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DECISION
of 12 November 1998

Case Number: T 0057/97 - 3.4.2
Application Number: 90114625.8
Publication Number: 0411546
IPC: B01D 39/16, A47J 31/06
Language of the proceedings: EN

Title of invention:
Coffee filter material and coffee filter bag

Applicant/Patentee:
Yamanaka Industry Co., Ltd., et al

Opponent:
Ohki Co., Ltd.

Headword:
-

Relevant legal provisions:
EPC Art. 114(2), 123(3), 123(2), 54, 56

Keyword:
"Main and first to third auxiliary requests, not submitted in due time (yes)"
"Fourth auxiliary request: submitted in due time (yes)"
"Extended protection (no)"
"Additional subject-matter (no)"
"Novelty (yes)"
"Inventive step (yes)"

Decisions cited:
-

Catchword:
-



Case Number: T 0057/97 - 3.4.2

D E C I S I O N
of the Technical Board of Appeal 3.4.2
of 12 November 1998

Appellant:
(Proprietor of the patent)

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Respondent:
(Opponent)

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Decision under appeal:

Decision of the Opposition Division of the
European Patent Office posted 28 October 1996
revoking European patent No. 0 411 546 pursuant
to Article 102(1) EPC.

Composition of the Board:

Chairman: E. Turrini
Members: M. Chomentowski
M. Lewenton

Summary of Facts and Submissions

1. European patent No. 0 411 546, citing EP-A-170461, was granted with the 5 following claims on the basis of European patent application No. 90 114 625.8.

"1. A coffee filter material having a layer of a filter nonwoven fabric (11, 14) composed of thermoplastic organic synthetic fibers, wherein the filter nonwoven fabric satisfies the relationship (1) to (4):

$$3 \leq x \leq 30 \quad (1)$$

$$y \geq 0.2x \quad (2)$$

$$3 \leq r_{30} \quad (3)$$

and

$$r_{70} \leq 50 \quad (4)$$

wherein x represents a basis weight (g/m²) of the filter nonwoven fabric, y represents a cumulative volume value (cm³/g) of fine pores in the filter nonwoven fabric, determined by a mercury porosimeter, r₃₀ represents a radius (μm) of the fine pores observed when the volumes of the fine pores in the filter nonwoven fabric are cumulated from the small pore radius side and the cumulative volume value becomes equal to 0.3y, and r₇₀ represents a radius (μm) of the fine pores observed when the volumes of the fine pores in the filter nonwoven fabric are cumulated from the small pore radius side and the cumulative volume value becomes equal to 0.7y, and wherein the thermoplastic organic synthetic fibers constituting the filter nonwoven fabric (11, 14) have an average diameter of 15 μm or less and the filter nonwoven fabric is capable of adsorbing at least 0.5g/g of an oil and fat component extracted from coffee in the wet state."

"2. The coffee filter material as set forth in claim 1, wherein a supporting layer (15) comprising at least one sheet of a reinforcing fabric having no substantial influence on the filtering property of the filter nonwoven fabric layer is laminated and combined with the filter nonwoven fabric layer (14) to form an integrated composite sheet material (13)".

"3. The coffee filter material as set forth in claim 2, characterized in that the composite sheet material has an air permeability of 10 to 250 cm³/cm² sec."

"4. A bag-shaped member for coffee filter bag, formed from the coffee filter material as set forth in any of claims 1 to 3."

"5. A coffee filter bag comprising:
a bag-shaped member (2) as set forth in claim 4;
a coffee powder (3) contained in the bag-shaped member;
and
a hanging member (4) fixed on at least one end portion thereof to the bag-shaped member."

II. An opposition was filed by the opponent against the patent on the basis of lack of novelty and/or lack of inventive step having regard inter alia to an alleged prior public use.

III. The patent, in amended form, was revoked for lack of inventive step having regard to this prior public use and, i.a., a newly cited document, GB-A-2132939.

