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Datasheet for the decision of 22 September 2020

Case Number: T 1764/17 - 3.2.04

Application Number: 08855060.3

Publication Number: 2217332

IPC: A62B17/04

Language of the proceedings: EN

Title of invention:
RESPIRATOR SYSTEM INCLUDING REMOVABLE HEAD SUSPENSION

Patent Proprietor:
3M Innovative Properties Company

Opponent:
Drägerwerk AG & Co. KGaA

Headword:

Relevant legal provisions:
EPC Art. 54(2), 56
EPC R. 80

Keyword:
Novelty - (yes)
Amendment occasioned by ground for opposition - (no)
Inventive step - main request (no) - auxiliary request (yes)

Decisions cited:

Catchword:

Europäisches Patentamt
European Patent Office
Office européen des brevets

Beschwerdekammern

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Chambres de recours

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Case Number: T 1764/17 - 3.2.04

D E C I S I O N
of Technical Board of Appeal 3.2.04
of 22 September 2020

Appellant: (Opponent)	Drägerwerk AG & Co. KGaA Moislinger Allee 53/55 23558 Lübeck (DE)
Representative:	Kuhlmann, Kai Bals & Vogel Patentanwälte Sendlinger Strasse 42A 80331 München (DE)
Respondent: (Patent Proprietor)	3M Innovative Properties Company 3M Center P.O.Box 33427 St. Paul, MN 55133-3427 (US)
Representative:	Mathys & Squire Mathys & Squire Europe LLP Theatinerstraße 7 80333 München (DE)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 2 June 2017 rejecting the opposition filed against European patent No. 2217332 pursuant to Article 101(2) EPC.**

Composition of the Board:

Chairman	A. de Vries
Members:	G. Martin Gonzalez
	W. Van der Eijk

Summary of Facts and Submissions

I. The opponent lodged an appeal, received on 2 August 2017, against the decision of the Opposition Division posted on 2 June 2017 rejecting the opposition filed against European patent No. 2 217 332, and simultaneously paid the appeal fee. The statement setting out the grounds of appeal was received on 12 October 2017.

II. Opposition was filed inter-alia under Article 100(a) EPC in combination with Articles 54 and 56 EPC for lack of novelty and lack of inventive step.

III. The Opposition Division held that claim 1 as granted was new and inventive. The following documents have been cited in opposition:

(D1) US 6,367,085 B1
(D2) GB 2 058 577 A
(D19) US 6,691,314 B1
(D23) US 6,328,031 B1

IV. The appellant-opponent requests that the decision under appeal be set aside and that the European patent No. 2217332 be revoked.

The respondent-proprietor requests that the appeal be dismissed and the patent thus be maintained as granted or, auxiliarily, that the decision under appeal be set aside and the patent be maintained on the basis of one of their auxiliary requests 20-22, 29, 30, 35 or 36, filed with the reply to the grounds of appeal on

27 February 2018, or on the basis of auxiliary requests 20-A, 21-A, 22-A or B, 30-B, 35-A, or 36-A or B, filed with letter of 14 August 2020.

V. In preparation for oral proceedings the Board issued a communication setting out its provisional opinion on the relevant issues.

Oral proceedings before the Board were duly held on 22 September 2020.

VI. The independent claims according to the relevant requests read as follows:

(a) Main request

"1. A respirator system comprising:
a foldable head cover assembly (12) including a face seal portion (40);
a visor assembly (16) attached to the head cover assembly; and
a head suspension system (14) removably attached to the visor assembly."

(b) Auxiliary request 20

Claim 1 as in the main request with the following amendments (emphasis added by the Board to indicate modified text):

"A respirator system comprising:
a foldable head cover assembly (12) including a head covering member (22) and a face seal portion (40) having a face seal that is at least partially elastic,

so that it can move with the user's jaw when the user talks;
a visor assembly (16) attached to the head cover assembly; ~~and~~
a head suspension system (14) removably attached to the visor assembly; and a fluid coupling arrangement (30) removably attached to the head covering member."

