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Datasheet for the decision of 13 May 2008

Case Number: T 0795/07 - 3.2.05

Application Number: 99947152.7

Publication Number: 1133655

IPC: F16L 47/06

Language of the proceedings: EN

Title of invention:
Pipe coupling having same outer diameter as pipe

Patentees:
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Opponents:
Hegler Plastik GmbH
Unicor GmbH Rahn Plastmaschinen

Headword:
-

Relevant legal provisions:
EPC Art. 54, 56

Relevant legal provisions (EPC 1973):
-

Keyword:
"Novelty - yes"
"Inventive step - no"

Decisions cited:
-

Catchword:
-

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Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 0795/07 - 3.2.05

D E C I S I O N
of the Technical Board of Appeal 3.2.05
of 13 May 2008

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Decision under appeal: **Decision of the Opposition Division of the European Patent Office posted 22 March 2007 rejecting the opposition filed against European patent No. 1133655 pursuant to Article 102(2) EPC 1973.**

Composition of the Board:

Chairman: W. Zellhuber
Members: H. Schram
C. Rennie-Smith

Summary of Facts and Submissions

I. Appellants I and II (opponents 01 and 02) each lodged an appeal against the decision of the Opposition Division posted 22 March 2007, rejecting their oppositions against European patent No. 1 133 655, based on Article 100(a) EPC (lack of novelty, Article 54 EPC, lack of inventive step, Article 56 EPC).

II. Oral proceedings were held before the Board of Appeal on 13 May 2008.

III. The appellants requested that the decision under appeal be set aside and that the European patent No. 1 133 655 be revoked.

The respondents (patent proprietors) requested that the appeals be dismissed.

IV. The following documents have in particular been referred to in the appeal proceedings:

D1 EP-A 0 405 163

D6 DE-A 42 10 482

D8 DE-A 39 24 791

V. Claim 1 of the patent as granted reads as follows:

"1. A plastic pipe (1) having a multiple layer wall construction comprising at least two major wall portions (7) which are formed with first corrugations (8) and

which are separated from one another by minor wall portions (13) which are formed with a bowed wall part (9) and with second corrugations (14), the major wall portions (7) dominating the length of the pipe relative to the intervening minor wall portions (13), the first corrugations (8) and the bowed wall part (9) having the same outside diameter which is greater than the outside diameter of the second corrugations (14), the bowed wall part having a transition area (11) which reduces the diameter of the pipe from the bowed wall part (9) to the second corrugations (14)."

Independent claim 3 of the patent as granted is directed to a method of making plastic pipe (1) according to claim 1.

VI. The relevant arguments of appellants I and II, in writing and during the oral proceedings, were as follows:

The subject-matter of claim 1 of the patent in suit was not new in view of documents D8 and D1 (this objection was submitted by appellant II only). Claim 1 of the patent in suit related to an intermediate product, i.e. a quasi-endless pipe as shown in Figure 1 of the patent in suit, from which plastic pipe sections with a belled end ("socket") and with an end with a reduced diameter ("spigot") for coupling with other pipes were produced by removing the transition area of the bowed wall part (see Figures 1A, and 2 to 4 of the patent in suit). Document D8 (see Figure 2 and column 3, lines 22 to 30) disclosed a pipe segment having a spigot and a socket, which was produced in a travelling mold apparatus and which had all the features of a pipe segment obtained from the intermediate product as claimed in claim 1 of the patent

in suit. The socket of the pipe segment shown in Figure 2 of document D8 was produced in the mold, or could be produced afterwards in a separate operation, see column 3, lines 30 to 35. The person skilled in the art would readily recognize that, in case the socket of the pipe segment disclosed in document D8 was produced in the mold, said pipe segment could only be obtained from (i) an intermediate pipe as claimed by claim 1 of the patent as granted, or from (ii) a similar intermediate pipe, which differed therefrom in that instead of a socket-spigot pair two sockets or two spigots were formed between major wall portions. Both intermediate pipes (i) and (ii) were therefore implicitly disclosed in document D8, whereby the former was preferred since it required less travelling molds than the latter as was well-known to the person skilled in the art. Document D1 disclosed (see e.g. Figure 4) a pipe segment having a spigot and a socket continuously produced in a travelling mold apparatus having, like the pipe segment known from document D8, all the features of a pipe segment obtained from the intermediate product as claimed in claim 1 of the patent in suit, so that this document was novelty destroying for claim 1 of the patent in suit for the same reasons.