This decision was taken on an amended claim 1 which concerned a bag-shaped member for a coffee filter bag formed from

(a) a layer of a filter melt blown nonwoven fabric composed of polypropylene fibers having specific features and properties listed in features (b) to (f) of the claim,

and from

(g) a supporting layer (15) comprising at least one sheet of a reinforcing fabric having no substantial influence on the filtering property of the filter melt blown nonwoven fabric layer is laminated and combined with the filter melt blown nonwoven fabric layer (14) to form an integrated composite sheet material (13)" having an air permeability of 10 to 250 cm³/cm² sec.

The opposition division took the following view:

The subject-matter of the submitted claim 1 was not known in the art and was thus new..

It was established that a material according to the alleged prior public use was known as suitable for making coffee filters. As mentioned in the patent in suit, the object of the claimed technique was to provide a coffee filter bag suitable for obtaining a high quality coffee extract in a short time by appropriately filtering fine powder of coffee while at the same time adsorbing oil and fat components from the coffee extract. However, the skilled person would immediately realize that, because of the melt blown production process of the known filter material, the real problem of the prior art, when making a coffee filter bag, would be to increase the strength of this filter bag. For this, he has only a few possible techniques, for instance by folding the filter material

of the bag. He can also form fiber-fused bonded areas in the fibrous filter material and bond it to a reinforcing layer, as is known from GB-A-2132939, wherein the insufficient strength of a melt blown nonwoven fabric is increased by these means, and in view of the problem, this document, which concerns medical wraps, cannot be disregarded. Therefore, the subject-matter of the submitted claim 1 did not involve an inventive step.

- IV. The appellant (patent proprietor) lodged an appeal against this decision.
- V. In the statement of grounds of appeal of 7 March 1997, it was requested to maintain the patent either on the basis of the claims annexed to the impugned decision, or according to new amended claims of an auxiliary request. Then after written observations of the respondent (opponent), who filed JP-A-62-83896 with an English translation, the appellant filed, with letter dated 3 December 1997, a new set of claims as only request to replace the claims currently on file, together with results of comparative measurements.
- VI. The Board of appeal issued on 9 July 1998 summons to the oral proceedings which had been requested auxiliarily by the appellant.
- VII. In preparation of said oral proceedings, the appellant filed with letter dated 12 October 1998 two new sets of claims as main and auxiliary requests to replace the claims currently on file and, then, by telefax of 10 November 1998, the appellant filed 4 new sets of claims as main and first to third auxiliary requests, to replace the claims currently on file.

The main request filed with this last telefax contained one main claim and 8 dependent claims, whereby claim 9 is identical to claim 5 as granted except for the words "any of claims 1 to 8" being substituted for the "claim4", and claim 1 and dependent claim 6 read as follows:

"1. A bag-shaped member for a coffee filter bag comprising a layer of a filter melt blown nonwoven fabric (11, 14) composed of polypropylene fibers having an average diameter of 15 μm or less, wherein the filter melt blown nonwoven fabric satisfies the relationships (1) to (4):

$$3 \leq x \leq 30 \quad (1)$$

$$y \geq 0.2x \quad (2)$$

$$3 \leq r_{30} \quad (3)$$

and

$$r_{70} \leq 50 \quad (4)$$

wherein x represents a basis weight (g/m^2) of the filter melt blown nonwoven fabric, y represents a cumulative volume value (cm^3/g) of fine pores in the filter melt blown nonwoven fabric, determined by a mercury porosimeter, r_{30} represents a radius (μm) of the fine pores observed when the volumes of the fine pores in the filter melt blown nonwoven fabric are cumulated from the small pore radius side and the cumulative volume value becomes equal to $0.3y$, and r_{70} represents a radius (μm) of the fine pores observed when the volumes of the fine pores in the filter melt blown nonwoven fabric are cumulated from the small pore radius side and the cumulative volume value becomes equal to $0.7y$, and the filter melt blown nonwoven fabric is capable of adsorbing at least $0.5\text{g}/\text{g}$ of an oil and fat component extracted from coffee in the wet state,

characterized in that the bag-shaped member has confronting front and back surface portions (5, 6) comprising the layer of a filter melt blown nonwoven fabric (11, 14), a closed peripheral portion (7) and a top end portion, which top end portion is closed after coffee powder has been filled, wherein each of the front and back surface portions have a plurality of fiber-fuse-bonded areas (12) in which areas a portion of the polypropylene fibers in the filter layer is fuse bonded to other portions of the fibers in the filter layer."

