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**Case Number:** T 0985/91 - 3.2.4

# D E C I S I O N
## of the Technical Board of Appeal 3.2.4
## of 23 March 1994

**Appellant:** (Opponent)
Alfa-Laval AB
S-14780 Tumba (SE)

**Representative:**
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**Respondent:** (Proprietor of the patent)
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**Decision under appeal:** **Decision of the Opposition Division of the European Patent Office dispatched to the parties on 17 October 1991 rejecting the opposition filed against European patent No. 0 171 735 pursuant to Article 102(2) EPC.**

**Composition of the Board:**

**Chairman:** C. Andries
**Members:** S. Crane
J-P. Seitz

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# D E C I S I O N
## of 23 March 1994

**Case Number:** T 0985/91 - 3.2.4

**Application Number:** 85109859.0

**Publication Number:** 0171735

**IPC:** B65B 55/14

**Language of the proceedings:** EN

**Title of invention:**
Aseptic food processing apparatus and method

**Patentee:**
Marlen Research Corporation

**Opponent:**
Alfa-Laval AB

**Headword:**
-

**Relevant legal norms:**
EPC Art. 56, 114(2)

**Keyword:**
"Late submitted material - admitted (no)"
"Inventive step (yes)"

**Decisions cited:**
T 0017/91

**Catchword:**
-

## Summary of Facts and Submissions

I. European patent No. 0 171 735 was granted on 29 March 1989 on the basis of European patent application No. 85 109 859.0.

II. Independent Claims 1 and 11 of the granted patent read as follows:

1. "Apparatus for continuously and aseptically processing and cooking a pumpable food product under pressure, said apparatus comprising:

constant pressure pump means (12) for delivering a continuous stream of said product at a substantially constant pressure notwithstanding variations in processing conditions downstream of said pump means which would induce pressure variations in said stream;

a continuous processing assembly (14) operably coupled with said constant pressure delivery means and including means (42) for heating said continuous pressurized stream of product to a desired processing temperature, and a structure (48) downstream of said heating means for holding said heated and pressurized stream for a period of time to assure aseptic cooking of the product stream; and

metering means (16) operatively connected with said assembly downstream of said holding structure for creating a substantially constant flow rate of product from the apparatus."

11. "A method of continuously and aseptically processing and cooking a pumpable food product under pressure, comprising the steps of:

passing said product through constant pressure pump means (12) for generating a substantially constant pressure stream of said product notwithstanding variations in processing conditions downstream of said

pump means which would induce pressure variations in said stream;

heating said continuous, pressurized stream of product to a desired processing temperature;

holding said heated and pressurized stream in a holding zone (48) for a period of time to assure aseptic cooking thereof; and

passing said cooked stream through metering means (16) to meter the flow of said stream and create a substantially constant flow rate of the aseptically cooked product downstream of the holding zone."

Dependent claims 2 to 10 and 12 to 17 relate to preferred embodiments of the apparatus according to Claim 1 and the method according to Claim 11 respectively.

III. The granted patent was opposed by the Appellants on the grounds that its subject-matter lacked inventive step with respect to the state of the art (Article 100(a) EPC) and that the patent did not sufficiently disclose the invention for it to be carried out (Article 100(b) EPC).

As state of the art the Appellants relied on the following documents:

(E1) US-A-4 097 962

(E2) "Aseptic processing of food products containing discrete particulate matter" by Thomas E. Szemplenski. (Pages 31 to 47 of a document presented at the "First International Conference on New Innovations in Packaging Technologies and Markets" - Future Pak 83 - held from 28-30th November 1983).

IV. By its decision dispatched on 17 October 1991 the Opposition Division rejected the opposition.

V. An appeal against this decision was filed on 18 December 1991, the fee for appeal having been paid on 13 December 1991. The Statement of Grounds of appeal was filed on 25 February 1992.

The Appellants requested that the contested decision be set aside and the patent revoked in its entirety.

