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Datasheet for the decision of 15 September 2017

Case Number: T 0734/13 - 3.2.04

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Language of the proceedings: EN

Title of invention:
SYSTEM AND METHOD FOR MIXING ANIMAL FEED

Patent Proprietor:
DeLaval Holding AB

Opponent:
Octrooibureau Van der Lely N.V.

Headword:

Relevant legal provisions:
EPC Art. 56, 114(1)

Keyword:
Inventive step - main request (no) - auxiliary request (yes)

Decisions cited:
G 0010/91, T 0850/96

Catchword:

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Case Number: T 0734/13 - 3.2.04

D E C I S I O N
of Technical Board of Appeal 3.2.04
of 15 September 2017

Appellant: (Opponent)	Octrooibureau Van der Lely N.V. Weverskade 110 3147 PA MAASSLUIS (NL)
Representative:	Octrooibureau Van der Lely N.V. Cornelis van der Lelylaan 1 3147 PB Maassluis (NL)
Respondent: (Patent Proprietor)	DeLaval Holding AB Box 39 147 21 Tumba (SE)
Representative:	Zacco GmbH Bayerstrasse 83 80335 München (DE)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted on 8 January 2013 concerning maintenance of the European Patent No. 2182795 in amended form.**

Composition of the Board:

Chairman	A. de Vries
Members:	G. Martin Gonzalez
	C. Schmidt

Summary of Facts and Submissions

I. The appellant-opponent lodged an appeal ,received on 15 March 2013, against the interlocutory decision of the Opposition Division of the European Patent Office posted on 8 January 2013 concerning maintenance of the European Patent No. 2 182 795 in amended form. The appeal fee was paid simultaneously. The statement setting out the grounds of appeal was received on 21 May 2013.

II. The opposition was based originally on Article 100(a) and (c) having regard to the following documents among others:
(D8) A. Brand et al: "Herd Health and Prodiction Management in Dairy Practice", Wageningen,2001, selected pages .
(D9) Jud Heinrichs et al: "Evaluating particle size of forages and TMRs using the New Penn State Forage Particle Separator" , Dairy and Animal Science, Pennsylvania State University, DAS 02-42.
(D13) GB-A-2310793

In its decision the Opposition Division held that the subject-matter of independent claims 1 and 10 of the upheld auxiliary request 3 was neither anticipated nor made obvious by the available prior art documents and upheld the patent as amended.

III. Oral proceedings were held on 15 September 2017.

IV. The appellant-opponent requests that the decision of the Opposition Division be set aside and the patent revoked.

The respondent-proprietor requests dismissal of the appeal and the maintenance of the patent according to the version upheld by the Opposition Division or according to an auxiliary request filed with letter of 14 August 2013.

V. The wording of the independent claims of the requests on file at the time of the present decision reads as follows:

(a) Main request (as upheld)

1. "A system for mixing animal feed, characterized in that said system comprises:
- a feed mixer (11) for cutting and mixing said animal feed;
- a feed particle size measurement device (12) provided for measuring the size of feed particles in said animal feed in connection with the mixing of the animal feed; and
- a control device (13) provided for receiving values of said measured size of feed particles in said animal feed and for automatically controlling the feed mixer based on said measured size of feed particles in said animal feed, wherein
- the control device is provided for automatically controlling the mixing time during which the feed mixer cuts and mixes said animal feed based on said measured size of feed particles in said animal feed, and wherein
- said system comprises a feeding device provided for feeding animals with said animal feed; and
- said system is fully automated".

10. "A method for feeding animals, characterized by the steps of:

- cutting and mixing said animal feed by a feed mixer (11) of a system for mixing animal feed;
- measuring the size of feed particles in said animal feed in connection with the mixing of the animal feed by a feed particle size measurement device (12) arranged integrally with said feed mixer;
- transferring values of said measured size of feed particles in said animal feed from the feed particle size measurement device (12) to a controller (13);
- automatically controlling by the controller the cutting and mixing of said animal feed by the feed mixer based on said measured size of feed particles in said animal feed, wherein
- the mixing time during which the feed mixer cuts and mixes said animal feed is automatically controlled by the controller based on said measured size of feed particles in said animal feed; and
- animals are fed with the mixed animal feed by a feeding device of said system for mixing animal feed; and
- said method is fully automated".

