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**D E C I S I O N**  
**of 21 March 2002**

**Case Number:** T 0939/99 - 3.2.7

**Application Number:** 92850258.2

**Publication Number:** 0541502

**IPC:** D21H 25/12

**Language of the proceedings:** EN

**Title of invention:**

Method and equipment for keeping the coating rod and the rod cradle in a bar coater clean and for prevention of leakage of the lubrication and/or cooling water

**Patentee:**

Metso Paper, Inc.

**Opponent:**

Jagenberg Papiertechnik GmbH

**Headword:**

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**Relevant legal provisions:**

EPC Art. 56

**Keyword:**

"Inventive step (no)"

**Decisions cited:**

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**Catchword:**

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Case Number: T 0939/99 - 3.2.7

**D E C I S I O N**  
**of the Technical Board of Appeal 3.2.7**  
**of 21 March 2002**

**Appellant:** Metso Paper, Inc.  
(Proprietor of the patent) Fabianinkatu  
Fin-00130 Helsinki (FI)

**Representative:** Lorenz, Werner  
Lorenz & Kollegen  
Patent- und Rechtsanwaltskanzlei  
Alte Ulmer Strasse 2-4  
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**Respondent:** Jagenberg Papiertechnik GmbH  
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**Representative:** Thul, Hermann, Dipl.-Phys.  
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**Decision under appeal:** Decision of the Opposition Division of the  
European Patent Office posted 22 July 1999  
revoking European patent No. 0 541 502 pursuant  
to Article 102(1) EPC.

**Composition of the Board:**

**Chairman:** A. Burkhart  
**Members:** P. A. O'Reilly  
E. Lachacinski

## Summary of Facts and Submissions

I. The appellant (patent proprietor) lodged an appeal against the decision of the Opposition Division to revoke the European patent No. 0 541 502.

Opposition had been filed against the patent as a whole based on Article 100(a) EPC (lack of novelty and inventive step).

The Opposition Division held that the patent had to be revoked according to Article 100(a) EPC for lack of inventive step in view of:

D1: US-A-4 245 582

D2: US-A-4 658 753.

II. On 21 March 2002 oral proceeding took place before the Board of Appeal.

The appellant requested that the decision under appeal be set aside and that the patent be maintained in amended form on the basis of

- claims 1 to 6 filed during the oral proceedings as main request, or
- claims 1 to 9 filed with letter of 20 February 2002 as first auxiliary request, or
- claims 1 to 8 filed with letter of 20 February 2002 as second auxiliary request, or
- claims 1 to 6 filed during the oral proceedings as

third auxiliary request.

The respondent (opponent) requested that the appeal be dismissed

III. The independent claims of the main request read as follows:

"1. Method for keeping the coating rod (41) and the rod cradle (42) in a bar coater clean and for prevention of leakage of the lubrication and/or cooling water in a bar coater in which the coating rod (41) is, substantially over its entire length, supported revolvingly in a rod cradle (42) attached to the frame constructions (50) of the coater, which cradle is provided with at least one groove (43, 44) substantially parallel to the coating rod (41) and open towards said coating rod, in which groove(s) water is circulated to lubricate, to cleanse and/or to cool the coating rod (41) and the rod cradle (42), the coating rod (41) being loaded towards the base (B) to be coated by loading the rod cradle (42) by means of a first loading member (51), and the rod cradle (42) being deflected in relation to the coating rod (41) by means of a second loading member (53) for loading its sealing lips (45, 47) against the coating rod (41) and sealing the glide faces (46, 48) between the rod cradle (42) and the coating rod (41) substantially over the entire length of the rod cradle to prevent leakage or at least substantially reduce leakage from the water groove(s) (43, 44) wherein the two loading members (51, 53) are separately adjustable, so that the tightness of the glide faces (46, 48) between the rod cradle (42) and the coating rod (41) can be regulated,

characterised in that the second loading member (53) is located downstream of the first loading member (51), which both act against the rear face (49) of the rod cradle and which extend over the length of the rod cradle (42)."

