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Datasheet for the decision of 29 November 2018

Case Number: T 0898/17 - 3.2.07

Application Number: 12737459.3

Publication Number: 2732093

IPC: D21D1/30

Language of the proceedings: EN

Title of invention:
ROTOR REFINER PLATE ELEMENT FOR COUNTER-ROTATING REFINER HAVING CURVED BARS AND SERRATED LEADING EDGES

Applicant:
Andritz, Inc.

Headword:

Relevant legal provisions:
EPC Art. 83, 84, 123(2)

Keyword:
Independent claim 1 - clarity (yes) - sufficiency of disclosure (yes)
Amendments - allowable (yes)

Decisions cited:

Catchword:

Europäisches Patentamt
European Patent Office
Office européen des brevets

Beschwerdekammern

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Case Number: T 0898/17 - 3.2.07

D E C I S I O N
of Technical Board of Appeal 3.2.07
of 29 November 2018

Appellant: (Applicant)	Andritz, Inc. One Namic Place Glens Falls, NY 12801 (US)
Representative:	Hoffmann Eitle Patent- und Rechtsanwälte PartmbB Arabellastraße 30 81925 München (DE)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 14 November 2016 refusing European patent application No. 12737459.3 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman	I. Beckedorf
Members:	G. Patton
	V. Bevilacqua

Summary of Facts and Submissions

I. The appellant (applicant) lodged an appeal within the prescribed time limit and in the prescribed form against the decision of the Examining Division refusing European patent application No. 12 737 459.3.

The application was refused on the basis of Articles 83 and 84 EPC in view of the expression "*a radial line corresponding to the bar*" used in claims 1 of the then main request and the then second to eighth auxiliary requests (impugned decision, points 2.1 and 2.3). The amendment introduced in claim 1 of the then first auxiliary request of a "*corresponding radial line*" was held to not overcome the objections (impugned decision, point 2.2).

II. In its statement of grounds of appeal, the appellant maintained most of the above-mentioned requests and filed additional auxiliary requests.

In the annex to the summons to oral proceedings, the Board provided a preliminary non-binding negative opinion with respect to the fulfilment of the requirements of at least Article 84 EPC by all the requests on file.

In response to this, the appellant filed a new main request by letter dated 27 November 2018, maintaining all previous requests as auxiliary requests.

III. At the oral proceedings which took place on 29 November 2018, the appellant filed new first to eighth auxiliary requests. The discussion focused essentially on the fulfilment of the requirements of Articles 84, 83 and 123(2) EPC. At the end of the oral

proceedings, the appellant made the new sixth auxiliary request its new main request. For details of the oral proceedings, reference is made to the minutes.

The Board announced its decision at the end of the oral proceedings.

IV. During the oral proceedings, the appellant filed the following printouts from internet websites in support of its arguments:

HE1: https://www.jlfiberservices.com/innovations/prosafe/, first page, undated; and

HE2: https://tappsa.co.za/archive/APPW2002/Title/New_refiner_segments_technolog/new_refiner_segments_technolog.html, Petteri Vuorio et al., "New refiner segments technology to optimize fiber quality and energy consumption of refiner mechanical pulp", African Pulp and Paper Week (APPW), Durban, South Africa, 8-11 October 2002, first three pages.

V. The appellant requested

that the decision under appeal be set aside and that a patent be granted on the basis of the new sixth auxiliary request filed during the oral proceedings before the Board.

VI. Independent claim 1 of the new sixth auxiliary request reads as follows (amendments as compared to claim 1 of the application as originally filed are in bold with deletions in strikethrough, emphasis added by the Board):

"~~A refining plate segment for a~~**A counter-rotating** mechanical refiner of lignocellulosic material ~~**comprising:**~~,
the refiner comprising a circular refiner plate which is an assembly of refining plate segments (10, 34, 50) arranged in an annulus,
each refining plate segment (10, 34, 50) comprising a refining surface on a substrate **(42, 70, 122),** wherein the refining surface is adapted to face a refining surface of an opposing refiner plate, the refining surface including bars **(18, 36, 37, 54, 86, 88, 120)** and grooves **(22, 52)** between the bars **(18,...),**
the refiner plate being mounted in the refiner for rotation in a rotational direction (16),
wherein the bars (18, ...) each include a leading sidewall (26, 38, 128) facing the rotational direction (16) of the refiner plate, the leading sidewall (26, 38, 128) having an irregular surface, wherein the irregular surface includes protrusions (176) extending outwardly from the leading sidewall (26, 38, 128) towards a trailing sidewall (24, 130) on an adjacent bar (18, ...), and
wherein an angle **(19, 20)** of each bar **(18, ...)** ~~with respect to a radial line corresponding to the bar~~ increases at least 15 degrees along a radially outward direction,

