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**D E C I S I O N
of 11 October 2001**

Case Number: T 0566/98 - 3.2.6

Application Number: 88830372.4

Publication Number: 0358837

IPC: B30B 9/16

Language of the proceedings: EN

Title of invention:

Dehydrating screw press with two or more helical elements with intermeshing profiles

Patentee:

FRATELLI BABBINI & C. sas

Opponent:

Stord Bartz A/S

Headword:

-

Relevant legal provisions:

EPC Art. 56

Keyword:

"Inventive step (yes, after amendments)"

Decisions cited:

T 0312/94

Catchword:

-



Case Number: T 0566/98 - 3.2.6

D E C I S I O N
of the Technical Board of Appeal 3.2.6
of 11 October 2001

Appellant: FRATELLI BABBINI & C. sas
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Representative: Modiano, Guido, Dr -Ing.
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Respondent: Stord Bartz A/S
(Opponent) C. Sundtsgt. 29
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Representative: Flügel, Otto, Dipl.-Ing.
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Decision under appeal: Decision of the Opposition Division of the
European Patent Office posted 1 April 1998
revoking European patent No. 0 358 837 pursuant
to Article 102(1) EPC.

Composition of the Board:

Chairman: P. Alting Van Geusau
Members: G. Pricolo
M. Tardo-Dino

Summary of Facts and Submissions

I. The mention of the grant of European patent No. 0 358 837 in respect of European patent application No. 88 830 372.4 filed on 14 September 1988 was published on 16 March 1994.

II. Notice of opposition was filed against the patent as a whole by the respondent (opponent), based on Article 100(a) EPC in conjunction with Articles 52(1), 54(2) and 56 EPC. The respondent relied on the prior art disclosed in

D1: US-A-2 567 219

D2: GB-A-677 794

D3: GB-A-904 328

D4: DE-A-31 52 097

D5: drawings, confirmations of orders, operating instruction sheets, in support of alleged prior use of a screw press of the type BS 35F made by Stord Bartz A/S.

III. By decision posted on 1 April 1998 the Opposition Division revoked the patent. The Opposition Division held that granted claim 1 lacked novelty, and that claim 1 according to the first and second auxiliary requests filed during oral proceedings did not involve an inventive step.

IV. The appellant (patentee) lodged an appeal, received at the EPO on 29 May 1998, against this decision. The

appeal fee was paid simultaneously with the filing of the appeal. The statement setting out the grounds of appeal was received at the EPO on 22 July 1998.

- V. Oral proceedings took place on 11 October 2001. The appellant requested that the decision under appeal be set aside and that the patent be maintained in amended form on the basis of

Claim: 1, as filed during the oral proceedings;

Description: columns 1 to 3 as filed during the oral proceedings;

Drawings: Figures 1 to 3 as granted.

The respondent requested that the appeal be dismissed.

- VI. Claim 1 reads as follows:

"Dehydrating screw press, comprising a pair of rotatable helical elements rotating in opposite directions each of which comprises a conical shaft (1) and conical spiral (2), the conical spirals of the helical elements having opposite pitch angles, said pair of rotatable helical elements being fitted side by side such that each conical spiral operates throughout the entire operative longitudinal extension of the press with profile continuity up to the wall limit of the respective conical shaft of the opposite helical element, the press further comprising a filtering cage (3) arranged about said pair of helical elements, wherein said conical spirals have thin threads which have a small thickness as compared to the distance between two consecutive threads, characterized in that

said filtering cage (3) consists of two structurally distinct constituent parts (5 and 6) connected on converging lines (7 and 8) at the interference limit of the two intersected spirals and arranged such that said spirals operate throughout the entire operative longitudinal extension of the press with profile continuity up to the wall limit of said filtering cage".

VII. In support of its requests the appellant relied essentially on the following submissions.

Starting from the closest prior art disclosed by document D2, the claimed screw press solved the problem of eliminating the heaping phenomenon, consisting in the accumulation and stagnation of treated material in the void spaces between the helical elements themselves and between the helical elements and the casing surrounding the same. The skilled person was not aware that the heaping phenomenon had negative effects, such as lateral overstressing of the press, and therefore, would have regarded any measures for reducing the void spaces of the press as unnecessary and anti-economical. Hence, the claimed subject-matter involved an inventive step on this basis. Moreover, since none of the cited documents disclosed a conical filtering cage with a connection of the constituent parts on converging lines, there was no suggestion in the prior art to provide this feature in the screw press of D2.