"3. Equipment intended for carrying out the method as claimed in any of the preceding claims for keeping the coating rod (41) of the rod cradle (42) in a bar coater clean and for prevention of leakage of the lubrication and/or cooling water in a bar coater in which the coating rod (41) is, substantially over its entire length, supported revolvingly in a rod cradle (42) attached to the frame constructions (50) of the coater, which cradle is provided with at least one water groove (43, 44) substantially parallel to the coating rod (41) and open towards said coating rod, in which groove(s) water circulation is arranged to lubricate, to cleanse and/or to cool the coating rod (41), the rod cradle being provided with means for loading the coating rod (41) towards the base (B) to be coated, said means for loading the coating rod (41) and the rod cradle (42) comprising a first loading member (51) that extend substantially over the entire length of the rod cradle (42), said rod cradle (42) being further provided with a second loading member (53) for deflecting the rod cradle (42) in relation to the coating rod (41) in order to press the sealing lips (45, 47) against the coating rod (41) and to seal the glide faces (46, 48) between the coating rod (41) and the rod cradle (42) to prevent leakage or at least substantially reduce leakage from the water groove(s) (43, 44),

characterised in that the second loading member (53) is

located downstream of the first loading member (51), which both act against the rear face (49) of the rod cradle and which extend over the length of the rod cradle (42)."

Independent claims 1 and 5 of the first auxiliary request essentially differ from the independent claims of the main request in that they further specify that the coating rod (41) and the rod cradle (42) are of the short-dwell type and that the rod cradle acts as a support face between a profile rib (56) of the support and the cradle.

The further independent claims 3 and 6 of the first auxiliary request essentially differ from the independent claims of the main request in that they further specify that the coating rod and the rod cradle are of the short-dwell type, that the second loading member is located in a groove (33) of the rear face, and that the primary direction of loading of the second loading member is parallel to the rear face of the cradle.

The independent claims 1 and 4 of the second auxiliary request are identical to claims 1 and 5 respectively of the first auxiliary request.

The independent claims 1 and 3 of the third auxiliary request correspond substantially to the claims 3 and 6 respectively of the first auxiliary request.

IV. With respect to the requests the parties essentially argued as follows:

*Main request*

The appellant essentially argued as follows:

The pressure tube 28 disclosed in document D1 is comparable with the first loading member as set out in the claims. The form of the lip portion 24 of the rod holder 16 disclosed in document D1 is important and would be kept. The pressure tube 30 of document D1 would clog due to material removed by rod 19 flowing down on to the pressure tube. This is the problem the skilled person would wish to solve with respect to document D1. He would solve this problem by providing a sealing means in front of tube 30. If the skilled person did move the pressure tube 30 away from the area of the coating material then he would do this by forming it as a mirror image of the existing condition. The pressure tube 30 would then be placed downstream of the first pressure tube 28 but would not be acting against the rear face of the rod holder as required by the claims of the main request. The combination of the downstream arrangement and the action on the rear face ensures that according to the claims of the main request the second loading member is as far as possible away from the area where there is the greatest amount of coating material.

In the device of document D1 the second pressure tube 30 acts against a surface 26 which is not however the rear face of the rod holder. The expression "the rear face" must be understood as meaning the rearmost face and surface 26 of document D1 against which the pressure tube 30 acts is not the rearmost face of the rod holder 16. Document D1 does not provide any general teaching of how the force should to be applied to the sealing lips, in particular an eccentric force is not referred to in document D1.

The respondent essentially argued as follows:

The appellant refers to a clogging problem. The patent in suit however does not mention any clogging problem so that this problem cannot be taken into account. The pressure tube 30 acts against a rear surface of the rod holder since the surface 26 is a rear surface so that the corresponding feature of the independent claims is known from document D1. The skilled person would place the second pressure tube 30 downstream of the first tube without solving any problem. Although the pressure tubes 28 and 30 are not explicitly stated to extend over the length of the rod cradle the skilled person would understand that this is a necessary feature.