"6. The bag-shaped member for a coffee filter bag as set forth in any of claims 1 to 5 wherein a supporting layer (15) comprising at least one sheet of a reinforcing fabric having no substantial influence on the filtering property of the filter nonwoven fabric layer, is laminated and combined with the filter nonwoven fabric layer (14) to form an integrated composite sheet material (13), and the front and back surface portions comprise the integrated composite sheet material."

The first, second and third auxiliary request submitted with this fax were all concerned with bag-shaped members for a coffee filter bag formed from or comprising a layer of a filter melt blown nonwoven fabric.

VIII. During the oral proceedings of 12 November 1998, the appellant filed a new main request and seven auxiliary requests of which the first three new auxiliary requests concerned bag-shaped members for a coffee filter bag comprising a layer of a "filter nonwoven fabric", and not bag-shaped members for a coffee filter bag comprising a layer of a "filter melt blown nonwoven fabric", as in the main and three auxiliary requests filed with the fax of 10 November 1998. The appellant

requested that the decision under appeal be set aside and the patent be maintained according to this new main request or to the new first, second or third auxiliary requests, or according inter alia to the fourth auxiliary request, which is identical with the main request filed with the telefax of 10 November 1998. Moreover, it was requested that the description be adapted to the new claims, the drawings remaining the same as in the granted patent.

IX. The appellant submitted the following arguments in support of his requests:

Indeed, the main and first to third requests have been submitted only at the beginning of the oral proceedings; this is because it was suddenly realised that the words "melt blown" in the expression "filter melt blown nonwoven fabric", which had been voluntarily inserted in the claims, restricted the scope of the patent in an unnecessary way. This restriction was not contained in the granted claims, and there was a relevant basis for items without said restriction in the original disclosure. Therefore, the amendment, although late, was admissible.

The fourth auxiliary request intends to meet the objections of the Board and it is admissible as to the extent of protection or of the subject-matter.

The invention of the fourth auxiliary request concerns bag shaped members for a coffee filter bag. This is a very specific technical field, which is not the same as the field of tea bags. In particular, the conditions of coffee dipping and those of tea dipping, for instance the time of dipping as well as the interaction of tea or coffee with the filter material are different and are not transposable in an obvious way from one technical field to the other. Starting from the

acknowledged material, which has no fiber-fuse bonded areas, neither EP-A-170461, wherein in particular there is no teaching with respect to an advantageous influence of fiber-fuse-bonded areas in the filter walls, nor JP-A-62-83896, which for such items as tea bags, but also as shoe bags, uses inter alia fiber fuse bonded areas for holding layers of the bags together, and even less GB-A-2132939, which concerns sterilizable medical wraps, lead the person skilled in the art of coffee filter bags to the presently claimed product, which thus involves an inventive step.

- X. The respondent argued in substance as follows in support of his request that the appeal be dismissed:

It is not admissible to file new amended claims, and especially new amended dependent claims, which were not in the patent as granted, and which emphasize new embodiments of the invention. This puts the invention in a new light and it can be considered that the numerous amendments resulting in all the requests result in the protection conferred being extended in an inadmissible way. It is also to be noted in this respect that in particular these new dependent claims are not an answer to the opposition, which answer should be to provide new main claims which meet the objections put forward by the opposition. Therefore, these requests are also inadmissible for this reason.