VI. Oral proceedings before the Board were appointed for 23 March 1994.

VII. On 16 March 1994 the Appellants filed by telefax copies of an extract (pages 1, 3, 11 and 16) from a brochure PB62114E, printed in May 1981 and produced jointly by themselves and BOB Industrier AB of Sweden, and of a pamphlet (three pages) PB62610E, printed in October 1984 and produced by themselves. In an accompanying letter they stated that they intended to bring evidence to the oral proceedings establishing that the plant featured in these documents was sold and delivered to BOB Industrier AB before the priority date of the contested patent. In this letter the view was also stated that the centrifugal pump shown being used upstream of the processing assembly constituted constant pressure pump means within the terms of the contested patent.

At the oral proceedings the Appellants produced a sworn declaration of an employee of BOB Industrier AB stating that a plant for the continuous production of rice pudding had been supplied to them by the Appellants in 1979 and been in operation since. This plant was as illustrated in the pamphlet PB62610E of the Appellants. BOB Industrier AB had not been under any obligation to keep the details of the plant confidential.

The Appellants excused the late filing of the material relating to the alleged prior use on the basis that its relevance to the current proceedings had only very recently become apparent to them.

After deliberation the Board announced that pursuant to Article 114(2) EPC it intended to disregard the late filed material relating to the alleged prior use.

VIII. The arguments of the Appellants in support of their request for revocation of the patent can be summarised as follows:

The closest state of the art was the "pump against pump" system described on pages 44 and 45 of document E2. Here, the speed of the downstream pump was controlled in dependence on the pressure sensed in a downstream end of the processing assembly located between the two pumps to maintain a substantially constant pressure of the product in the processing assembly. Thus the problem of preventing steam flashing, to which the claimed invention was directed, had in fact already been solved. Indeed, the known solution, which controlled the pressure between the pumps with the help of the downstream pump, was better than that proposed by the claimed invention in which the pressure was controlled by the upstream pump, since the latter alternative could not adequately provide the desired pressure in the whole processing assembly when restrictions, which inevitably built up in the course of a processing run, were present in the lines of the processing assembly. Be that as it may, it was clearly obvious to the person skilled in the art, that in the pump against pump system the speed of the upstream pump instead of that of the downstream pump could be the one that was variably controlled. The fact that such an arrangement would not conform to the United States Food and Drug Administration regulations which

require that the upstream pump be a metering pump and be operated to maintain the required rate of product flow could in no way be seen as constituting a genuine technical prejudice against selecting this option.

The objection to insufficiency of disclosure was no longer to be pursued.

IX. The Respondents (Proprietors of the patent) contested the arguments of the Appellants and requested that the appeal be dismissed.

## Reasons for the Decision

1. The appeal complies with the requirements of Articles 106 to 108 and Rules 1(1) and 64 EPC. It is, therefore, admissible.

2. *Late-filed material*

According to Article 114(2) EPC facts or evidence which are not submitted in due time may be disregarded. In the extensive jurisprudence relating to this issue the Boards of Appeal have developed the principles that the exercise of their discretion should be governed by the relevance of the late-filed material to the case at hand, the circumstances which led to the late filing, and general procedural economy. In cases such as the present, where the late-filed material relates to an alleged prior use by the party filing it, then this material should only be admitted into the proceedings in exceptional circumstances, see T 17/91 (Headnote published in OJ EPO 1993/9).

In the present case, neither the reasons given for the filing of the material concerned more than four years after the end of the time limit for opposition and only one week before the date of the oral proceedings, nor the content of the material itself, are such as to persuade the Board that it would be proper to allow its introduction to the proceedings. In the latter respect the Board can recognise no objective basis for the allegation of the Appellants that the centrifugal pump shown schematically in their pamphlet PB62610E, and which has not been further identified or described in any way, constitutes "constant pressure pump means".

The late-filed material is therefore to be disregarded pursuant to Article 114(2) EPC.

3. The present invention is particularly concerned with the aseptic processing of low acid food products of heterogeneous consistency.