(b) Auxiliary request

Claim 1 is as in the main request but inserts the following feature after "wherein":
"- said feed particle size measurement device is a device (32, 33) for measuring density of the animal feed in connection with the mixing of the animal feed, wherein said density is a measure of the size of the feed particles;"

Claim 9 is as in the main request but inserts the following feature after "wherein":
"- the density of the animal feed is measured in connection with the mixing of the animal feed by said

feed particle size measurement device (32, 33), wherein said density is a measure of the size of the feed particles;".

VI. The appellant-opponent argues as follows:

The subject-matter of claims 1 and 10 lack an inventive step having regard to a generally known TMR (total mixed rations) feed mixer as is shown in e.g. D13 or D8 in combination with D9 and using common general knowledge or starting from D9 as closest prior art combined with the common general knowledge of the man skilled in the art.

The subject-matter of independent claim 1 according to the auxiliary request lacks an inventive step in view of any of the above combinations involving D9, as the device taught by D9 implicitly measures density of the animal feed. The embodiment corresponding to the new independent claims according to the auxiliary request does not work and thereby deprives the subject-matter of said claims of inventive step.

The objections originally submitted with the statement of grounds of appeal concerning admissibility of auxiliary request 3 during opposition proceedings, clarity and insufficiency of disclosure are no longer pursued.

VII. The respondent-proprietor argued as follows:

None of the submitted combinations of teachings would lead the skilled person to the subject-matter of claims 1 or 10 of the main request without the need of inventive skill.

The feature added to the independent claims of the auxiliary request, that density is used as a measure of the size of the feed particles, is neither disclosed nor suggested by the available prior art documents. Therefore the subject-matter of the independent claims according to the auxiliary request is new and involves an inventive step.

Reasons for the Decision

1. The appeal is admissible.

2. Background

The invention is directed at a fully automated system and method for mixing animal feed comprising a control device, a feed mixer for cutting and mixing the animal feed, an associated feed particle size measurement device and a feeding device. The control device automatically controls the mixing time based on the measured size of feed particles. Using such control, an adaptation of mixing time to obtain suitably sized feed, independently of the the original particle sizes of the components and the recipe of the feed, can be achieved. The claimed system and method are consequently automatic, more efficient and accurate so that feed with appropriate particle size can be delivered to the animals, which improves animal health and increases milk production, see paragraphs [0015] and [0019] of the contested patent.

3. Main request - inventive step

Inventive step of claim 1 is contested *inter-alia* starting from a system comprising any generally known feed mixer as described in D8 or D13 in combination

with common general knowledge and the particle separator taught by D9.

3.1 Document D8 discloses on page 236, section "Particle size and feed mixing", a known "TMR mixer and associated conveyor" or feeding device and may be considered as a suitable starting point for the objection of inventive step.

D8 does not disclose or otherwise suggest control of the mixer in response to measured feed particle size. The subject-matter of claim 1 thus differs from the known system in a feed particle size measurement device provided for measuring the size of feed particles in said animal feed in connection with the mixing of the animal feed, a control device for receiving said measured size of feed particles and for automatically controlling the mixing time of the feed mixer based on said measured size of feed particles, the claimed system being fully automated.

3.2 Effect and problem to be solved

By measuring the size of feed particles and automatically controlling the mixing time based on said measured size of feed particles, the quality of the feed in terms of particle size is optimized in an efficient and automatic manner by the system of claim 1. The problem to be solved by the claimed invention can be seen as the provision of a system that delivers animal feed with optimized particle size in an automatic and efficient manner (see paragraphs [0014], [0015] of the patent specification).

3.3 Common general knowledge and D9 teachings

3.3.1 The closest prior art document D8 already mentions, see page 236 section "Particle size and feed mixing", that particles size is a crucial parameter for a proper cattle feeding that must always be evaluated. The parties further do not dispute the finding of the Opposition Division, see section 3.2.1 of the appealed decision, that the skilled person knows as part of his common general knowledge, that mixing time is a parameter that influences the resulting particle size of the mixed feed. This finding was also acknowledged by the respondent-proprietor during the oral proceedings before the Board. It is also illustrated by the cited passage in D8 itself, page 236, where it states that "TMR's that are too fine may result from over-mixing", i.e. mixing too long.