from an angle (19) of the bar (18, ...) at a radially inward inlet to the refining surface relative to a radial line extending at the radially inward inlet of the bar (18, ...)
to an angle (20) of the bar (18, ...) at an outer periphery (30) of the refining surface relative to a radial line extending at the radially outer end of the bar (18, ...),

characterized in that
at the outer periphery (30) of the refining surface, ~~**and**~~ the angle **(20)** is a holdback angle **extending in the rotational direction (16) of the refiner plate from the radial line extending at the radially outer end of the bar (18, ...), the angle (20) being** in a range of 10 to 45 degrees ~~**or**~~**, preferably** 15 to 35 degrees ~~at the periphery of the refining surface~~**, relative to the radial line extending at the radially outer end of the bar (18,...),** and
~~wherein the bars each include a leading sidewall having an irregular surface, wherein the irregular surface includes protrusions extending outwardly from the sidewall towards a sidewall on an adjacent bar and the irregular surface extends inwardly along the bars without reaching an inlet of the refining surface~~
wherein the refining surface includes a radially inner refining zone (44, 82) and a radially outer refining zone (46, 84), with the radially outer refining zone (46, 84) having a higher density of bars (37, 86) than a density of bars (36, 88) in the radially inner refining zone (44, 82)."

VII. The appellant submits that claim 1 of this request and the claimed subject-matter overcome the objections under Articles 83, 84 and 123(2) EPC. The appellant's arguments are dealt with in the reasons for the decision.

Reasons for the Decision

1. *Clarity - Article 84 EPC*

1.1 As put forward by the appellant, the feature at stake in the impugned decision, points 2.1 and 2.2, for the objection of lack of clarity of a "*radial line corresponding to the bar*" or a "*corresponding radial line*" is no longer present in claim 1 of the main request. It has been replaced by a radial line extending either at the radially inward inlet or at the outer end of the bar (see point VI above).

1.2 The Board holds the view that the figures in documents HE1 and HE2 (page 3) filed by the appellant at the oral proceedings reflect the skilled person's understanding in the present technical field of the term "**segment**" used in claim 1 of the appellant's main request at the filing date of the present application (see in particular the date stated in HE2).

1.3 Hence, in view of the arcuate shape of a segment shown in HE1 and HE2 and the features of claim 1 that a segment is to be part of an assembly of refining plate segments arranged in an annulus to form the circular refiner plate of the claimed refiner, the skilled person would directly and immediately derive that a single center for the arcuate segment can be defined. From this center, a line can be drawn to intersect each point of each bar comprised by the segment. Said line corresponds to the radial line specified in claim 1 which extends either at the radially inward inlet or at the radially outer end of the bar.

1.4 Claim 1 concerns a refiner which is suitable for rotating the refiner plate, which is mounted in the

refiner, in a rotational direction. The skilled person knows towards which direction the mounted plate is to be rotated for the features of the bars specified in claim 1, i.e. the leading sidewall, the trailing sidewall and the holdback angle at the radially outer end of the bar, to fulfil the claimed requirements vis-à-vis the rotational direction (see for instance, paragraph 37 of the application as originally filed for the definition of a "*holdback angle*" in comparison with a "*feeding angle*").

1.5 In view of the above, the finding in the impugned decision with respect to the non-fulfilment of the requirements of clarity no longer holds and independent claim 1 is clear (Article 84 EPC).

2. *Sufficiency of disclosure - Article 83 EPC*

As with the objection of lack of clarity discussed above, the same expression at stake in the impugned decision for the objection of insufficiency of disclosure, points 2.1 and 2.2, of a "*radial line corresponding to the bar*" or a "*corresponding radial line*" is no longer present in claim 1 of the main request since it has been replaced by a radial line extending either at the radially inward inlet or at the radially outer end of the bar (see point VI above).

As a consequence, for the same reasons as those given under point 1 above for clarity, the Board considers that the finding in the impugned decision with respect to the non-fulfilment of the requirements of sufficiency of disclosure no longer holds, and the skilled person would have been able to carry out the invention specified in claim 1 of the main request at the filing date of the application (Article 83 EPC).

3. *Amendments - Article 123(2) EPC*

As put forward by the appellant at the oral proceedings, claim 1 of the main request is based on original claim 1 of the application as filed (see point VI above).