The aseptic processing of high acid food products of homogeneous consistency, where the cooking temperatures and holding times are relatively low, was well known. Generally, such processing systems utilised a metering pump upstream of the processing assembly and a back pressure valve downstream of the processing assembly to create a restriction and generate the required system pressure. The metering pump was operated to maintain the desired rate of flow and hence the length of time that the product was held in the processing assembly. Such systems were however unsuitable for heterogeneous products as passage through the valve restriction led to degradation of the particulate matter in the product. It had therefore been proposed to generate the required system pressure by replacing the downstream valve with a

pump operating at a slower speed than the upstream metering pump. Such a "pump against pump" system is described on pages 44 and 45 of document E2.

It is stated here that back pressure is obtained by operating two positive displacement pumps in series with the second (i.e. downstream) pump running at a calculated slower speed than the first (i.e. upstream) pump. In this way, there is a pressure built up between the two pumps allowing the product to reach the required elevated temperature.

In the introductory description of the contested patent reference is made to the problem of localized "flashing" of steam that can occur in such a pump against pump system if the heterogeneous nature of the product results in the pumps not being able consistently to maintain the required pressure. This flashing not only disrupts the desirable smooth flow of the product but also can tend to degrade the particulate materials. Moreover, it can disrupt the important time-temperature relationship necessary for proper aseptic cooking, and in extreme cases lead to an unsterile product.

The Appellants have submitted that the problem of flashing had already been overcome in the pump against pump system by controlling the speed of the downstream pump in dependence on the pressure measured in the processing assembly in order to maintain a constant pressure in the processing assembly. However, on questioning by the Board, they conceded that document E2 said nothing along these lines and that they could provide no evidence to substantiate that such pump control was actually known before the relevant priority date of the contested patent. On this basis it is apparent that the technical problem with which the claimed invention is concerned, i.e. the prevention of

flashing, was a genuinely existing one at the relevant date. According to the invention, as set out in independent Claims 1 and 11, this problem is solved in that the upstream pump comprises a constant pressure pump means for delivering a continuous stream of product at a substantially constant pressure notwithstanding variations in processing conditions downstream of the upstream pump means which would induce pressure variations in the stream and that downstream of the processing assembly there are arranged metering means for creating a substantially constant flow rate of the product. Thus it can be seen that in comparison to the state of the art the responsibility for ensuring the required flow rate through the processing assembly and according the required holding time at cooking and sterilizing temperatures has been shifted to the downstream metering means. Since the upstream pump no longer needed to be driven to provide a constant flow rate it could now be operated in a variable speed, constant pressure mode adapted to maintain the required system pressure.

The novelty of the subject-matter of independent Claims 1 and 11 is not in dispute. The upstream pump of the pump against pump system disclosed in document E2 is an undefined positive displacement pump which has to operate at constant speed and does not therefore constitute constant pressure pump means within the terms of these claims. The pump disclosed in document E1, which is mentioned in the specification of the contested patent, is capable of being operated in a constant pressure mode but there is no suggestion there of it being used in an apparatus or method having the other features of Claims 1 and 11 respectively.

The arguments of the Appellants with respect to inventive step are predicated upon the allegation that it was already known to operate the downstream pump of a pump against pump system at a variable controlled speed to give constant system pressure. There is however, see above, no basis for this allegation in the available state of the art. It is therefore apparent that the argument of the Appellants to the effect that it would have been obvious for the person skilled in the art to operate the upstream pump at a variable speed in order to obtain a constant system pressure, instead of the downstream pump, must fail since the state of the art contains no indication that it could be advantageous to operate either of these pumps in that way.

The Board accordingly comes to the conclusion that the subject-matter of Claims 1 and 11 cannot be derived in an obvious manner from the state of the art and therefore involves an inventive step (Article 56 EPC).

**Order**

**For these reasons, it is decided that:**

The appeal is dismissed.

The Registrar: The Chairman:

N. Maslin C. Andries