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Datasheet for the decision of 25 January 2007

Case Number: T 0948/04 - 3.2.05

Application Number: 96116266.6

Publication Number: 0771590

IPC: B02B 3/04

Language of the proceedings: EN

Title of invention:
Husking apparatus

Patentee:
SATAKE CORPORATION

Opponent:
Bühler AG

Headword:
-

Relevant legal provisions:
EPC Art. 56

Keyword:
"Inventive step - yes"

Decisions cited:
-

Catchword:
-

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Case Number: T 0948/04 - 3.2.05

D E C I S I O N
of the Technical Board of Appeal 3.2.05
of 25 January 2007

Appellant: (Opponent)	Bühler AG Patentabteilung CH-9240 Uzwil (CH)
Representative:	Frommhold, Joachim Bühler AG Patentabteilung CH-9240 Uzwil (CH)
Respondent: (Patent Proprietor)	SATAKE CORPORATION 7-2, Sotokanda 4-chome Chiyoda-ku, Tokyo 101 (JP)
Representative:	Grünecker, Kinkeldey, Stockmair & Schwanhäusser Anwaltssozietät Maximilianstraße 58 D-80538 München (DE)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted 1 June 2004 rejecting the opposition filed against European patent No. 0771590 pursuant to Article 102(2) EPC.**

Composition of the Board:

Chairman: W. Zellhuber
Members: H. Schram
W. Sekretaruk

Summary of Facts and Submissions

I. The appellant (opponent) lodged an appeal against the decision of the Opposition Division rejecting its opposition against European patent No. 0 771 590.

II. The Opposition Division held that the grounds for opposition mentioned in Article 100(a) EPC (lack of novelty, Article 54 EPC, and lack of inventive step, Article 56 EPC) did not prejudice the maintenance of the patent in suit as granted.

III. Oral proceedings were held before the Board of Appeal on 25 January 2007.

IV. The appellant requested that the decision under appeal be set aside and that the European patent No. 0 771 590 be revoked.

The respondent (patent proprietor) requested, as a main request, that the appeal be dismissed, or that the decision under appeal be set aside and the European patent be maintained on the basis of

(i) first auxiliary request: claims 1 to 3, submitted as Auxiliary Request on 4 February 2005; or
(ii) second auxiliary request: claims 1 to 3, submitted as Auxiliary Request on 27 December 2006.

V. The following document was in particular referred to in the appeal proceedings:

D2 DE-A 30 26 001

VI. Claim 1 of the main request (i.e. of the patent as granted) reads as follows:

"1. A husking apparatus (1) including a pair of husking rolls (2, 3) which are adjustable in clearance between them and disposed close to each other and rotated in opposite directions with different peripheral speeds to perform husking, and a supply portion (27) disposed above the husking rolls (2, 3) for supplying paddy grain to be husked, the supply portion (27) comprising a feed tank (6) for storing paddy grain, a guide chute (16) inclined for sliding paddy grain thereon to send the paddy grain from a lower end thereof to a clearance between the husking rolls (2, 3), and a feed portion (51) for guiding paddy grain falling from an outlet (6a) of the feed tank (6) to an upper end of the guide chute (16) in order, the feed portion (51) being so constructed as to supply paddy grain in the form of a layer, wherein

said guide chute (16) is formed to provide a fall not less than 500 mm from an outlet (H) of said feed portion (51) to said clearance of said husking rolls (2, 3) to accelerate paddy grain to at least a flowing-down speed corresponding to a minimum husking throughput desired of the husking apparatus, and

said opening (H) of said feed portion (51) is adjustable to regulate a rate of paddy grain flowing therethrough in a manner that a thickness of the flow

layer of paddy grain becomes not greater than two grains at said clearance of said husking rolls (2, 3)."

VII. The appellant argued in writing and during the oral proceedings essentially as follows:

The subject-matter of claim 1 of the main request did not involve an inventive step. Document D2 disclosed a husking apparatus with all the features of claim 1 of the main request with the exception of the penultimate feature of said claim requiring that the guide chute provides a fall not less than 500 mm. A higher fall height resulted in a higher flowing-down speed of paddy grain and thus in a higher husking throughput. Hence the problem to be solved with respect to document D2 was to increase the husking throughput. In document D2 it was stated that the spacing of the grains in the falling layer was accomplished by the effect of the acceleration caused thereon by gravity, which forced the grains to increase their speed while they advanced over the surface of plate 43 (see page 17, penultimate paragraph, last sentence). This was a clear hint to the person skilled in the art to try out various fall heights with a view to attain the necessary flowing-down speed of paddy grain for achieving the desired minimum husking throughput for a husking apparatus having rolls with a given effective husking width. The person skilled in the art would not consider to use a mechanical device to accelerate the paddy grain because such a device could result in damaging the grain. The husking throughput could be easily optimized by choosing the flowing-down speed of paddy grain on the guide chute as follows: if the speed was too fast, paddy grain would accumulate in front of the husking

rolls; if the speed was too slow, the throughput would be below the optimum throughput. Consequently, choosing a fall height in the range as claimed in claim 1 of the main request was obvious to the person skilled in the art.