VIII. The respondent essentially argued as follows.

Document D2, which represented the closest prior art, disclosed a screw press according to the preamble of claim 1. This document did not disclose how the

filtering cage was arranged in the space between the two helical elements. However, the normal practice in the art, shown for instance by documents D1 and D3, was to arrange the cage as close as possible to the whole periphery of the helical elements, ie also in the space between the two helical elements. Moreover, it wasn't the patentee's own recognition that the accumulation of material in the void spaces of a screw press was disadvantageous: this was well known in the art. D3 described a housing consisting of two parallel cylinder parts overlapping at an intermediate section, and thus clearly disclosed, or at least clearly suggested, a construction of the filtering cage comprising structurally distinct constituent parts connected on lines at the interference limit of the two intersected spirals. When applying this construction to the filtering cage of the screw press according to D2, the skilled person would have automatically provided a connection on converging lines, since in D2 the filtering cage was conical. In doing so, keeping in mind that it was equivalent whether the two parts were connected exactly at the interference line or at a small distance therefrom, the skilled person would have directly arrived at the subject-matter of claim 1.

Reasons for the Decision

1. The appeal is admissible.

2. *Amendments*
 - 2.1 Support for the amendment of the claim is found in original claims 1 and 2; in column 2, lines 14 to 37 (reference is made to the published patent

application); and in Figure 2.

2.2 The description has been amended in order to remove the embodiments that no longer fall within the scope of the claim.

2.3 Since the claim defines further additional features with respect to granted claim 1, it does not extend the protection conferred.

2.4 It follows that none of the amendments give rise to objections under Article 123(2) and (3) EPC.

3. *Novelty*

Novelty of the subject-matter in accordance with the claim follows from the fact that none of the cited documents discloses a filtering cage consisting of two structurally distinct constituent parts connected on converging lines. Novelty was in fact not disputed.

4. *Inventive step*

4.1 The technical problem underlying the patent in suit consists in ensuring uniformity in the pressing action and gradual axial movement of the product (see column 1, lines 49 to 56 and column 2, lines 6 to 15 of the granted patent).

4.2 In accordance with the opinion expressed by the parties, document D2 represents the closest prior art, and discloses (see Figure 1), when compared to the claimed subject-matter, a dehydrating screw press, comprising a pair of rotatable helical elements (1,2) rotating in opposite directions each of which comprises

a conical shaft (3,4) and conical spiral (7,8; see page 1, lines 66 to 73), the conical spirals of the helical elements having opposite pitch angles, said pair of rotatable helical elements being fitted side by side such that each conical spiral operates throughout the entire operative longitudinal extension of the press with profile continuity up to the wall limit of the respective conical shaft of the opposite helical element (page 1, lines 49 to 58), the press further comprising a filtering cage (9, page 1, lines 73, 74) arranged about said pair of helical elements, wherein said conical spirals have thin threads which have a small thickness as compared to the distance between two consecutive threads.

4.3 The above mentioned problem is solved, in accordance with the subject-matter claimed, by the provision of a filtering cage consisting of two structurally distinct constituent parts connected on converging lines at the interference limit of the two intersected spirals and arranged such that said spirals operate throughout the entire operative longitudinal extension of the press with profile continuity up to the wall limit of said filtering cage.

4.3.1 Document D1 relates to a screw press of the kind where helical elements have the same pitch angles and are rotated in the same direction (see Figure 10; claim 1). According to this prior art, the filtering cage is arranged such that the spirals operate with profile continuity up to the wall limit of said filtering cage (see Figure 3; column 4, lines 47 to 55), so that any substantially continuous openings in the apparatus are avoided which would lower the efficiency in operation. However, D1 does not disclose a construction of the

cage in which two structurally distinct constituent parts are connected at the interference limit of the two intersected spirals. On the contrary, Figure 3 shows that the filtering cage has an uninterrupted cross-section, and therefore teaches away from the mentioned construction.

