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File Number: T 737/89 - 3.2.4

Application No.: 83 302 484.7

Publication No.: 94 757

Title of invention: Respirator

Classification: A62B 7/10

D E C I S I O N  
of 7 December 1992

Proprietor of the patent: Racal Safety Ltd

Opponent: Trelleborg AB

Headword:

EPC Articles 56 and 104(1)

Keyword: "Inventive step (confirmed)"  
"Request for apportionment of costs (rejected)"



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Boards of Appeal

Chambres de recours

Case Number : T 737/89 - 3.2.4

**D E C I S I O N**  
of the Technical Board of Appeal 3.2.4  
of 7 December 1992

**Appellant :** Trelleborg AB  
(Opponent) S - 231 81 Telleborg (SE)

**Representative :** Tommy Johansson  
Trelleborg AB (SE)

**Respondent :** Racal Safety Limited  
(Proprietor of the patent) No. 1 Building, Beresford Avenue,  
Wembley, Middlesex HA0 1QJ (GB)

**Representative :** Harrison, Philippa Dinah et al.  
A.A. Thornton & Co.  
Northumberland House  
303-306 High Holborn  
London WC1V 7LE (GB)

**Decision under appeal :** Decision of Opposition Division of the European  
Patent Office sent by post on 5 September 1989  
rejecting the opposition filed against European  
patent No. 94 757 pursuant to Article 102(2)  
EPC.

**Composition of the Board :**

**Chairman :** C. Andries  
**Members :** R.E. Gryc  
J.P. Seitz

## Summary of Facts and Submissions

- I. European patent No. 94 757 comprising seven claims was granted to the Respondent on the basis of European patent application No. 83 302 484.7 filed on 3 May 1983, claiming priority of 13 May 1982.

Claim 1 as granted reads as follows:

"A power assisted respirator comprising a face piece (1) adapted to cover the mouth and nose of the wearer and having an inlet (3) and an outlet, first one-way valve means (2) in the outlet which is adapted to open to permit air to flow out of the face piece when a predetermined pressure differential is established thereacross, pump means (5) comprising a fan (29) connected to the inlet (3) for supplying air to the face piece, filter means (11) for filtering air supplied by the pump means to the face piece, and a second one-way valve means (13) provided in the path of air flowing from the pump means to the face piece and which is adapted to close when the pressure downstream thereof exceeds that upstream thereof, characterised in that said predetermined pressure differential across the first one-way valve means (2) is selected relative to the operating parameters of the pump means (5) so that, during exhalation by the wearer, the pressure downstream of the second one-way valve means (13) exceeds the pressure upstream thereof so that the second one-way valve means (13) is closed and the predetermined pressure differential is established across the first one-way valve means (2) so that the first one-way valve means (2) opens, closing of the second one-way valve means (13) substantially stopping flow of air supplied by the pump means (5) so that the fan (29) of the pump means (5) is placed in a condition such that, although the pump means (5) continues to operate, little or substantially no air

is driven thereby, causing little or substantially no air to be drawn through the filter means (11)."

II. After an opposition filed by the Appellant had been rejected by a decision of the Opposition Division sent by post on 5 September 1989, the Appellant lodged an appeal on 27 October 1989 and paid the relevant fee simultaneously.

In his Statement of Grounds sent by facsimile on 3 January 1990 and confirmed by a letter received at the EPO on 8 January 1990, the Appellant requested that the decision of the Opposition Division be set aside and the impugned patent be revoked in its entirety on the ground of lack of disclosure of the invention in Claim 1 and lack of novelty and inventive step of its subject-matter in view of the state of the art disclosed in documents:

D1: DE-C-1 196 079

D2: US-A-4 011 865

D3: EP-A-0 066 451

and of an alleged prior use of a protective jacket for children described in a technical leaflet "Trelleborg - Protective jacket (type 36)" (66171) and in a copy of part of the Swedish daily newspaper SDS of 21 November 1975.

III. In his reply dated 14 May 1990, the Respondent contested the argumentation of the Appellant and made the following requests:

- the Appellant's reference for the first time to the alleged prior use of the protective jacket should be considered as late filed and therefore be refused under Article 114(2) EPC;

- additional costs having been incurred by the late filing of the prior use information, the costs should be apportioned in his favour under Article 104(1) EPC;
- the appeal should be rejected.

IV. In a first communication to the parties dated 23 May 1991 the Board pointed out that, in order to check whether the conditions of Article 100(b) EPC are met, the whole content of the patent should be taken into consideration and not only the subject-matter of Claim 1.

The Board expressed also a provisional opinion according to which FR-A-785 223 (document D4) cited in the impugned patent would disclose a state of the art closest to the invention.

In a second communication dated 7 August 1992, the Board gave its provisional interpretation of some parts of Claim 1 and emphasised that in the present case no reason of equity can be seen to make an exception to the principle that each party has to meet the costs it has incurred for the proceedings.