Document D6 disclosed a quasi-endless pipe, and a method to produce said pipe continuously, having major double layer wall portions and minor wall portions, from which pipe segments having a socket and/or a spigot were cut. The pipe obtained by the travelling mold apparatus shown in Figures 3 and 4 of document D6 had a bowed wall part, and the adjacent wall portion on the left in Figure 4 corresponded to the end of pipe section for insertion in the bowed wall part of e.g. another pipe section and was by definition a socket. The subject-matter of claim 1 of

the patent in suit differed from the quasi-endless pipe obtained by the travelling mold apparatus shown in Figures 3 and 4 of document D6 in that the bowed wall part had the same outside diameter as the diameter of the major wall portions, and in that the diameter of the adjacent wall portion forming a socket was reduced in diameter. Document D1 disclosed a pipe segment produced by a travelling mold apparatus having exactly the dimensional constraints that resulted from the distinguishing features mentioned above. Document D1 did not disclose the quasi-endless pipe itself. Document D6 or document D1 could be taken as the closest prior art, since the former disclosed a quasi-endless pipe as claim 1 of the patent in suit did, whereas the latter solved the problem addressed in the patent in suit, namely to provide pipe segments that are insensitive to injuries in the external area (see document D1, column 2, lines 27 to 32). It was obvious to the person skilled in the art, starting from a quasi-endless pipe obtained by the travelling mold apparatus shown in Figures 3 and 4 of document D6 and seeking to improve the outer shape of the pipe sections cut from said pipes, to consider the pipe sections shown in Figure 4 of document D1 (which document taught to eliminate the outwardly protruding bell with a view to facilitate pulling the pipe into an existing sewer pipe). The person skilled in the art would simply have adapted the dimensions, and the order of the molds (molds for producing a socket - spigot pair intermittent with molds for producing major wall portions) of the travelling mold apparatus known from document D6 and would have arrived at the subject-matter of claim 1 of the patent in suit without exercising inventive skills.

VII. The respondent's arguments, in writing and during the oral proceedings, were as follows:

The socket of the pipe segment shown in Figure 2 of document D8 was formed after a corrugated pipe was formed, see column 2, lines 30 to 35, column 3, lines 10 to 13 and lines 36 to 38, and claim 7, of document D8. Said pipe segment could thus not have been produced from the plastic pipe according to claim 1 of the patent in suit, since said plastic pipe already had a bowed wall part. The composite pipe having a smooth inner wall and a corrugated wall tubing of document D1 was produced with an apparatus known from US-PS 3,677,676 (see column 3, lines 8 to 11), which apparatus did not comprise molds for making a socket. The socket of the pipe segment known from document D1 was thus likewise produced from an intermediate pipe having no bowed wall part. Consequently, the subject-matter of claim 1 of the patent in suit was novel with respect to documents D8 and D1.

Document D6 represented the closest state of the art. This document disclosed in Figure 11 a quasi-endless pipe having two major wall portions formed with first corrugations, which were separated from one another by a minor wall portion which was formed with a bowed wall part 108 and with a plain spigot part 132, i.e. without second corrugations, the first corrugations and the bowed wall part having the same outside diameter except where two annular protrusions formed internal grooves 115 from the inside. The person skilled in the art, starting from the quasi-endless pipe shown in Figure 11 of document D6 and seeking to solve the problem posed in the patent in suit, would simply abandon the two annular protrusions in order to solve said problem and would not look for

further improvements. Figure 13 of document D6 showed an embodiment of a pipe coupling whereby the right end of the pipe segment shown on the left did not have a spigot with a reduced diameter, thus having the advantage that said right end of pipe section could be cut to any desired length and would still fit in the corresponding socket. The person skilled in the art would not reduce the diameter of the corrugations at the spigot end of the pipe section, because this would be detrimental to the strength of the pipe and would require further mold blocks. The inventors of the claimed invention had realized that the reduction of the corrugations at the pipe's end (referred to as "second corrugations") warranted sufficient strength of this part, in particular since this part was further stabilised in use by the socket part. Figure 4 of document D1 showed a pipe coupling for use in so-called short pipe relining, whereby the "major wall portions" were the belled part 29 and the spigot part 11 had smaller corrugations (this was also clear from the respective axial lengths of these parts in said Figure: the length of the belled part and of the spigot part was greater than that of the parts having larger corrugations). Hence the person skilled in the art would not consider document D1. The arguments of the appellants I and II in this respect were based on hindsight, especially since there were various methods to produce the pipe segments known from document D1. The subject-matter of claim 1 of the patent in suit was therefore not obvious to the person skilled in the art and involved an inventive step, Article 56 EPC.