VIII. The respondent argued in writing and during the oral proceedings essentially as follows:

In the passage of document D2 cited by the appellant it was merely taught that the spacing of the grains in the falling layer was accomplished by gravity, there was no suggestion to adjust the fall height with a view to reduce the percentage of broken grain, nor with a view to increasing the throughput. The person skilled in the art would refrain from increasing the fall height, since grains hitting or leaving the husking rolls with a higher velocity were more prone to breakage. Moreover, a higher fall increased the overall dimensions of the husking apparatus. If the person skilled in the art would want to increase the throughput, she or he would rather increase the width of the husking rolls, or modify the material, speed and/or nip of the husking rolls, or increase the speed of the grain at the feed portion. The attack of the appellant focussed on the question what fall the guide chute should have under certain conditions. However, this approach was based on hindsight, i.e. in knowledge of the invention. The husking apparatus according to the invention achieved a solution for contradictory goals: attaining a good husking quality with only a small percentage of broken grain, while at the same time attaining a high throughput. A husking apparatus having a vertical fall height not less than 500 mm was

not known from the prior art. A relation between the vertical fall height and the throughput was nowhere suggested in the prior art. It followed that the subject-matter of claim 1 according to the main request involved an inventive step.

Reasons for the Decision

MAIN REQUEST

1. *Inventive step (Article 56 EPC)*

1.1 The problem the invention seeks to solve is to provide a husking apparatus of a simple construction which provides a good husking quality with only a small percentage of broken grain at a high husking throughput (cf. paragraph [0015] of the patent in suit).

This problem is solved by the subject-matter of claim 1. In particular, the feature that the "thickness of the flow layer of paddy grain becomes not greater than two grains" (cf. the last feature of claim 1) ensures that the percentage of broken grain remains small for the desired high husking throughput resulting from a fall in the range as claimed in claim 1 (cf. paragraph [0030] of the patent in suit), whereas the feature "said guide chute (16) is formed to provide a fall not less than 500 mm" (cf. the penultimate feature of claim 1) ensures that the husking throughput is not less than the throughput required for the conventional husking apparatus upon husking the paddy grain of not-long-species or variety for the thickness of the flow layer of paddy grain in the range as claimed in claim 1

(cf. paragraphs [0017] and [0042] of the patent in suit). It may be noted that the actual husking throughput of a husking apparatus according to the invention may be designed on the basis of the estimated output for a given width of the husking rolls (see column 10, lines 17 to 20, of the patent in suit).

1.2 Document D2 represents the closest prior art. This document relates to a pneumatic grain conveyance rice mill comprising a husking apparatus, which is shown in Figure 9. In this husking apparatus the cooperating action of roller 36 with plate 39 forces the grains to lie down and advance on a guide chute ("inclined plate 43"), such that the grains pass in a single layer to the nip of the husking rollers (see page 17, lines 22 to 29). Actual dimensions of the husking apparatus shown in Figure 9 are neither indicated in the description nor in Figure 9. In particular, the fall provided by the inclined plate 43 between the feed roller 36 and the nip of the husking rolls cannot be derived from Figure 9, nor from the description of document D2. The description of document D2 is also silent about the husking throughput and the flowing-down speed of the grain when it arrives at the husking rolls.

The subject-matter of claim 1 differs from the husking apparatus disclosed in Figure 9 of document D2 in that *"wherein said guide chute (16) is formed to provide a fall not less than 500 mm from an outlet (H) of said feed portion (51) to said clearance of said husking rolls (2, 3) to accelerate paddy grain to at least a flowing-down speed corresponding to a minimum husking throughput desired of the husking apparatus"*.

Not only is document D2 silent about the actual dimensions of the fall provided by the inclined plate 43, it is also silent about a possible relationship between the husking throughput and the fall provided by the inclined plate 43.

1.3 In the judgment of the Board, the objective problem to be solved with respect to document D2 is not to determine what fall the inclined plate 43 should have to achieve a desired throughput, the object is rather to provide a husking apparatus of a simple construction having a desired throughput and a good husking quality, i.e. an apparatus achieving a high throughput with a high percentage of paddy grain husked to a desired level with only a small percentage of broken grain.

In the judgment of the Board, there is no hint or suggestion in document D2 or any other document referred to in the appeal proceedings to increase the fall provided by the inclined plate (e.g. by increasing the length of the inclined plate, or by increasing the inclination of the inclined plate while keeping the angle between the inclined plate and a plane through the centre lines of the husking rolls constant). On the contrary, the person skilled in the art is discouraged to do so, since increasing the fall would entail a higher flowing-down speed of the grain when it arrives at the husking rolls, which may increase the risk of breakage of the grains.

1.4 Consequently, it was not obvious for the person skilled in the art, starting from the husking apparatus known from document D2, and seeking to solve the problem

defined in point 1.3 above, to provide said husking apparatus with a guide chute with a fall of not less than 500 mm.

The subject-matter of claim 1 according to the main request thus involves an inventive step in the meaning of Article 56 EPC.

AUXILIARY REQUESTS

2. Since the main request of the respondent is allowable, there is no need to consider the first and second auxiliary requests of the respondent.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

D. Meyfarth W. Zellhuber