Starting from the acknowledged coffee filter bags, the materials and the techniques, for instance the fiber-fuse bonding of fibers in the filter layer and with further reinforcing layers, as well as the effect of such means, are generally known in the art. For this, the skilled person is not restricted to the technical field of coffee filter bags, but he takes into account the neighbouring field of tea bags and finds tea bags such as those known from JP-A-62-83896, or other

technical fields using filtering material, for instance that of GB-A-2132939, which is for sterilizable medical wraps, because the problems to be solved and the means used for this purpose are the same in all this technical fields.

Therefore, the subject-matter of claim 1 of the fourth auxiliary request is obvious in view of the relevant prior art and, thus, it lacks an inventive step.

Reasons for the Decision

1. The appeal is admissible.
2. *Main and first to third auxiliary requests*

As set forth in the first part of the present decision, the appellant filed during the oral proceedings of 12 November 1998 a new main request and three new auxiliary requests which concerned bag-shaped members for a coffee filter bag comprising a layer of a "filter nonwoven fabric", and not bag-shaped members for a coffee filter bag comprising a layer of a "filter melt blown nonwoven fabric", as in the main and three auxiliary requests filed with the fax of 10 November 1998. The appellant submitted the argument that the terms "melt blown" were not contained in the claims as granted and were mentioned only as one of possible options in the original disclosure, and that, therefore, this amendment, although late, did not increase the protection or bring additional subject-matter.

However, the Board pointed out that since at least the impugned decision, i.e. since at least part of the opposition proceedings, the claims in the plurality of requests which had been successively filed by the appellant consistently contained the words "melt blown"; by deleting now said words, 4 fresh cases were submitted, for which it was indispensable at least for the Board to review again all the submissions of the parties, observations and/or conclusions of the opposition division and of the Board itself with respect to documents on file and, additionally, to results of comparative measurements which had already been filed, i.e. to reopen the case to check whether arguments or documents which have been put aside were not suddenly made relevant having regard to the broadened subject-matter resulting from this deletion. The argument of the appellant that just before the oral proceedings he had suddenly got aware that the restriction provided by inserting these words "melt blown" during the opposition proceedings was, in his opinion, not necessary and that they could be deleted again in an admissible way cannot convince, because he had had many opportunities to do that and, now, at the oral proceedings, it could not be recognized directly, whether it was possible to achieve said review of the file without postponing said oral proceedings.

The respondent, who had already objected to the amendments in general, concurred to the objection of the Board.

Therefore, since these 4 fresh cases constitute a new fact which is not submitted in due time in the sense of Article 114(2) EPC, the main request and the first to third auxiliary requests, which all are concerned by this deletion of the words "melt blown", are disregarded.

3. *Fourth auxiliary request*

3.1 Admissibility of the amendments

It is first to be noted that, as mentioned in the first part of the present decision, the fourth auxiliary request is identical with the claims filed with telefax two days before the oral proceedings. Although this request was not submitted in due time, it can be considered, in view of the issue in the present decision, as a bona fide attempt to better meet the objections contained in the annex of the summons to oral proceedings and, therefore, it is not disregarded (Article 114(2) EPC).

Present claim 1 and the dependent claims 2 to 5 concern, as claim 4 as granted, a bag-shaped member for coffee filter bag. Present claim 1 results, for a bag formed from a layer of filter melt-blown nonwoven fabric, from the combination of claims 1 and 4 and further features, such as the polypropylene, from the description. Moreover, according to present claim 1 in combination with present dependent claim 6 or claims 7 or 8 depending therefrom, said bag-shaped member which comprises a layer of filter melt blown nonwoven fabric can additionally comprise at least one sheet of a reinforcing fabric having no substantial influence on the filtering property of the filter nonwoven fabric layer, this being based on the combination of the features of inter alia claims 1, 2 and 4. The coffee filter bag of claim 9 is based on the coffee filter bag resulting inter alia from the combination of all the claims as granted.

