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**Datasheet for the decision
of 15 May 2009**

Case Number: T 1320/07 - 3.2.07

Application Number: 99203996.6

Publication Number: 0990497

IPC: B28B 21/14

Language of the proceedings: EN

Title of invention:

A method for vertical casting of pipes of concrete or a similar material in a mould system with a distributor wheel

Patentee:

Pedershaab Concrete Technologies A/S

Opponent:

Schlösser-Pfeiffer GmbH

Headword:

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Relevant legal provisions:

EPC Art. 54, 56, 114(2)

RPBA Art. 10a(2)

RPBA Art. 13(1), 13(3)

Relevant legal provisions (EPC 1973):

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Keyword:

"Late filed document (admitted)"

"Inventive step (all requests): no"

Decisions cited:

-

Catchword:

-



Case Number: T 1320/07 - 3.2.07

DECISION
of the Technical Board of Appeal 3.2.07
of 15 May 2009

Appellant: Schlosser-Pfeiffer GmbH
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Representative: Keil, Rainer A.
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Respondent: Pedershaab Concrete Technologies A/S
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Decision under appeal: Decision of the Opposition Division of the
European Patent Office posted 8 June 2007
rejecting the opposition filed against European
patent No. 0990497 pursuant to Article 102(2)
EPC.

Composition of the Board:

Chairman: H. Meinders
Members: K. Poalas
I. Beckedorf

Summary of Facts and Submissions

- I. The appellant (opponent) lodged an appeal against the decision of the Opposition Division on the rejection of the opposition against the European patent No. 0 990 497.

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

The Opposition Division held that these grounds did not prejudice the maintenance of the patent as granted.

- II. Oral proceedings before the Board of Appeal were held on 15 May 2009.

(a) The appellant requested that the decision under appeal be set aside and that the European patent No. 0 990 497 be revoked.

(b) The respondent (patent proprietor) requested that the appeal be dismissed (main request) or in setting aside the decision under appeal the patent be maintained in amended form on the basis of the auxiliary request filed during the oral proceedings.

- III. Claim 1 as granted reads as follows:

"A method for vertical casting of pipes (8) of concrete or a similar material on a machine, said machine comprising inner and outer mould parts (2, 12), respectively, means for axially displacing the inner

and outer mould parts with respect to each other during the casting process, a profile ring (16) secured to the outer mould part or an axially upwardly and downwardly displaceable part of the machine, said profile ring upwardly continuing in a hopper shaped expansion (17), an axially journalled distributor wheel (1) being rotatably mounted on the top of the inner mould part, where the method comprises steps of:

- a) gradually moving the inner mould in an upwardly direction while filling material through the profile ring and compressing material between the inner and outer mould parts, and
- b) continuing movement of the inner mould part to a position where the distributor wheel is placed above the profile ring, and
- c) depositing excess material (21) in the expansion (17), characterised in that at least one vibrator (19) is preferably arranged upwardly in the inner mould part, and that the method comprises a further step of:
 - d) continuing movement of the inner mould part to a position where the distributor wheel is placed above the excess material and vibration compressing the excess material (21) in the expansion (17) caused by the vibrator in the inner mould part".

Claim 1 according to the auxiliary request corresponds to claim 1 as granted together with the following additional features of granted claim 5:

"where the top of the inner mould part is shaped as an upwardly converging cone (6) and a transition between the cone and a cylindrical portion of the inner mould part (2) is formed by a sharp edge (20), and where the method comprises the step of cutting of the excess

concrete (21) from the pipe by passing the sharp edge through the profile ring (16) to terminate the end of the pipe with a precise shape".

IV. The documents of the opposition proceedings of relevance for the present decision are the following:

D11: EP-A-0 388 347,

D13: brochure "Pfeiffer Triviant".

V. The appellant argued essentially as follows:

Main request: Claim 1 - Novelty (Article 54 EPC)

The method for vertical casting of pipes of concrete known from D11 involves all the features claimed in claim 1 as granted, including the characterizing steps of

(i) continuing movement of the inner mould part to a position where the distributor wheel is placed above the excess material and

(ii) vibration compressing the excess material in the expansion caused by the vibrator in the inner mould part.