V. Both parties maintained their requests but neither of them asked for oral proceedings.

#### Reasons for the Decision

1. The appeal complies with Articles 106 to 108 and Rule 64 EPC and is admissible.

2. Late Submission (Art. 114(2) EPC)

The alleged prior use raised for the first time by the Appellant in his Statement of Grounds concerns one of the Appellant's own products already put on the market in 1975.

The Appellant thus cannot invoke the excuse that he did not know of its existence. Therefore he should have submitted it during the opposition period. Since, moreover, the prior used protective jacket does not appear to constitute a prior art closer to the invention than the art disclosed in documents D1 to D4, the Board considers that said evidence has not been submitted in due time within the meaning of Article 114(2) EPC and has decided to exercise the discretion allowed for disregarding it.

3. Sufficiency of disclosure (Article 100(b) EPC)

In order to appreciate whether the invention is disclosed in a manner sufficiently clear and complete for it to be carried out by a skilled person (Article 100(b) EPC), not only Claim 1 but also the description must be taken into consideration. In the present case, there is no doubt that the description of patent EP-B-94 757 clearly discloses the invention.

Accordingly the Board raises no objection according to Article 100(b) EPC.

4. Interpretation of Claim 1 (Article 69(1) EPC)

Before a decision on the patentability of the subject-matter of Claim 1 can be taken, the following parts of the claims should be interpreted as follows.

4.1 Column 6, lines 55, 56 and 61 to 65 of the specification:

In the light of lines 50 to 58 of column 4 of the description, it becomes clear that the interpretation to be given to this part of Claim 1 is that the closure of inlet valve (13) is due only to the fluid pressure differential thereacross and takes place as soon as it is established. This interpretation thus involves implicitly that inlet valve (13) be unbiased.

4.2 Column 7, lines 5 to 9:

In the light of the description (see column 6, lines 14 to 17), this passage of Claim 1 clearly means not only that no air is supplied by the pump means to the mask but also that no air is driven by and drawn through the fan itself.

5. Novelty (Article 54 EPC)

5.1 Document D1 discloses a respirator which is not power-assisted unlike the respirator according to Claim 1.

5.2 Document D2 describes a power-assisted respirator having only an air inlet provided with valve means but no specific outlet so that air constantly enters the mask and flows out through clearances around the guard glass of the mask or between the mask and the face of the user.

5.3 Document D3 is a document forming part of the state of the art pursuant to Article 54(3) EPC for all the designated Contracting States. The respirator according to Claim 1 is distinguished from this state of the art by the fact that the valve parameters are so selected in relation to the pump characteristics that little or substantially no air

is driven by the pump means although it continues to operate, contrary to the known respirator wherein the pump is switched off.

- 5.4 Finally, although the respirator according to Claim 1 provides the same result as the apparatus known from document D4 i.e. the amount of air drawn through the filter does not exceed the quantity of air supplied to the face piece, the means embodied according to Claim 1 are different from the known one in that the inlet valve is unbiased and in that the known by-pass is replaced by an adaptation of the pump means to the outlet valve means.

Consequently, the subject-matter of Claim 1 is novel within the meaning of Article 54 EPC compared to the state of the art disclosed in the documents D1 to D4 cited during the present proceedings.

6. The state of the art closest to the invention

- 6.1 Having regard to Article 56 EPC, documents within the meaning of Article 54(3) EPC e.g. document D3 are not to be considered in deciding whether the subject-matter of the patent involves an inventive step.

Among the other documents cited during the proceedings, document D4 appears to disclose the state of the art closest to the invention mainly by the fact that, like the respirator according to Claim 1, the respirator known from this document also prevents more air being filtered than needed (see page 2, lines 2 to 4 of D4).

- 6.2 The known respirator is power-assisted and comprises an inlet valve (39) and an outlet valve (41) which can be linked together with a retracting spring that holds the valves closed at rest. A pressure differential is thus



predetermined across the outlet valve and a compensating air sac (25) is needed for regulating the inlet air flow. The operating parameters of the pump means (9) are selected so that an excess pressure be maintained in manifold (26) in order to counterbalance the tensions of the diaphragm of inlet valve (39) and of the spring between the two valves (39) and (41), so that inlet valve (39) closes at the point when the wearer is not inhaling. Vice versa the strength of the spring attaching the outlet valve to the inlet valve (that predetermines the pressure differential across the outlet valve) is to be selected relative to the operating parameters of the pump. When the wearer exhales, the inlet valve closes and the outlet valve opens and although the pump means continues to operate, no air is supplied to the face piece. The air already filtered but still not breathed is recycled through a by-pass (10) and driven repeatedly by the fan of the pump around a closed circuit as long as the inlet valve remains closed.

6.3 Consequently, keeping in mind the interpretations under sections 4.1 and 4.2, the respirator according to Claim 1 differs mainly from this closest state of the art in that:

- its inlet valve is unbiased and closes only when the pressure downstream thereof exceeds that upstream thereof; and
- the pump means is such that although it continues to operate, little or substantially no air is driven thereby when the inlet valve is closed, contrary to the known respirator wherein the air continues to circulate through a by-pass and the fan.