Reasons for the Decision

1. *Objection of lack of novelty, Article 54 EPC*

1.1 Document D1 relates to a plastic pipe for sewer pipe reconstruction with at least a spigot, the outer diameter of which is smaller than the outer diameter of the pipe, and with a socket, the outer diameter of which is substantially equal to the outer diameter of the pipe and the inner diameter of which is substantially equal to the outer diameter of the spigot (see column 1, lines 1 to 10). The main wall portion of the pipe and the spigot are provided with annular protrusions, and the outer diameter of the protrusions of the spigot corresponds substantially to the inner diameter of the socket end (see column 2, lines 33 to 38). The plastic pipe may be a composite pipe or a ribbed pipe (see column 2, lines 39 to 42), which are continuously produced on apparatuses as known from DE-AS 17 04 718 (corresponding to US-PS 3 677 676) (cf. column 3, lines 7 to 11, which reads "Derartige Verbundrohre oder Rippenrohre werden auf Maschinen hergestellt, wie sie aus der DE-AS 17 04 718 (entsprechend US-PS 3 677 676) bekannt sind."). It is clear from the context (see the previous sentence "Durch die spezielle Ausgestaltung der Rippen oder Kreisringe im Bereich des Speitzendes ...") that the expression "Derartige Verbundrohre oder Rippenrohre" refers to composite pipes or ribbed pipes having sockets and/or spigots.

Figure 4 shows the connection of two double walled pipe sections. The respective ends of the pipe sections shown on the right and on the left have a socket ("Muffe 29") and a spigot ("Spitzende 11") with second corrugations,

respectively. These ends of the pipe sections each comprise a wall portion ("Innen-Rohr 3, Außen-Rohr 4") having first corrugations and which correspond to the ends of the pipe sections that are obtained from the plastic pipe according to claim 1 of the patent in suit and which are shown in Figures 2 and 3, respectively, of the patent in suit. The wall portions 3, 4 shown in Figure 4 are cut off on the right and on the left hand side, i.e. the other ends of the pipe sections are not shown. It follows from claim 2 that a pipe segment may have a socket at one end and a spigot at the opposing end. It is clear from the intended use of the plastic pipe as sewer pipe in short pipe relining, and from the terms "socket" and "spigot", that the central wall portion dominates the length of the pipe.

Document D1 does not disclose from which quasi-endless pipe the pipe segments having a socket or a spigot as shown in Figure 4 are cut. Knowing a particular configuration of a pipe segment, in this case a pipe with a socket ("head") and a spigot ("tail"), does not uniquely fix the order of the different portions of the quasi-endless pipe from which the pipe segment can be cut. Since the head of a pipe segment in the quasi-endless pipe can point in two directions, adjacent pipe segments meet head-to-tail, head-to-head or tail-to-tail. Claim 1 of the patent in suit only encompasses configurations, whereby adjacent pipe segments of the quasi-endless pipe are arranged head-to-tail, allowing pipe segments having a socket and a spigot, or two sockets or two spigots to be cut therefrom. The argument of appellant II that document D1 disclosed implicitly all possible configurations between adjacent pipe segments in the quasi-endless pipe, because the configurations were

simple alternatives which were small in number, cannot be accepted by the Board.

The subject-matter of claim 1 of the patent in suit is thus novel vis-à-vis document D1.

1.2 Figure 2 of document D8 shows a pipe segment having a multiple layer wall construction comprising a major wall portion 3 ("Außenwandrohr 3") having first corrugations, a belled part 5 ("muffenseitiges Ende 5") and a spigot part 12 ("stutzenseitiges Ende 12") with second corrugations. Appellant II has argued that such a pipe segment (belled part portion 5 - major wall portion 3 - spigot part 12) was produced from an intermediate pipe comprising a pair of connected, concentric pipe segments having a belled portion and a reduced diameter portion formed by travelling half shells (see the passage at column 3, lines 22 to 35). However, the passage cited by appellant II relates to *reducing* the diameter of the corrugations of the intermediate pipe at the ends 5, 12 of the pipe segment(s) to be formed. It may be noted that the sentence in column 3, lines 30 to 33, of document D8 on which appellant II in particular relied, viz. "Die Durchmesserreduzierung ... kann jedoch auch nachträglich ... erfolgen.") relates also to *reducing* the diameter of the corrugations of the intermediate pipe, not to *enlarging* the diameter of the inner contour of the pipe segment at end 5.

Document D8 does also not disclose that the pipe segment shown in Figure 2 is cut from a pipe whereby the two adjacent pipe segments are arranged head-to-tail.