According to column 15, lines 33 to 35 of D11 the packerhead assembly 38 is moved through the top table 26. This means that at least a part of the packerhead assembly 38 extends upwardly of the top table 26 and therefore it is placed at a position above the excess concrete material in the hopper-shaped part above the stepped ring 33, which is to be considered the claimed

"expansion", as it is a conical ring. In any case the fins 68, 268 of the distributor wheel will then be above the excess material in the hopper-shaped expansion.

According to figure 13 of D11 the vibrator 243 and the packer head assembly 238 are rigidly connected with each other and with the core 237. The vibration of the vibrator 243 is thus directly transmitted both to the mantle of the core 237 as well as to the packerhead assembly 238, see column 16, lines 20 to 37 and column 17, lines 12 to 17 of D11. The core 237 is at least moved until the top of the mould 24, i.e. to the stepped profile ring 33 (column 8, lines 22, 23; column 14, line 50); in that case the packerhead assembly 238 lies within the top table 26 and even partly above it. The packerhead assembly compresses then at least the part of the excess concrete material being in contact both with the packerhead assembly and the expansion due to this vibration.

Features (i) and (ii) are therefore also known from D11 and the subject-matter of claim 1 is therefore not novel.

Auxiliary request: Admittance into the proceedings of document D13

D13 is a highly relevant document which has been filed in the course of the opposition proceedings. Arguments based on said document are now also presented as a reaction to the auxiliary request of the respondent filed during the oral proceedings. Said document can be easily understood and it should therefore be admitted

into the proceedings.

*Auxiliary request: Claim 1 - Inventive step
(Article 56 EPC)*

The periphery of the plate 259 in figure 13 of D11 defines a sharp edge.

The only differentiating feature between the method according to the auxiliary request and the method known from D11 is that the top of the inner mould part is shaped as an upwardly converging cone.

Such a form for the upper part of the inner mould facilitates the distribution of the concrete material into the space between inner and outer mould.

The figures of D13 show an upper inner mould part having the form of an upwardly converging cone.

The skilled person seeking to facilitate the distribution of the concrete material into the space between the inner and the outer mould would follow the teaching of D13 and thus would form the outer periphery of the plate 259 as an upwardly converging cone without exercising an inventive activity.

VI. The respondent argued essentially as follows:

*Claim 1 according to the main request - Novelty
(Article 54 EPC)*

As the packerhead assembly moves into the table 26 there is no longer an outer mould, so that no concrete

can be pressed against the outer mould: when the packerhead assembly moves vertically out of the table top it throws concrete onto the table, which cannot be compressed as claimed. Given the fact that the angle of the hopper shaped expansion within the table as shown in figure 2 of D11, has an inclination of 45° and that a big space exists between the packerhead assembly and this expansion, the concrete, if any is present, cannot be compressed compressed, it simply flows away.

None of the features (i) and (ii) is therefore directly and unambiguously derivable from D11.

Auxiliary request: Admittance into the proceedings of document D13

According to the then valid Article 10a(2) RPBA the statement of grounds of appeal should contain a party's complete case. Document D13 having been filed after expiry of the opposition period and not having been referred to in that statement is to be considered a late filed document and for that reason should not be admitted into the proceedings.

Auxiliary request: Claim 1 - Inventive step (Article 56 EPC)

The figures of D13 show only an inclined face of the cylindrical inner mould and not an upwardly converging cone.

Therefore, D13 does not lead the skilled person to shape the top of the inner mould part as an upwardly

converging cone.

Reasons for the Decision

1. *Main request: Claim 1 - Novelty (Article 54 EPC)*

1.1 A method according to the preamble of claim 1 as granted and whereby one vibrator is arranged upwardly in the inner mould part is known from D11. This was not disputed by the respondent.

The question at stake is therefore whether the steps of the characterising part of granted claim 1 of

(i) continuing movement of the inner mould part to a position where the distributor wheel is placed above the excess material and

(ii) vibration compressing the excess material in the expansion caused by the vibrator in the inner mould part,

are known from D11.