In the Board's view, given this common knowledge that mixing time influences particle size the skilled person who wishes to optimize particle size of animal feed will as a matter of obviousness consider using mixing time to that very end, i.e. as a factor or parameter to control and optimize particle size. As is clear from his general understanding of control he can effect this control in either open loop or closed loop, i.e. using set mixing times that he knows give set particle sizes, respectively by continuing mixing until a set size is obtained. Either case presupposes knowledge of the set particle sizes, as the result of previous measurement (open loop) or due to actual, current measurement (closed loop). The patent itself considers both options, cf. paragraph [0034], proposing collecting historical data and selecting a suitable cutting and mixing time (open loop), or, paragraph [0036], repeatedly measuring particle size and controlling the mixer based thereon (closed loop). Consequently, the skilled person willing to provide optimum animal feed

and being aware of the well known relationship between mixing time and particle size, would as a matter of course include evaluating whether the particles size of mixed animal feed is appropriate to the desired quality – i.e. too small or too large – and set or adapt the mixing time of the known feed mixer accordingly, whether that evaluation is effected in real-time or by collecting historical data. Thus the skilled person involved in the design and manufacture of systems for mixing animal feed whose task is to improve their construction and use, would also regard the inclusion of said control steps, namely controlling mixing time based on particle size measurements of the feed, in a known system as an obvious measure for the same reasons.

In this context the further document D9, cited in paragraph [0005] of the patent, teaches that the New Penn State Forage Particle Separator described therein is an ideal tool to evaluate and "quantitatively determine", i.e. to measure, particles size of the final or resulting animal feed or TMRs (total mixed rations) using a simple, on-farm method, see D9, page 2, left column. The skilled person would therefore consider, in view of the above, the use of the on-farm feed particle size measurement device and method taught by D9 in order to control mixing time of the known mixer as an obvious measure, arriving at a system comprising a feed mixer and a feed particle size measurement device wherein mixing time is controlled based on the measured particles size in the sense of claim 1.

The further features of claim 1 involving a control device and a fully automated system represent in the Board's understanding a mere automation of the

previously described manually performed individual steps of the process. From his basic understanding of control the skilled person, who is generally intent on automating manual tasks, furthermore knows that - whether open or closed loop - control can be effected in straightforward manner with minimal human intervention using a suitable control device controlling mixing time, either in response to historical size data as in patent specification paragraph [0034] or using output from a known particle size evaluation or measurement device such as that of D9. In the Board's view the skilled person would consider such straightforward automation of individual steps as a matter of obviousness, according to circumstances such as the expanding size of diaries, in order to e.g. increase productivity, reduce milk production costs or improve quality and accuracy of the final result, without requiring inventive skill.

3.3.2 The respondent-proprietor submits that the skilled person, even if, admittedly, aware that mixing time influences particle size, would nonetheless not specifically control mixing time without an explicit or specific teaching or hint in that direction. The Board disagrees, because final particle size and cutting and mixing time stand in such a direct correlation with each other that the skilled person would immediately derive from the above knowledge that specifically controlling mixing time would optimize the corresponding feed quality as desired, without the need of any further specific teaching. That knowledge of the influence of mixing time on particle size itself thus suggests to the skilled person the use of mixing time to control particle size.

3.3.3 With respect to automation, the respondent-proprietor represents the view that an automation of the steps of the process would require non-routine measures which do not belong to the standard knowledge of the farmer and are thus not obvious. They further dispute the submissions of the appellant-opponent regarding the interpretation of the Case Law of the Boards of Appeal, I.D.9.18.4, Eighth Edition, 2016, in particular in reference to **T 850/96**. In this respect, the respondent-proprietor submits that **T 850/96** refers to the automation of a known process and doubts that the ratio in that decision would be applicable to a combined teaching of several documents as in the present case.