New independent claim 6 amended vis-a-vis claim 1 of the main request to add the following features at the end of the claim (emphasis added by the Board to indicate modified text):

" ...wherein the head suspension system comprises a headband member (50) adapted to be mounted on a wearer's head and at least two release mechanisms (58), each release mechanism configured to removably attach to the visor assembly; wherein the head suspension system in an unfolded state forms a generally planar configuration".

(c) Auxiliary request 20A

Independent claim 1 as in auxiliary request 20.

Independent claim 2 as independent claim 6 of auxiliary request 20.

(d) Auxiliary request 21

Claim 1 as in auxiliary request 20

Claim 6 reads as in auxiliary request 20, with the following feature added at the end of the claim (emphasis added by the Board to indicate modified text):

"...; and wherein the visor assembly includes a transparent visor member, that is rigid and flexible, so that it can be bent to form a generally cylindrical surface, when the respirator system is assembled, and so that it can be flattened to form a generally planar configuration, when the head suspension system is removed."

(e) Auxiliary request 21A

Independent claim 1 as in auxiliary request 21.

Independent claim 2 as independent claim 6 of auxiliary request 21.

(f) Auxiliary request 22

Claim 1 reads as in auxiliary requests 20 and 21, with the following feature added at the end of the claim (emphasis added by the Board to indicate modified text):

"...; wherein the visor assembly includes a transparent visor member, that is rigid and flexible, so that it can be bent to form a generally cylindrical surface, when the respirator system is assembled, and so that it can be flattened to form a generally planar configuration, when the head suspension system is removed."

Claim 6 as in auxiliary request 21.

(g) Auxiliary request 22A

Independent claims 1 as in auxiliary request 22.

Independent claim 2 as independent claim 6 of auxiliary request 22.

(h) Auxiliary request 22B

Claim 1 as in auxiliary request 22A with the following amendment (emphasis added by the Board to indicate modified text):

"A respirator system comprising:
a foldable head cover assembly (12) including a head covering member (22), the head covering member being foldable to form a relatively planar configuration, and a face seal portion (40)..."

Independent claim 2 as in auxiliary request 22A with the following features added at the end of the claim (emphasis added by the Board to indicate modified text):

"...; and wherein the head cover assembly with the visor assembly is foldable to form a relatively planar configuration."

(i) Auxiliary request 29

Claim 1 as independent claim 6 of auxiliary request 20 and reads as follows (emphasis added by the Board to indicate amendments vis-a-vis granted independent claim 1):

"A respirator system comprising:
a foldable head cover assembly (12) including a face seal portion (40);

a visor assembly (16) attached to the head cover assembly; and
a head suspension system (14) removably attached to the visor assembly; wherein the head suspension system comprises a headband member (50) adapted to be mounted on a wearer's head and at least two release mechanisms (58), each release mechanism configured to removably attach to the visor assembly; wherein the head suspension system in an unfolded state forms a generally planar configuration".

VII. The appellant-opponent argued as follows:

The subject-matter of claim 1 of the main request lacks an inventive step over the combination of D1 and the common general knowledge of the skilled person. Auxiliary requests 20, 20A, 21, 21A, 22, 22A and 22B are not admissible under Rule 80 EPC for adding a further independent claims to the set of claims. Claim 1 of auxiliary request 29 is not novel over D19 or D23. Its subject-matter does not involve an inventive step, starting from D1 in combination with common general knowledge, D2, D19 or D23.

VIII. The respondent-proprietor argued as follows:

Claim 1 of the main request involves an inventive step over the available prior art. The auxiliary requests 20, 20A, 21, 21A, 22, 22A and 22B are admissible under Rule 80 EPC. The subject-matter of claim 1 of auxiliary request 29 is new and inventive.

Reasons for the Decision

1. The appeal is admissible.

2. Background.

The invention relates to a respirator system including a head cover, a visor assembly and a head suspension system, see specification description paragraph [0001]. The respirator system has an improved structure for easier storage, shipping and maintenance (possibility of replacement of individual damaged parts), see paragraphs [0004]-[0005]. To this end, the system comprises a foldable head cover assembly including a face seal portion and a visor assembly attached to the head cover assembly. The structure further comprises a head suspension system removably attached to the visor assembly.