1.2 Step (i) does not require that the distributor wheel has to be placed above the entire mass of excess material but according to the wording of claim 1 the conditions of step (i) are fulfilled also when the distributor wheel is above only a part of the excess material. The circular top plate 64, 264 of the machine disclosed in D11 having paddles or fins 68, 268 thereon is a distribution wheel in the sense of claim 1. In column 15, lines 33 to 35 of D11 it is stated that "[c]ore 37 continues to move upwardly in mold 24 to

move the packerhead assembly 38 through top table 26". This is also in conformity with the passage in column 8, lines 20 to 33 of D11 stating that the core moves towards the upper end of the mould, whereby the vibration frequency of the vibrator increases at the same time in order "to ensure that the upper section of the concrete pipe is sufficiently consolidated so that the pipe has substantially uniform density throughout the length thereof". The Board considers that to achieve this the core 37, 237 has to move upwards until at least its upper part 60, 260 has passed profile ring 33, so that all the material for the concrete pipe has come into contact with the vibrating core 37, 237 in order to achieve said sufficient consolidation. In that case the packerhead assembly 38, 238 has a position resulting in its top plate 64, 264 having at least completely entered into the top table 26, if not reaching the latter's upper end. In that case the top plate 64, 264 is automatically positioned at least above the lower part of top table 26 and hence it is positioned above at least the excess concrete material lying in the lower part of the hopper shaped expansion within the top table 26.

The fins of the distributor wheel 68, 268 being placed on top of plate 64, 264 are then by definition above this excess material.

As a result the Board concludes that the method step (i) is also known from D11.

- 1.3 What is meant in the contested patent by "compressing the excess concrete material" is described in paragraphs [0008], [0016] and [0017] of the patent

specification. Accordingly, the excess concrete material in the expansion is to be compressed only so far that it does not drop back into the finished pipe, when the core is withdrawn downwardly. The excess concrete material "compressed" in the expansion still has to be loose enough, however, to drop down into the space between the inner and the outer mould by the vibration of the core and/or by the refill from fresh concrete in the next duty cycle. The compression of the excess concrete material within the expansion is thus lower than the compression of the concrete during the production of the concrete pipe itself.

Such a low compression of the concrete material, which is just enough that the excess concrete material will remain in the expansion is, however, also described in document D11. The excess concrete material is temporarily stored in the expansion (top table 26) until the wiper 29 in the next step, together with fresh concrete for the manufacture of the next pipe, is actuated, see column 15, lines 35 to 39 of D11. The degree of compression of the excess concrete material of D11 is therefore identical with the one of the contested patent, ie with the one claimed in claim 1.

According to figure 13 of the D11 the vibrator 243 and the packerhead assembly 238 are rigidly connected with each other and with the core 237. The vibration of the vibrator 243 is thus directly transmitted both to the mantle of the core 237 as well as to the packerhead assembly 238, see column 16, lines 20 to 37 and column 17, lines 12 to 17 of D11. When the core 237 is moved until the top of the stepped profile ring 33, the packerhead assembly 238 clearly lies within the top

table 26. The packerhead assembly then compresses at least the part of the excess concrete material being in contact both with the packerhead assembly and the oblique surface of the expansion in the top table due to this vibration.

- 1.4 In addition, it can even be assumed that the compression of the excess concrete material in the hopper-shaped expansion of the machine disclosed in D11 is at least partially caused by the core itself, due to the vibration of the vibrator 43, 243. Towards the end of the manufacturing process of a pipe the packerhead assembly 38, 238 is moved "through" the top table 26. In that case the top of core 37, 237 is located inside the top table 26. According to column 8, lines 20 to 33 of D11 the vibrator is still in operation and the vibration frequency is increased when the core moves towards the upper end of the mould 24 so that the upper section of the concrete pipe becomes sufficiently compacted.

For the above mentioned reasons the Board concludes that the method step (ii) is also known from D11.

- 1.5 The respondent argued that the expression used in column 15, lines 33 to 35 of D11 that the packerhead assembly is moved "through top table 26" does not automatically imply that the packerhead assembly has to go through the whole vertical extent of the top table but it can also mean that the packerhead assembly moves through only part of the top table.

Even if the Board, for the sake of argument, followed this interpretation of the respondent, the distributor

wheel would still be above the excess material located in the lower part of the top table, thus fulfilling feature (i) as this feature covers the following situations: the entire distributor wheel or only a part of it is placed above the excess material, as well as the total excess material is concerned or only a part of it.