According to established case law automation per se represents a general technological trend; see Case Law of the Boards of Appeal I.D.9.18.4. The Board sees no compelling reason why the skilled person would not continue to follow this trend as a further step in an already obvious development. In particular, automation per se cannot stop being an obvious technological development merely because it is a further step rather than a first step in the sequence of developmental steps from a known starting point.

In the present case, the manually performed functions following a combination of teachings of D8 and D9 are: the operations of the particle separator of D9, the control of mixing time based on said measurements and the operation of the feeding device according to D8. D9 describes on pages 3-4 how to use the particle separator, which involves: loading the separator, moving and shaking it, weighing the material on each sieve, processing the data corresponding to the weighed values to obtain the particles size and unloading the separator. The known feeding device of D8 is described

as a conveyor. These operations involve thus data processing, controlling the mixing time based on processed data and mechanical functions, namely moving, shaking, weighing, loading or operating a conveyor. In the opinion of the Board these are simple individual functions whose straightforward automation fall within the common technical knowledge and resources of the skilled person, including the provision of technical facilities that automation typically offers, e.g. shakers, weighing devices, a motor for the conveyor or a control device for processing the measured data and controlling the mixing time of the feeder, and do not therefore involve an inventive step. The respondent-proprietor has not submitted any particular argument how in the present case the referred combination of teachings of D8 and D9 changes or influences the straightforward nature of said automation and the Board on its side neither finds a reason to modify the above conclusion that they do not involve an inventive step.

3.3.4 The respondent-proprietor further puts forward that with the combination of features of claim 1 of the main request a dynamic and direct feedback control is achieved. Thus cutting and mixing can be controlled in real time or near real time. According to the respondent-proprietor the automation of the combined teachings of D9 and a known feed mixer, e.g. D8, would not show this effect because (see page 9 of response dated 14 August 2017):

> "...a straightforward automation of the particle separator [of D9] would involve an automated sampling of feed from a mixed batch as mixed by a TMR feed mixer, an automatic analysis at any stage after the mixing of the feed batch is completed, and automatic control of the TMR mixer in response

to the measurement for another, later batch of feed to be mixed".

Accordingly the combination of teachings of D8 and D9 would not lead the skilled person to the combination of features as claimed by the main request.

However, in the view of the Board, the alleged restriction of the claimed scope as to require direct feedback is not derivable from the wording of claim 1 itself for the skilled person. Said restriction further stands in contradiction with the embodiment described in paragraphs [0034]-[0035] of the patent specification. According to this specific embodiment of the claimed invention the control device mixes the animal feed of a selected recipe based on historical data and consequently no direct feedback or near real time control is required. This particular embodiment of claim 1, in the opinion of the Board, corresponds to the "straightforward automation" referred to by the respondent-proprietor and results from an obvious combination of teachings of D8 and D9, as submitted above in section 3.3.1.

3.4 On the basis of the above the Board concludes that the subject-matter of claim 1 of the contested patent according to the main request lacks an inventive step in the sense of Article 56 EPC.

4. Auxiliary request

4.1 Independent claims 1 and 9 of the auxiliary request include, with respect to the independent claims of the main request, the features of granted - and originally filed - claim 4, which requires that density of the animal feed is measured, wherein said density is a measure of the size of the feed particles. As there is

a clear basis in the claims as originally filed and as granted these claims are unobjectionable under Article 123(2) and (3) EPC. Nor indeed has any such objection been raised by the appellant.

4.2 The subject-matter of claims 1 and 9 is regarded as new by the Board because measuring density of the animal feed and using it as a measure of the size of the feed particles is not described by the adduced evidence. The appellant-opponent does also not contest novelty of claims 1 and 9 according to the auxiliary request.

4.3 Auxiliary request - inventive step

Any generally known feed mixer as described e.g. in D8 or D13 can be considered as the closest prior art to the subject-matter of claim 1 or claim 9.

4.3.1 The subject-matter of claim 1 or claim 9 differs from the known system or method for feeding animals in a feed particle size measurement device provided for measuring the size of feed particles in said animal feed in connection with the mixing of the animal feed, a control device for receiving said measured size of feed particles and for automatically controlling the mixing time of the feed mixer based on said measured size of feed particles, the claimed system and method being fully automated, wherein density of the animal feed is measured and said density is used as a measure of the size of the feed particles.