3. Main request - Inventive step

The appellant-opponent contests the finding of the Opposition Division that granted claim 1 involved an inventive step starting from D1, see reasons 4.

3.1 Granted claim 1 calls for a head cover that is foldable, without further specification. In particular the claim neither specifies the shape into which it folds (whether a planar configuration or any other shape) nor which portion of the cover folds or the extension or size of the folding portion. "To fold" in its usual sense is to arrange (a piece of cloth, a surface, etc.), so that one portion lies reversed over or alongside another (see OED); or to bend over or

double up so that one part lies on another part; fold a sheet of paper (see the ahdictionary.com submitted by the respondent-proprietor). Therefore as long as some part of a known head cover can be bent or doubled up so that it lies on another part of the head cover, it anticipates the contested feature.

Claim 1 also requires a face seal, a term that in its usual meaning in the technical field of respirators defines the area where the seal is effected, in this case on the face or just around it such as under the chin, thus excluding shoulder or neck seals.

3.2 Starting from D1, this document describes a head cover assembly (hood) that covers the wearer's head and neck and "drapes onto the shoulders", see column 1, lines 13-14. D1 describes that the hood is typically made of a non-woven material, paper, polymeric film or cloth, see column 1, lines 25-28, materials that are typically foldable, and also that the hood, made of that material, covers the head and neck and drapes onto the shoulders, see column 1, lines 12-14. The latter implies that the hoods need to have the necessary high foldability to allow forming folds in a loose manner and fall onto the shoulders so as to drape onto them. It is immediately apparent for the skilled person that this high degree of foldability of the described hood also allows at least part of the hood to fold onto some other parts of it. Therefore the described hood anticipates a claimed flexible head cover.

D1 also describes a visor assembly attached to the hood (head cover), see column 1, line 31, and that the head suspension 10 is removably attached (e.g. with VELCRO) to the visor assembly, see column 3, lines 32-47.

3.3 In sum, the Board finds that the only difference of the claimed respiratory system over D1 is that the foldable head cover assembly includes a face seal portion. In D1 sealing is taken to be at shoulder level where the shroud drapes onto them.

3.4 A face seal is seen as providing an alternative way of obtaining a sealed breathing space behind the mask. A corresponding objective technical problem can thus be formulated as how to obtain the sealed breathing environment in an alternative way.

3.5 It is not in dispute that sealing at face level is generally known to the skilled person, for instance for full face and half face respirators as discussed in the abstract of D1, where it is further added that "[T]he hood is used with supplied air sources in situations when full face of half face respirator is inconvenient". Against this background, the introductory portion of document D1 further describes common general knowledge of the skilled person in the art, namely that "[M]any times, hoods are the only viable devices to provide protection for workers with beards, long sideburns, small faces, or other features that may increase the difficulty of achieving a proper seal with other types of respirators", see D1, column 1, lines 1-12. Thus face seals and shoulder seals are known to the skilled person as two customary and alternative ways to obtain a sealing breathing space, where face seals may conveniently be used for workers without the described difficulties to achieve the seal at the face area - i.e. without beards, long sideburns or small faces.

The skilled person in search of an alternative seal would quite naturally, as a matter of obviousness draw on such common knowledge of different types of seals in masks. Thus they would consider the replacement of the shoulder skirt by its alternative, namely a face seal, in the hood described in D1 as a matter of obviousness in the light of the above knowledge.

3.6 In this respect it is not in dispute that the skilled person is to be considered an engineer involved in the design and development of respirator systems, who possesses the relevant textile and seal technology knowledge. The Board also considers that it is within the routine skills of such a skilled person to design appropriate seals for different parts of a wearer's head and shoulder area by the application of the above relevant knowledge, since they are customary components of respiratory systems. They would therefore have, contrary to the respondent-proprietor's submissions, no difficulty to devise a face seal for the hood described in D1 as a matter of routine, for example by shortening and moving the lower edge of the shroud so that it lies adjacent the wearer's chin, where it is held by an elastic band or other such means that are commonly used in the field.