*First and second auxiliary requests*

Since the independent claims 1 and 5 of the first auxiliary request were identical to claims 1 and 4 of the second auxiliary request the parties were requested in the oral proceedings to first present their arguments regarding these claims.

The appellant essentially argued as follows:

The additional feature of the characterising portion of claim 1 of a profile rib which provides support for both loading members is not known from or suggested by document D1.

The respondent essentially argued as follows:

Document D1 discloses a member 41 having the form of a profile rib as indicated in column 3, lines 37 to 49. If the pressure tube 30 were moved to act against the



same face as the pressure tube 28 it would be obvious to the skilled person to extend the member 41 to also act on pressure tube 30.

*Third auxiliary request*

The appellant essentially argued as follows:

The position of the pressure tube 30 of document D1 is different to that set out in claim 1 since the tube is not positioned in the rear face of the rod cradle 16.

The respondent essentially argued as follows:

The pressure tube 30 of document D1 is positioned in a groove in the rear face of document D1. The face in which the tube is positioned is orientated away from the coating rod 19 and hence this face forms the rear face. Therefore, this feature is disclosed in document D1.

**Reasons for the Decision**

1. *Amendments*

It is not necessary to consider whether the amendments made in connection with the requests of the appellant conform with all aspects of the Convention since the patent as amended in accordance with the requests cannot be maintained for lack of inventive step as explained below.

2. *Main Request*

2.1 Closest prior art

The closest prior art is represented by document D1 which discloses (cf. Figure 1) a method for keeping the coating rod 18 and the rod cradle 16 in a bar coater clean and for prevention of leakage of the lubrication and/or cooling water in a bar coater in which the coating rod 18 is, substantially over its entire length, supported revolvingly in a rod cradle 16 attached to the frame constructions 40 of the coater, which cradle is provided with at least one groove 36, 38 substantially parallel to the coating rod 18 and open towards said coating rod, in which groove(s) water is circulated (column 3, lines 56 to 61) to lubricate, to cleanse and/or to cool the coating rod 18 and the rod cradle 16, the coating rod 18 being loaded towards the base 12 to be coated by loading the rod cradle 16 by means of a first loading member 28, and the rod cradle 16 being deflected in relation to the coating rod 18 by means of a second loading member 30 for loading its sealing lips against the coating rod 18 and sealing the glide faces between the rod cradle 16 and the coating rod 18 substantially over the entire length of the rod cradle to prevent leakage or at least substantially reduce leakage from the water groove(s) (Figure 3C, and column 5, lines 52 to 59) wherein the two loading members 28, 30 are separately adjustable (column 3, lines 56 to 59), so that the tightness of the glide faces between the rod cradle 16 and the coating rod 18 can be regulated, wherein the first loading member 28 acts against the rear face 22 of the rod cradle.

2.2 Problem to be solved

In prior art devices the water which circulates in the grooves to lubricate and/or cool the coating rod can leak past the sealing lips of the rod cradle which are intended to seal against the rod to prevent such leakage. The result is that water leaks and comes into contact with the base to be coated.

According to the patent in suit the problem to be solved therefore is to prevent leakage of the circulating water past the sealing lips (see column 2, lines 3 to 10 of the patent in suit). This problem however is already solved by the provision of the first and second loading members in document D1. The problem to be solved therefore by the features distinguishing claim 1 over document D1 is to provide an alternative form of the known solution.

### 2.3 Solution to the problem

In accordance with claim 1 of the main request the problem is solved by the provision of the features:

The second loading member is located downstream of the first loading member, which both act against the rear face of the rod cradle and which extend over the length of the rod cradle.