- 1.6 The respondent argued further that since the outer wall of the expansion shown in figure 2 of D11 has an inclination angle of 45° , which is less steep than the one shown in figure 5 of the patent in suit, and, since a big space exists between the radial extent of the packerhead assembly and this wall when the packerhead assembly is positioned within the top table, no compressing of the excess concrete material within the expansion of the machine of D11 would take place.

The Board cannot follow said argument for the following reasons:

Firstly, figure 2 of the patent in suit is a schematic figure not allowing to deduce any specific dimensions concerning either the inclination angle of the expansion wall or the distance between the inner mould and the expansion wall. Secondly, a compression of the excess concrete material in the sense of the patent in suit, see point 1.3 above, takes place within the expansion of the machine of D11, on the one hand in the vertical direction due to the vibrations produced by the vibrator 43, 243 and on the other hand in the horizontal direction by the operation of the packerhead assembly (point 1.3) or even the core (point 1.4) and

this independently from the inclination angle of the expansion wall.

1.7 For the above mentioned reasons, the subject-matter of claim 1 of the main request is not novel and thus does not fulfil the requirements of Article 54 EPC.

2. *Auxiliary request: Admittance into the proceedings of document D13*

In the impugned decision the Opposition Division found that the subject-matter of granted claim 1 was novel and inventive over D11 and upheld the patent as granted. By arguing in its statement of grounds of appeal that the subject-matter of claim 1 as granted was *inter alia* not novel over D11 the appellant presented its complete case in agreement with Article 10a(2) RPBA (OJ EPO 2004, 541) on the case as it stood. The respondent filed its auxiliary request for the first time during the oral proceedings. The appellant now argues lack of inventive step of the subject-matter of claim 1 of said auxiliary request based *inter alia* on D13. In this sense, the need for arguing on the basis of said document arises from the filing of the respondent's auxiliary request for the first time during the oral proceedings.

On the basis of a *prima facie* consideration of D13 the Board further concludes that this document is relevant in the sense that there is at least an arguable case that this document substantiates appellant's assertion of lack of inventive step, see also point 3 below.

Therefore, the Board admits D13 into the proceedings in

accordance with Article 114(2) EPC and Article 13(1) and (3) RPBA.

3. *Auxiliary request: Claim 1 - Inventive step
(Article 56 EPC)*

3.1 As shown in figure 13 of D11 the plate 259 connecting the packerhead assembly with the cylindrical core 237 has an outer peripheral face extending parallel to the axis of the core. Said outer peripheral face forms at its contact with the top plate 260 of the cylindrical core a sharp edge.

According to column 15, lines 33 to 43 of D11 when the packerhead assembly 238 moves through top table 26 the concrete carried by the packerhead assembly is temporarily stored as excess material on the top table and in the expansion within the top table and is therefore separated from the rest of the concrete pipe by the profile ring 33. The additional step of claim 1 according to the auxiliary request of cutting off the excess concrete from the pipe by passing the sharp edge of the core through the profile ring to terminate the end of the pipe with a precise shape is therefore also known from D11.

3.2 Accordingly, the method of claim 1 of the auxiliary request differs from the one known from D11 only in that the top of the inner mould part is shaped as an upwardly converging cone.

An upwardly converging cone facilitates the distribution of the concrete towards the space between the inner and the outer mould.

The Board follows the appellant's argument that the person skilled in the art, starting from D11 with its teaching of a method of vertical casting of concrete pipes by providing the concrete from above employing an inner and an outer mould and having the upper part of the inner mould in the form of a packerhead assembly having a smaller outer diameter than the inner mould, would, when trying to facilitate the distribution of the concrete towards the outer mould, inevitably foresee the plate 259 in the form of an upwardly converging cone and this especially when taking into consideration the figure of D13 showing such a solution.

- 3.3 The Board cannot follow respondent's argumentation that the figures of D13 show only an inclined face of the cylindrical inner mould and not an upwardly converging cone.

Since the inclined face of the upper part of the cylindrical inner mould shown in the figures of D13 defines a frustoconical part of the inner mould it is an upwardly converging cone.

- 3.4 For the above mentioned reasons the subject-matter of claim 1 according to the auxiliary request does not involve an inventive step and thus does not fulfil the requirements of Article 56 EPC.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The patent is revoked.

The Registrar:

The Chairman:

G. Nachtigall

H. Meinders