The Board is also not convinced by the argument of the respondent-proprietor that the skilled person would solve the above problem by providing the seal as a part of the visor, and not as part of the foldable hood. Certainly some face masks obtain the sealing effect by urging the mask (or visor) against the user's face (see e.g. head harness 130 of D19 with rubber straps 132 for urging the mask against the user's face or elastic straps 28 of the face mask of D23). However, this design is incompatible with the design of D1, where the

primary function of the head suspension 10 is to secure the plastic lens, see D1, column 3, lines 32-ff., and maintain it at a distance to provide a gap between the lens and the wearer's face that allows air to circulate. The skilled person would not therefore replace the shoulder seal of the shroud by introducing a face seal on the visor as in e.g D19. They would rather as a matter of obviousness just modify the existing seal of the hood to place it at face level as explained above. In this way they would preserve the loose fit of the hood that is necessary for the system of D1 to properly function.

3.7 The Board concludes that claim 1 of the main request lacks an inventive step in the sense of Article 56 EPC.

4. Admissibility of auxiliary requests 20, 20A, 21, 21A, 22, 22A, 22B.

As already indicated by the Board in its communication, only in exceptional cases can the replacement of a granted single independent claim by two or more independent claims be considered to be occasioned by a ground for opposition. An exception might arise if two granted dependent claims were linked in parallel to a single independent claim. Then the filing of two independent claims including each one of the two parallel claim combinations might be possible, see Case Law of the Boards of Appeal, 9th edition 2019 (CLBA), IV.C.5.1.5.b), thus allowing separate fragments of the scope of protection afforded by the patent as granted to be retained. However, this exception does not apply to the addition of an independent claim directed at an aspect of the invention that was not included in the granted set of claims. As set out in CLBA, IV.C.5.1.1 the proprietor´s right to amend the patent is limited

by Rule 80 EPC to overcoming opposition grounds, and is not an opportunity to fix shortcomings of the granted patent, such as an insufficient number of independent or dependent claims to define all commercially viable embodiments, or to improve fallback positions in future revocation proceedings before a national court.

In the present case, at least one of the two independent claims of all auxiliary requests 20, 20A, 21, 21A, 22, 22A, 22B is directed at subject-matter that incorporates new features extracted from the description, that might moreover be material for the issue of patentability. These include a face seal portion having a face seal that is at least partially elastic, so that it can move with the user's jaw when the user talks. These independent claims are thus not straight combinations of granted claims and the above exception does not apply.

For the above reasons the Board considers that the filing of the two independent claims in these requests is not justified by a ground for opposition, contrary to Rule 80 EPC. The Board thus decided not to admit auxiliary requests 20, 20A, 21, 21A, 22, 22A, 22B.

5. Auxiliary request 29 - Novelty

Auxiliary request 29 includes a single independent claim 1, which is a straight combination of granted claims 1 and 11. Novelty of claim 1 is contested in the light of D19 or D23.

5.1 The Board notes that the respiratory system as claimed defines three different structural elements: a foldable head cover assembly including a face seal portion, a visor assembly and a head suspension system. Thus a

system where the face seal is included in the visor assembly and not in the head cover assembly would not fall under the claimed subject-matter.

5.2 D19 and D23 describe face masks, with a face seal provided on the visor. In D19, the actual face seal is synthetic rubber portion 150 that is attached to the window portion or visor 110, see column 2, lines 49-51, and not protective hood 200 which, as follows from figure 2, slips over the assembly of visor 110 and head harness 130 forming the actual face mask 100.

In D23, the seal member 58 (figures 4-11) or 123 (figures 14-16) are also fixedly attached to the visor or face mask 26, 112, at the inside of fasteners 62 or 121. The foldable head cover/hood 52 (figures 4-11) or 113 (figures 14-16) forms part of a separate assembly that is removably attached to the mask-face seal assembly or hood 24a-h, 113. Figures 4-11 and 14-16 illustrate different embodiments of the removable attachment between the two separate components, the hood or cover head 24,113 and the visor 26, 112 with the face seal.