The respondent has strongly objected against the new dependent claims, which emphasize some of the embodiments or examples of carrying out the claimed technique, and argued in this respect that it was not the function of opposition proceedings or of subsequent appeal proceedings to give to the patent proprietor the opportunity to provide new dependent claims which are not necessary for answering the objections of the opposition itself. In his opinion, this way of proceeding resulted in the scope of protection of the patent being enlarged.

However, these objections cannot convince for the following reason:

In accordance with Article 69(1) EPC and the Protocol on the interpretation of Article 69, the scope of protection is determined by the terms of the claims, interpreted using the description and drawings. In the present case, starting from a material in claim 1 as granted, there was no enlargement of protection by claiming a bag-shaped member of this material, i.e. a more specifically defined product. The respondent has not pointed out any particular feature in the dependent claims which would result in enlargement of protection. The present dependent claims, which restrict the protection to particular forms of bag-shaped members, do not enlarge the protection either. Moreover, although it is indeed not the function of opposition proceedings to give the opportunity to file new dependent claims, however, in the present case, the amendments are not concerned only by said new dependent claims; on the contrary, claim 1 has been considerably amended and concerns no more a coffee filter material,

but a bag-shaped member for a coffee filter bag and, due to the shift resulting from these amendments of claim 1 and since no deficiency mentioned as inadmissible in the Convention could be detected, they can be admitted.

The Board is also satisfied that there is a basis for these claims in the original disclosure.

Therefore, the fourth auxiliary request satisfies the requirements of Article 123(3) and (2) EPC that the claims of the European patent may not be amended in such a way as to extend the protection conferred and that the European patent may not be amended in such a way that it contains subject-matter which extends beyond the content of the application as filed, respectively.

3.2 Novelty

A bag-shaped member for a coffee filter bag according to present claim 1 does not form part of the state of the art and is thus new in the sense of Article 54 EPC, and this has not been contested by the respondent either.

3.3 Inventive step

Since present claim 1 submitted by the appellant is in the two-part form suggested in Rule 29(1) EPC, it is considered that a bag-shaped member for a coffee filter bag is acknowledged, comprising a layer of a filter melt blown nonwoven fabric (11, 14) composed of

polypropylene fibers having an average diameter of 15 μm or less, wherein the filter melt blown nonwoven fabric satisfies the relationships (1) to (4):

$$3 \leq x \leq 30 \quad (1)$$

$$y \geq 0.2x \quad (2)$$

$$3 \leq r_{30} \quad (3)$$

and

$$r_{70} \leq 50 \quad (4)$$

wherein x represents a basis weight (g/m^2) of the filter melt blown nonwoven fabric, y represents a cumulative volume value (cm^3/g) of fine pores in the filter melt blown nonwoven fabric, determined by a mercury porosimeter, r_{30} represents a radius (μm) of the fine pores observed when the volumes of the fine pores in the filter melt blown nonwoven fabric are cumulated from the small pore radius side and the cumulative volume value becomes equal to $0.3\bar{y}$, and r_{70} represents a radius (μm) of the fine pores observed when the volumes of the fine pores in the filter melt blown nonwoven fabric are cumulated from the small pore radius side and the cumulative volume value becomes equal to $0.7\bar{y}$, and the filter melt blown nonwoven fabric is capable of adsorbing at least $0.5\text{g}/\text{g}$ of an oil and fat component extracted from coffee in the wet state.

However, this acknowledged bag-shaped member for a coffee filter bag does not comprise the features of the second part of present claim 1, that the bag-shaped member has confronting front and back surface portions comprising the layer of a filter melt blown nonwoven fabric, a closed peripheral portion and a top end portion, which top end portion is closed after coffee

powder has been filled, wherein each of the front and back surface portions have a plurality of fiber-fuse-bonded areas in which areas a portion of the polypropylene fibers in the filter layer is fuse bonded to other portions of the fibers in the filter layer.