The basis for the amendments and/or deletions with respect to original claim 1 given below (amendments are in bold and deletions in strikethrough, emphasis added by the Board) was provided by the appellant during the oral proceedings.

The following amendments and deletions:

> "~~A refining plate segment for a~~**A counter-rotating** mechanical refiner of lignocellulosic material ~~**comprising:**~~

are based on paragraph 32, last sentence, of the application as originally filed. Further to this passage, paragraph 35 of the application as originally filed discloses that the features of the bar and grooves do not need to be similar on the opposite rotor plate of the refiner.

The following amendments:

> **the refiner comprising a circular refiner plate which is an assembly of refining plate segments (10, 34, 50) arranged in an annulus**
>
> **each refining plate segment (10, 34, 50) comprising** a refining surface on a substrate **(42, 70, 122),** wherein the refining surface is adapted to face a

refining surface of an opposing refiner plate, the refining surface including bars **(18, 36, 37, 54, 86, 88, 120)** and grooves **(22, 52)** between the bars **(18,...)**

the refiner plate being mounted in the refiner for rotation in a rotational direction (16)

are based on paragraphs 12 and 35 of the application as originally filed.

The following amendments:

wherein the bars (18, ...) each include a leading sidewall (26, 38, 128) facing the rotational direction (16) of the refiner plate, the leading sidewall (26, 38, 128) having an irregular surface, wherein the irregular surface includes protrusions (176) extending outwardly from the leading sidewall (26, 38, 128) towards a trailing sidewall (24, 130) on an adjacent bar (18, ...)

are based on original claim 1, see below (see also paragraphs 39 and 45 of the application as originally filed).

The following amendments and/or deletions:

wherein an angle **(19, 20)** of each bar **(18, ...)** ~~with respect to a radial line corresponding to the bar~~ increases at least 15 degrees along a radially outward direction,

from an angle (19) of the bar (18, ...) at a radially inward inlet to the refining surface

relative to a radial line extending at the radially inward inlet of the bar (18, ...)

to an angle (20) of the bar (18, ...) at an outer periphery (30) of the refining surface relative to a radial line extending at the radially outer end of the bar (18, ...)

at the outer periphery (30) of the refining surface, ~~and~~ the angle **(20)** is a holdback angle **extending in the rotational direction (16) of the refiner plate from the radial line extending at the radially outer end of the bar (18, ...), the angle (20) being** in a range of 10 to 45 degrees **~~or~~, preferably** 15 to 35 degrees~~ at the periphery of the refining surface~~, **relative to the radial line extending at the radially outer end of the bar (18,...)**

are based on paragraphs 36 to 38 of the application as originally filed and original Figure 2, in which the angle 19 at the inner end of the bar, i.e. at the radially inward inlet of the bar, and the angle 20 at the radially outer end of the bar are schematically shown.

The following deletions:

~~wherein the bars each include a leading sidewall having an irregular surface, wherein the irregular surface includes protrusions extending outwardly from the sidewall towards a sidewall on an adjacent bar and the irregular surface extends inwardly along the bars without reaching an inlet of the refining surface~~

are maintained in claim 1 (see above). The deletion of the "*irregular surface extending inwardly along the bars without reaching an inlet of the refining surface*" is based on paragraphs 45 or 47 of the application as originally filed.

The following amendments:

> **wherein the refining surface includes a radially inner refining zone (44, 82) and a radially outer refining zone (46, 84), with the radially outer refining zone (46, 84) having a higher density of bars (37, 86) than a density of bars (36, 88) in the radially inner refining zone (44, 82).**

are based on original claim 18 and paragraph 64 describing Figure 8 of the application as originally filed.

In view of the above it appears that no new teaching has been introduced by the amendments and/or deletions performed. Since the skilled person would be able to directly and unambiguously derive the subject-matter of claim 1 of the main request using common general knowledge from the application as originally filed as a whole, claim 1 of the main request fulfils the requirements of Article 123(2) EPC. This also applies to the dependent claims.

4. *Remittal*

Since the impugned decision concerns only the clarity and sufficiency of disclosure of claims 1 of the then requests, the Board considers it appropriate in view of the above reasons to remit the case to the Examining Division for further prosecution on the basis of the

appellant's main request, i.e. the new sixth auxiliary request filed during the oral proceedings before the Board, pursuant to Article 111(1) EPC.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the Examining Division for further prosecution on the basis of the new auxiliary request 6 filed during the oral proceedings.

The Registrar: The Chairman:

G. Nachtigall I. Beckedorf

Decision electronically authenticated