These known hoods therefore do not include a face seal, in contrast to the claimed foldable head cover assembly. In sum, neither document describes a face seal included in the head cover assembly.

5.3 The Board concludes that the subject-matter of claim 1 is new over D19 and D23.

6. Auxiliary request 29 - Inventive step

The appellant-opponent challenges inventive step starting from D1.

6.1 Claim 1 of auxiliary request 29 includes the features of granted claim 11, which inter-alia require that the head suspension system in an unfolded state forms a generally planar configuration.

6.1.1 The appellant-opponent submits that this feature is, at least implicitly, disclosed in D1. However, there is no explicit disclosure of any planar configuration of the head suspension system, folded or unfolded, in D1. There is also, as explained in the following, no implicit disclosure of such a configuration.

6.1.2 The appellant-opponent submits in this respect that figure 2 discloses a generally planar structure. This figure, however, is merely a top view (column 2, lines 33 and 34) and not meant to be a 3 dimensional representation as are figures 1 and 3 of the same or similar support structure. Those figures show the entire structure of the head suspension system of D1 including crown straps 16, lens mount 18 with braces 22 which are far from "generally planar" in the normal sense of those terms as read by the skilled person with their mind willing to understand.

6.1.3 The appellant-opponent further submits that the different individual, disassembled components of the head suspension system are themselves generally planar before assembly; or even when connected to each other but before the individual straps and bands are linked to form the suspension system in its end state. This can be inferred, according to the appellant-opponent, in particular from column 5, lines 59 to 65, which suggests manufacture of the whole structure from a single piece of material that can be folded into shape.

6.1.4 The Board, however, considers that there is no unambiguous disclosure that all individual components may achieve a planar configuration. It is true that the components of the suspension system are shown to be flat, flexible bands or straps (back strap 14, forehead strap 12, crown strap 16 making up headband 11, column). However, it is less clear that lens mount 18, which normally forms a component separate from the headband 11 (column 5, line 51) and is connected to it by braces 22, is formed as an originally flat, flexible piece. To provide support for the stiff visor the mount must be relatively rigid, and is connected by braces 22 to the forehead strap 12. Furthermore, the entire head suspension system of D1 is "preferably manufactured from plastic, such as a thermoplastic, a thermoset or an elastomeric material. Thermoplastic material is the most preferred. Preferably, headband 11, lens mount 18, 38 and braces 22 are manufactured from the same material, although in some embodiments it may be desirable to utilize a variety of materials", see column 5, lines 35-42. The emphasis is on materials such as thermoplastic or thermoset plastic, that are customarily moulded or shaped into a stable form and are relatively rigid, though they may afford a certain degree of flexibility to adapt to a user's head. Elastomeric material is also mentioned, but it is not clear that the whole structure or only selected parts or sections are made from it; indeed this seems unlikely if the lens mount is to serve its purpose. Thus, there is no disclosure that all the different individual components when disconnected may adopt a planar configuration.

It rather appears likely that at least lens mount 18 is meant to maintain its curved shape while remaining connected to the headband via braces 22 to provide further support and rigidity. With such a rigid lens mount connected to the headband by the braces it seems unlikely that the entire structure can unfold into a generally planar configuration. Straps 16 (and 14) might unlatch but with the lens mount maintaining its orientation to the forehead strap because of the braces 22 straps 16 will then most likely point upwards. There is therefore no unambiguous disclosure of individual elements that can adopt a planar configuration, even if separated from the general structure.