7. Problem and solution

7.1 When taking into account the above-mentioned differences, the problem to be solved by the person skilled in the art who starts from the closest state of the art described in document D4 appears thus to reside in the finding of a simplified and more economic alternative to the known apparatus.

7.2 The solution according to the invention (i.e. the use of an unbiased inlet valve in combination with pump means having parameters specifically selected in relation with those of the outlet valve means), permits effectively the simplification of the inlet valve means and the suppression of both the valved return path and the compensating air sac of the prior apparatus.

8. Inventive step

8.1 As regards inventive step, it should be first considered whether it would have been reasonable to expect the person skilled in the art starting from the closest state of the art disclosed in document D4 just to envisage the modification of the structure of the known respirator in order to obtain with the new one the same final result as far as the effective use of the filter means is concerned.

Before examining whether the skilled person could have modified the respirator known from document D4 by using the teachings of the other documents, the question to be answered is whether he would have done so in expectation of some improvement or advantage (see Decision T 2/83, OJ EPO 1984, 265). At first sight, since the known apparatus appeared to bring a satisfactory solution to the problem of the economical use of the filters, the skilled person had a priori no reason for modifying the system.

Also with such a type of apparatus for protecting the health and even saving the life of the wearer, the importance of good functioning is so important that the skilled person would tend more to increase the power and capacity of the pump means for reducing the risks of failure and to compensate the leakages than to decrease it.

Consequently, the solution offered by document D4, i.e. the provision of pump means with more capacity than needed in combination with a by-pass for recycling the excess of unbreathed filtered air would appear more satisfactory and acceptable to the skilled person than a system without by-pass and a blower of insufficient capacity for overcoming the pressure increase during exhalation according to the invention.

This could also be a good reason for the skilled person who starts from document D4 for continuing to observe the taught basic principle mentioned above.

Since, moreover, the person skilled in the art reading document D4 would regard the apparatus disclosed therein as including a bag for compensating the variations of breathing, it is doubtful that he would omit it merely for economic reasons.

8.2 Let it be assumed that the skilled person would envisage modifying the respirator known from document D4 for arriving at a more simple and more economic alternative. The question now is whether he would find in the state of the art sufficient and reliable information or hints that would lead to the invention.

8.2.1 From document D1 he would learn the use of two independent unbiased valve means for the inlet and outlet of a mask; but since the disclosed apparatus is not power-assisted, the skilled person would not be particularly led to combine the described features with those of the power-assisted respirator of document D4. Also, of course, the skilled person would not find any hint about a possible relation between the characteristics of the outlet valve means and the parameters of a hypothetical pump means.

Since, moreover, in document D4 a slight overpressure in the valve means is recommended (see page 3, lines 7-11) and leakages are considered possible, the skilled person would not be inclined to replace the tensioned diaphragm of document D4 with an unbiased valve according to document D1 without a constant circulation of air through the mask.

8.2.2 Such a basic principle of feeding filtered air continuously into the mask is incorporated in the respirator described in document D2 but in combination with biased valve means. Since it is contradictory to the economic effective use of the filters which is taught to be essential in document D4, the skilled person had no reason whatsoever to combine the teachings of these two disclosures and even if he had done so, it would not have led him to the invention, particularly since the specific relation between the characteristics of the outlet valve and the operating parameters of the pump means according to Claim 1 of the impugned patent is still lacking.

8.2.3 From the other documents cited during the proceedings the skilled person also would not have learned of all the features of Claim 1. Consequently, even in combining the teachings of several of the above-mentioned prior

documents, the person skilled in the art would neither have been able to gather all the features recited in Claim 1 nor to find any hint leading him to the solution proposed according to the invention.

8.3 For the foregoing reasons, the subject-matter of Claim 1 is to be considered as involving an inventive step within the meaning of Article 56 EPC.

9. In view of the above, the patent in suit can be maintained as granted.

10. Apportionment of costs (Article 104(1) EPC)

In the established jurisprudence of the European Patent Office only special circumstances such as an abuse of procedure make it equitable to award costs against one of the parties.

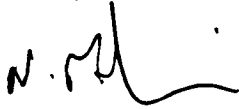
The Board however cannot detect in the present case a reason of equity to make an exception to the principle that each party has to meet the costs he has incurred for the proceedings, particularly since the late filed documents only needed little consideration due to the fact that only three pages were involved, with rather little information. Furthermore, it should be stated that these documents were only brought forward to show that fans existed and were used in a protective jacket.

Order

For these reasons, it is decided that:

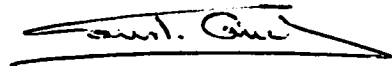
1. The appeal is dismissed.
2. The Respondent's request for apportionment of costs is refused.

The Registrar:



N. Maslin

The Chairman:



C.A.J. Andries

R.G.