The appellant has credibly argued as follows:

Coffee filter bags belong to a specific technical field, which is different from other fields such as tea filter bags wherein, although permeation also takes place, the conditions, for instance time of dipping, and effects and interactions with the bags are different. This can be seen already when considering the international classification of the patent in suit and of the cited documents.

Thus, the relevant starting point is a coffee filter bag. Proper penetration of water through the material of the filter bag into the filter bag in coffee bag filtration and proper penetration of coffee out of the filter bag have constituted a problem of such acknowledged coffee bags. With conventional coffee filter bag material, the permeation times of water and coffee have been long, and the taste and flavour of the coffee extract have been degraded. According to the present invention, the problems have been solved by forming the coffee filter bag with a specific polypropylene fiber material forming the walls of the filter bag and it has been surprisingly found that, as shown by the results in the comparative experimental report filed on December 3, 1997, by providing fiber-fuse-bonded areas in the filter material the extraction speed will be enhanced and the quality of the coffee will be improved.

The brewing infusion bags, for instance for coffee filtering, known from **EP-A-170461**, may be made from a nonwoven fiber made of polymeric material. However, this material differs from polypropylene and there is no teaching with respect to an advantageous influence of fiber-fuse-bonded areas in the filter walls.

JP-A-62-83896 concerns a steeping bag made from two layers of nonwoven fabrics which are spot-bonded at locations at the walls of the steeping bags; however, said bonding may be done by accomplished by a resin or by mechanical interlacing based on needle punching, as mentioned in page 11, second paragraph of the corresponding English translation. This document creates a strong prejudice against increasing the bonding areas, which are just for holding the sheets together and which should be kept as small as possible, as see page 10, second paragraph of said translation. So, the bonded parts in the front and back surfaces of the bag only have a function of holding sheets, and not a function of increasing the permeation of water and coffee through the bag material, with or without a reinforcing fabric, as in the present invention, whereby it is to be noted that this document concerns such different items as bags for shoes and, even when tea bags are mentioned, this is indeed to be considered as a different technique which is not directly transposable to the technical field of coffee filter bags.

Since **GB-A-2132939** (see the abstract) concerns sterilizable medical wraps, it is in no way related to coffee filter bags and the definite conditions and problems thereof so that it can be considered that the person skilled in the art of coffee filter bags would not take into account the content of this document for transposing it to improve the permeation capability of his coffee filter bags.

The other documents are less relevant.

The respondent has argued that the materials and fuse bonding methods were generally known and used in the art and that it could not be considered that the person skilled in the art of coffee filter bags would ignore the improvements in tea filter bags, which in any case belong to a closely related technical field and that, therefore, the subject-matter of the claims lacked an inventive step in view of the documents on file. These arguments however did not convince the Board because, as credibly argued by the appellant, there is no derivable indication in this prior art to provide fiber-fuse-bond areas in the front and back surfaces of the coffee filter bag to enhance the extraction speed and thus improve the quality of the coffee, whereby conditions such as time of dipping are generally different in tea and coffee.

Therefore, having regard to the state of the art, the subject-matter of claim 1 of the fourth auxiliary request is not obvious to a person skilled in the art of coffee filter bags and, thus, it involves an inventive step in the sense of Article 56 EPC.

Thus, claim 1 is patentable in the sense of Article 52(1) EPC and the same applies to claim 9, which concerns the same invention in coffee filter bag terms.

Therefore, the patent can be maintained in amended form on the basis of the fourth auxiliary request and it is not necessary to take into account the appellant's further requests (Article 102(3) 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 1 to 9 of the fourth auxiliary request presented during the oral proceedings of 12 November 1998,

Description to be adapted,

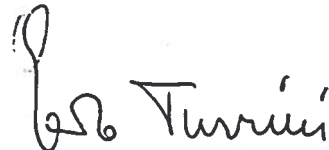
Figures 1 to 11 of the patent specification.

The Registrar:



P. Martorana

The Chairman:



E. Turrini