### 2.4 This solution to the problem is obvious for the following reasons:

In document D1 the second loading member is located upstream of the first loading member. No specific reason is given in document D1 for the upstream location of the second loading member so that there is no prejudice to the skilled person against providing

the second loading member in a different position. The specified purpose of the second loading member as set out in claim 1 is to load the sealing lips against the coating rod. This purpose is also achieved by the second loading member of document D1. In order to achieve this purpose the second loading member of document D1 applies an eccentric force on the rod cradle relative to the rod. Since the rod cradle is deformable this eccentric force presses the sealing lip on one side against the coating rod which presses then also against the other sealing lip on the other side of the coating rod. It is clear to the skilled person that this eccentric force can be applied at the downstream side instead of at the upstream side of the first loading member. It is true to say that document D1 does not specifically refer to an eccentric force. Nevertheless, it is the teaching that the skilled person would derive from document D1 must be considered. The skilled person would recognise that it is only due to the eccentric positioning of the second loading member that produces the necessary force on the sealing lips. If an eccentric force were not required then there would be no need for the second loading member since the first loading member would be sufficient. Therefore, it does not require an inventive step for the skilled person to provide the second loading member at the downstream side.

In document D1 the first loading member acts against the rear face of the rod cradle. Since claim 1 refers to "the rear face" using the definitive article this implies that there is only one such face which must therefore be the rearmost face. By "the rear face" the Board therefore understands the rearmost face. In document D1 the second loading member acts against a

rear facing face. This face is not however the rearmost face since there is a further face having the same orientation as the face on which the second loading member acts, but more to the rear. The only requirement for the application of the eccentric force is that there is provided an eccentric face of the rod cradle on which the second loading member may act. This may be a rear face, i.e. orientated rearwardly, or the rear(most) face. The first loading member disclosed in document D1 already acts on the rearmost face of the rod cradle and hence the skilled person would consider providing the second member in a position also acting on this rearmost face. The fact that the second loading member as disclosed in document D1 did not act on the rearmost face would not inhibit the skilled person from providing it acting on the rearmost face on the downstream side. The rod cradle in document D1 is attached to the remainder of the device on the upstream side. This means that it was not possible to provide the second loading member on the upstream side acting on the rearmost face since the attachment prevents any force being transmitted from the rearmost face to the sealing lips at the upstream side. At the downstream side the absence of an attachment means that this inhibition does not exist. The skilled person would therefore choose the rear face as an acceptable point of contact for the second loading member. This feature is therefore obvious to the skilled person.

The feature that both the loading members extend over the length of the rod cradle is not expressly disclosed in document D1. Nor can it be considered that the feature is implicitly disclosed, since there is no indication that the skilled person when reading document D1 would understand that the loading members

must inevitably extend over the rod cradle. Nevertheless, the skilled person when considering document D1 would consider providing the loading member over the length of the rod cradle since then he could be sure that the loading members would prevent leakage over the whole length. It would be clear to the skilled person that if the loading members did not extend over the length of the rod cradle there would be a risk of leakage at the parts over which the loading members did not extend. Hence, this feature is obvious to the person skilled in the art.

The arguments of the appellant regarding the problem of clogging in document D1 cannot be followed. There is no indication in document D1 that such a problem exists. Also, in the patent in suit there is no indication that this problem is solved by the features of the invention. For this reason also the argument of the appellant that the provision of the second loading member downstream of the first loading member and at the rear face solves this problem cannot be followed in the absence of an indication that such a problem exists.

Since the features distinguishing the claim from the disclosure of document D1 are obvious to the person skilled in the art the subject-matter of claim 1 of the main request lacks an inventive step.

Independent apparatus claim 3 contains apparatus features corresponding to the method features of claim 1 and its subject-matter is therefore similarly obvious to the person skilled in the art.

3. *First and second auxiliary requests*

3.1 These requests each contain identical method claims 1 and identical apparatus claims 5 and 4 respectively and hence may be considered together. The fact that the first auxiliary request contains further independent claims does not affect the allowability of the request since the lack of an inventive step in the subject-matter of the above mentioned common claims means that each request as a whole is not allowable.