4.3.2 Effect and problem to be solved

By particularly using density as a measure of the size of the feed particles only weight and volume of the whole sample need to be determined, which in turn

requires a simple measurement procedure and measuring device. Thus starting from any known feed mixer, the problem to be solved by the claimed invention can be seen as the provision of a system and method that delivers animal feed with optimized particle size in an automatic and efficient manner which is of reasonable cost and easy to implement and use (see paragraphs [0014], [0015] of the patent specification).

4.3.3 As argued above, the skilled person will as a matter of obviousness consider mixing time control to optimize particle size which he will further automate with a suitable control device and by using a particle size measurement device as in D9. However, there is no teaching in the prior art nor does the Board consider it obvious per se from common general knowledge to measure density as a measure of feed particle size.

In the opinion of the Board the use of this different concept marks a significant departure from direct particle size measurement as in D9 which is based on the use of sieves of different mesh size. Rather, density is identified as an appropriate measure for the intended object of the system or method, namely improving the quality of the delivered animal feed, that is sufficiently precise to achieve that required control and which is much simpler to implement. In the Board's view said identification of density as both suitable for the intended optimization and for a simple implementation does not arise from routine skill.

4.3.4 The Board is not convinced by the submissions of the appellant-opponent that the particle separator of D9 would implicitly measure the density of the animal feed. It may be that, with knowledge of the volume of the particles retained in each filter, the skilled

person *could* calculate density. However, there is no reason why the skilled person, who for control purposes is solely interested in measuring particle size and its distribution, *would* do so.

The appellant-opponent submits that the known particle separator measures the weight of the differently sized animal feed particles in each sieve and as the amount and size of the feed particles in each sieve is given, the volume of said particles is also known, what amounts to an implicit measurement of density. In the Board's opinion, those measurements may have a correlation with the density of the sample, but they do not give any value of the density. Furthermore, the size range of the particles in each sieve is known from the size of the sieve holes, but the volume of the whole sub-sample in each sieve is not directly derivable therefrom and is not measured by the known device. Thus the Board considers that the particle separator according to D9 does not measure either implicitly or explicitly density of the animal feed in the sense of the auxiliary request.

4.3.5 The appellant-opponent further objects that a system as claimed, simply using density as a measure of the size of the feed particles, would not work due to the influence of other parameters not considered in the claim such as type of animal feed or unpredictable shape of the particles. Thus, no technical effect can be attributed to the additional feature. Consequently the subject-matter of the independent claims lacks an inventive step.

However, in the Board's view the substance of this objection does not question the inventive merit of the claimed combination of features but whether the claimed

system or method can be performed, as it allegedly does not work. Thus a possible consideration of the merits of the objection would in fact turn on issues that fall squarely under the scope of Article 100(b). For this reason the Board takes the view that this objection, although it is under the form of a lack of inventive step objection, is in substance an objection under Article 100(b) EPC, insufficiency of disclosure. It is thus in the Board's view an objection under a fresh ground for opposition (Article 100(b) EPC) raised for the first time during the appeal proceedings. As the proprietor does not give their consent to its introduction into the proceedings as required by G10/91 the Board has no authority to examine the matter.

4.3.6 The Board therefore comes to the conclusion that the adoption of density as a measure of the size of the feed particles in the system of claim 1 and in the method of claim 9 involves an inventive step as required by Article 56 EPC.

5. For the above reasons the Board holds that the claims as amended according to the auxiliary request meet the requirements of the EPC. The Board is satisfied that the consequential amendments to the description bringing it into line with the amended claims are unobjectionable, and these were also not objected to by the appellant-opponent. The Board concludes that the patent can be maintained as amended pursuant to Article 101(3)(a) EPC.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the department of first instance with the order to maintain the patent in the following version:
   - **claims**: 1 to 11 of the auxiliary request, filed with letter dated 14 August 2013,
   - **description**: pages 2 to 5 as filed at the oral proceedings before the Board,
   - **drawings**: figures 1 to 4 of the patent specification.

The Registrar: The Chairman:

G. Magouliotis A. de Vries

Decision electronically authenticated