6.1.5 There is also no disclosure that attachment points 15a, 15b connecting headband 11 and lens holder 18 can be disconnected. It is only described in respect of these attachments in column 5, lines 52,53 that "[T]he two pieces can be attached together by any method such as mechanical systems or adhesive". Neither attachment process unequivocally discloses a releasable connection. On the contrary, adhesive rather suggests the use of a fixed connection, while the type of mechanical attachment – releasable as well as non-releasable mechanical attachments are generally known - is not further specified. It can thus not be concluded that the attachments 15a, 15b are releasable and thus not that headband 11 and lens holder 18 can be disconnected. This can also not be conclusively inferred, contrary to the appellant-opponent's submissions, from the three depicted circles in the inside of headband 11 at the level of attachment point 15a (see figures 1 or 3), whose function or shape (they may be holes or cushioning pads) is not described in the document.

6.1.6 The above conclusion also applies to the structural variation described in column 5, lines 59-65, which is a variation where the "head suspension 10, 30 may be manufactured from a single piece of material that is converted (stamped, die cut, slit, etc.) to a shape that can then be folded to the desired final shape. In such a manufacturing method, headband 11, lens mount 18, braces 22, and optional crown strap 16 are converted from a single piece of material". It is neither implicitly nor explicitly described that the single piece of material before folding has a planar configuration. On the contrary the text mentions stamping, a process typically used to form three dimensional shapes from sheet material. Absent any specific detail the Board is unable to infer that, much less how, the entire suspension system, including rigid lens mount 18 and protruding braces 22, can be formed into a flat, planar structure that can be unfolded into a generally planar shape.

6.1.7 The Board thus concludes that D1 does not disclose the claimed head suspension system that forms a generally planar configuration in an unfolded state.

6.2 This is particular advantageous in terms of storage and/or shipping of the respirator system, see also patent specification paragraphs [0005]-[0007]. The corresponding technical problem can thus be formulated as how to improve the known system of D1 for shipping or storage.

6.3 None of the cited prior art documents teaches or suggests the provision of a head suspension system of the type of D1 having a generally planar unfolded state. In particular, D1 only teaches a manufacturing folding step, not an unfoldable ready for use structure, without moreover specifying whether the structure is planar when unfolded. Furthermore D1 does not address the issue of storing or shipping, and certainly does not offer any solution. Nor does the Board consider it straightforward to realize or redesign the suspension system of D1 to be foldable from or unfoldable to a generally planar configuration, see above. Thus, based on D1 alone the skilled person would not arrive at the claimed invention without inventive activity.

6.3.1 Likewise, the skilled person does not find the claimed solution to the problem of storage or shipping in the other cited documents.

D2 describes a helmet, closed by a transparent visor at the front, see figure 2. No detail of the construction of the head suspension is disclosed. The skilled person would thus find no relevant teaching in D2 that may lead to the solution of the contested claim 1 to the above formulated problem. The teachings of D19 and D23 are directed to fundamentally different systems to that of D1 in this respect. They teach face masks without a head suspension system but with elastic structures to urge the visor against the user's face. Because these documents teach rather different mask concepts the skilled person would not consider them particularly useful or relevant to further develop the known head suspension system of D1.

6.4 The Board thus finds that the subject-matter of claim 1 of auxiliary request 29 involves an inventive step in the sense of Article 56 EPC.

7. In conclusion the Board holds that the main request fails for lack of inventive step, while auxiliary requests 20 to 22B are not admissible under Rule 80 EPC. However,for the above reasons the Board holds that the claims as amended according to the auxiliary request 29 meet the requirements of the EPC. The Board is satisfied that the consequential amendments to the description bringing it into line with the amended claims are unobjectionable, and these were also not objected to by the appellant-opponent. The Board concludes that the patent can be maintained as amended pursuant to Article 101(3)(a) EPC.

Order

For these reasons it is decided that:

1. **The decision under appeal is set aside.**

2. **The case is remitted to the opposition division with the order to maintain the patent in amended form as follows:**

Claims:
Claims 1-5 of auxiliary request 29, filed with the letter dated 27 February 2018

Description:
pages 2 and 3 as filed during oral proceedings before the Board on 22 September 2020,
pages 4-6 as in the published patent specification

Drawings:
Figures 1-9 as in the published patent specification.

The Registrar: The Chairman:

G. Magouliotis A. de Vries

Decision electronically authenticated