3.2 Closest prior art

The closest prior art is document D1 whose disclosure has already been set out above with respect to the main request.

3.3 Problem to be solved

The problem to be solved is the same as for the main request. There is no indication that this has changed.

3.4 Solution to the problem

In accordance with claim 1 of each of these requests the problem is solved by the provision of the following features:

The coating rod and the rod cradle are of the short-dwell type, the second loading member is located downstream of the first loading member, which both act exclusively against the rear face of the rod cradle which acts as a support face between a profile rib of the support and the cradle and both loading members extend over the length of the rod cradle.

3.5 This solution to the problem is obvious for the

following reasons:

Short dwell coaters are a known type of prior art coater as is acknowledged in the patent in suit (see Figure A1 and the corresponding description). The problems of keeping the lubricating water of the coating rod from leaking arise in this type of coater just as in the type known from document D1. The skilled person would therefore also apply the teachings of document D1 to short-dwell type coaters.

It has already been explained with respect to the main request why the skilled person would wish to arrange the second loading member downstream of the first loading member and acting on the rear face of the rod cradle and why the skilled person would consider arranging the second loading member in the same manner as the first loading member on the rear face.

The claim further specifies a profile rib. In document D1 there is a profile rib (on backing bar 41, visible in Figure 1) against which the first loading member acts. Its function in document D1 is to provide the basic loading onto the first loading member 28 and to allow this loading to vary along the bar (column 4, line 35 to column 5, line 12). When providing the second loading member acting on the rear face of the cradle the skilled person would naturally extend the existing profile rib to act also on the second loading member. The provision of this feature is therefore obvious for the person skilled in the art. No form for the profile rib is specified in the claim and its purpose is not indicated in the patent in suit.

The feature that the loading members extend over the



length of the rod cradle is obvious to the person skilled in the art for the reasons already given with respect to the main request.

Since the provision of the features which distinguish claim 1 from document D1 has been shown to be obvious to the skilled person the subject-matter of claim 1 of each of the first and second auxiliary requests lacks an inventive step.

Independent apparatus claim 5 of the first auxiliary request and claim 4 of the second auxiliary request contain apparatus features corresponding to the method features of their respective claims 1. Their subject-matter is therefore similarly obvious to the person skilled in the art.

#### 4. *Third auxiliary request*

##### 4.1 Closest prior art

The closest prior art is document D1 part of whose disclosure has already been set out above with respect to the main request.

In addition, in document D1 the first loading member rests against the rear face of the cradle which acts as a support between the rear face 22 and the frame constructions. Document D1 further discloses the second loading member 30 being located in a groove in a face of the cradle, the primary direction of loading of the second member being parallel to the face of the cradle in which the groove is set.

##### 4.2 Problem to be solved

The problem to be solved is the same as for the main request. There is no indication that the problem has changed.

#### 4.3 Solution to the problem

In accordance with claim 1 of this request the problem is solved by the provision of the following features:

The groove in which the second loading member is located is in the rear face, and both loading members extend over the length of the rod cradle.

#### 4.4 This solution to the problem is obvious for the following reasons:

As already explained with respect to the main request the skilled person recognises the essential teaching of document D1 that the second loading member must exert an eccentric force on the rod cradle in order to produce a force which acts on the sealing lips. The exact positioning of the groove of document D1 does not affect whether or not the second loading member can have the desired effect. The skilled person therefore recognises that the groove containing the second loading member can also be positioned in the rear face of the rod cradle which forms a support face. No prejudice against such a placement has been demonstrated.

The feature that the loading members extend over the length of the rod cradle is obvious to the person skilled in the art for the reasons already given with respect to the main request.

**Order**

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

The Appeal is dismissed.

The Registrar:

The Chairman:

L. Martinuzzi

A. Burkhart