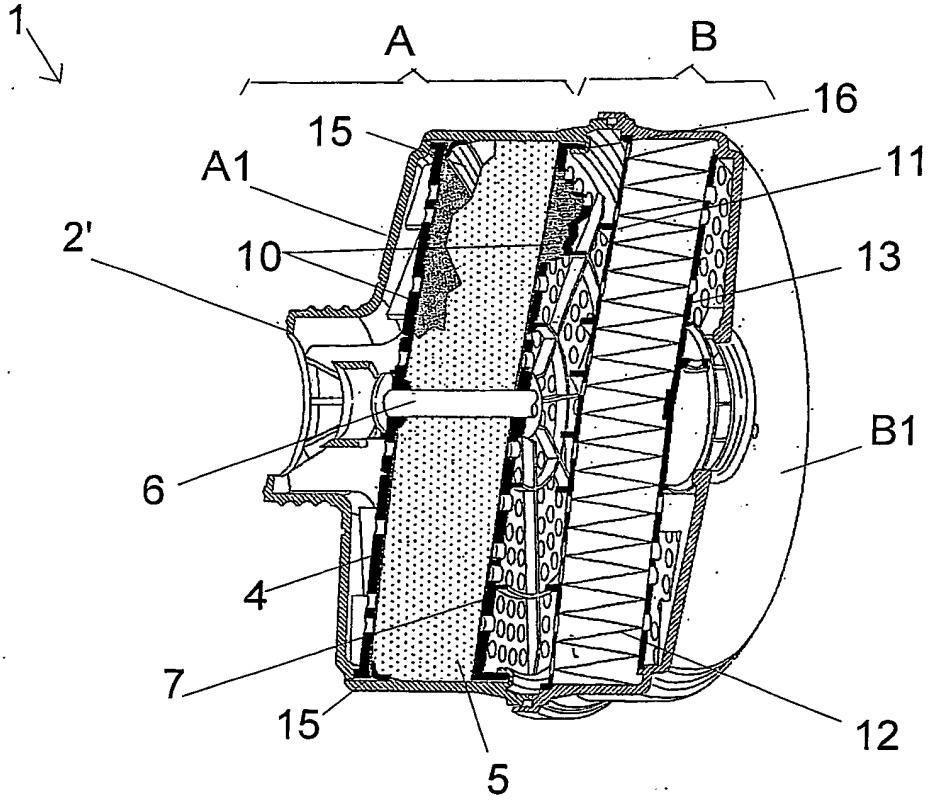

Fig. 5

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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