- 4.3.2 Document D3 relates to a dehydrating screw press comprising a pair of rotatable helical elements rotating in opposite directions. D3, on page 2, lines 97 to 100, describes that a filtering cage (housing) is provided, which consists "of two parallel cylinder parts 11,12 overlapping at an intermediate section 13, see Figure 2".

The respondent interpreted this passage as a clear indication that the housing comprised two distinct cylindrical parts connected at the interference limit indicated by reference numeral 13 in Figure 2. However, considering that the actual embodiment described in D3 shows a filtering cage divided into an upper and a lower section, joined by longitudinal flanges (35, 36; see Figure 6 and page 3, lines 67 to 73), the expression "cylinder parts" on page 2 of D3 does not necessarily imply that "structurally distinct constituent parts" are present. Indeed, this expression rather describes the geometrical form of the housing, and not structurally distinct parts. Therefore, since each part of a document has to be construed in the context of the contents of the document as a whole (T 312/94, unpublished in OJ EPO), it can only be concluded that the appellant's interpretation of this part of the text of D3 is based on hindsight.

Moreover, even if the disclosure in D3 of a filtering

cage comprising two overlapping parallel cylinder parts is interpreted to suggest the provision of structurally distinct constituent parts connected at an intermediate section, it does not lead the skilled person to provide connections on lines at the interference limit of the two intersected spirals. Indeed, in order to connect the two parts on lines at said interference limit, opposed edges thereof must come into abutment on said lines. This is not possible if the cylinder parts overlap, because in such a case they are connected at a distance from the lines at the interference limit of the two intersected spirals, which distance corresponds to the thickness of the cylinder parts.

4.3.3 The respondent argued that it was equivalent whether the two parts were connected exactly at the interference line or at a small distance therefrom. However, since in the first case the two parts abut, as explained above, whilst in the second case the parts overlap, different manufacturing and assembling constraints will apply to each case so that, in the Board's view, the connections obtained cannot be regarded as equivalent, in particular in view of the fact that in accordance with the claimed subject-matter profile continuity not only up to the wall limit of the cage but also up to the wall limit of the respective conical shaft is aimed at.

4.3.4 Document D4 discloses a screw press comprising (see figure 3) a filtering cage divided into two sections, an upper and a lower section, joined by longitudinal flanges. Therefore, the teaching of document D4 does not go beyond that of document D3.

4.4 Based on the above assessment, the Board concludes that

the cited prior art D1 to D4 does not suggest the claimed solution to the posed problem.

5. *The alleged prior use (D5)*

The appellant disputed that D5 was a public prior use. In the present case the Board considers it appropriate to investigate relevance first, before deciding whether the alleged prior use was public. The screw press in the alleged prior use (see main drawing, Nr. 21-33651) has a filtering cage comprising (see lower figure of the main drawing) a plurality of (more than two) structurally distinct constituent parts. In particular, the cage comprises curved plates connected by longitudinal bars (66 to 68), whereby opposing horizontal surfaces of the longitudinal bars are closer to the interference limit of the two intersected spirals than the connections between said plates and bars. Hence, the prior use neither discloses, nor suggests, a filtering cage consisting of two structurally distinct constituent parts connected on lines at the interference limit of the two intersected spirals.

Thus, even if it were assumed that D5 was a public prior use, it would not render the subject-matter of claim 1 obvious. Therefore, for the purposes of determining inventive step, it is not necessary to actually decide whether it was a public prior use.

6. It follows that the subject-matter of claim 1 is not rendered obvious by the relevant prior art, including the alleged prior use, and thus involves an inventive step. This claim, together with the description as amended during the oral proceedings of 11 October 2001,

and the drawings as granted, form therefore a suitable basis for maintenance of the patent in amended form.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the first instance with the order to maintain the patent on the basis of the following documents:

Claim: 1, as filed during the oral proceedings;

Description: columns 1 to 3 as filed during the oral proceedings;

Drawings: Figures 1 to 3 as granted.

The Registrar:

The Chairman:

M. Patin

P. Alting van Geusau