The subject-matter of claim 1 of the patent in suit is thus novel vis-à-vis document D8.

1.3 Since none of the other documents cited by the appellants discloses a plastic pipe with all the features of claim 1 of the patent in suit, said claim is new within the meaning of Article 54 EPC.

2. *Objection of lack of inventive step, Article 56 EPC*

2.1 The problem the invention seeks to solve is to provide a plastic pipe, and a method for producing same, from which *pipe sections* having male and female coupling ends are made, which pipe sections can be shipped and stored without using spacers, cf. paragraphs [0002] and [0003] of the patent in suit.

2.2 Whilst document D1 does not disclose from which quasi-endless pipe the pipe segment having a socket and a spigot as shown in Figure 4 is cut (see point 1.1 above), it does disclose the sockets and spigots of pipe sections that are obtained from the plastic pipe according to claim 1 of the patent in suit and which are shown in Figures 2 and 3, respectively, of the patent in suit.

Document D6, which is cited in paragraph [0002] of the patent in suit, relates to a method for the continuous manufacture of a plastic compound pipe with a pipe socket, the compound pipe consisting of a smooth internal pipe and an external pipe provided with transverse grooves except where the socket is, which is welded together with the internal pipe (see Figures 3 and 4, column 7, line 44 to column 9, line 64, and claim 1 of document D6).

As seen in Figure 1 of document D6, the known apparatus for the production of plastic compound pipes with transverse grooves comprises a machine bed, on which half shells 2, 2' are arranged, which are joined together respectively in two so-called chains 3, 3' (see column 3, lines 32 to 36). Document D6 shows in detail how, for a preferred embodiment (see Figures 3 and 4, and column 2, line 66 to column 9, line 64), a bowed wall section 108 in a quasi-endless compound pipe with transverse grooves is produced, and how pipe segments are produced when the portion of transition 119 ("Rohrstück 130") is cut out, whereby the bowed wall section 108 forms the socket of a pipe segment. Document D6 also discloses how a pipe segment with a spigot can be formed (see Figure 10), and how a compound pipe 23 having a spigot 132 and - directly following the latter - a pipe socket 108 is manufactured in one continuous process, see Figure 11 and column 10, lines 27 to 43).

In the judgement of the Board, the person skilled in the art starting from the pipe segment having a socket and a spigot known from document D1 and seeking to find a method and apparatus to produce such pipe segments continuously with a travelling mold apparatus would have considered document D6 and would have simply chosen molds which dimensions corresponding to the dimensions of the pipe segment of document D1 and would thus have arrived at the invention as claimed in the patent in suit.

2.3 It follows that the subject-matter of claim 1 of the patent in suit was obvious to the person skilled in the art and thus does not involve an inventive step in the meaning of Article 56 EPC.

For these reasons it is decided that:

The appeal is dismissed.

1. The decision under appeal is set aside.

2. The patent is revoked.

The Registrar: The Chairman:

D. Meyfarth W. Zellhuber

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Case Number: T 0795/07 - 3.2.05

D E C I S I O N
of 14 July 2008 correcting the decision of the Technical Board of Appeal 3.2.05 of 13 May 2008

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Decision under appeal: **Decision of the Opposition Division of the European Patent Office posted 22 March 2007 rejecting the opposition filed against European patent No. 1133655 pursuant to Article 102(2) EPC 1973.**

Composition of the Board:

Chairman: W. Zellhuber
Members: H. Schram
C. Rennie-Smith

Summary of Facts and Submissions

I. The present decision concerns the correction under Rule 140 EPC of the decision dated 13 May 2008, taken in the case T 795/07 concerning the European Patent No. 1 133 655.

II. In the decision dated 13 May 2008, the order reads as follows:
The appeal is dismissed.
1. The decision under appeal is set aside.
2. The patent is revoked.

III. By fax of 3 July 2008, appellant II requested correction of the decision under Rule 140 EPC, because the sentence "The appeal is dismissed" in the order was not correct.

IV. According to the minutes of the oral proceedings of 13 May 2008 before the Board, the decision announced at the end of the oral proceedings was
1. The decision under appeal is set aside.
2. The patent is revoked.

Reasons for the Decision

1. The decision of the Board was that announced at the end of the oral proceedings, which is fully supported by the reasons given in the reasoned decision. The sentence in the order of the decision of 13 May 2008 "The appeal is dismissed" is an obvious error and therefore has to be deleted.

Order

For these reasons it is decided that:

The order of the decision of 13 May 2008 is corrected as follows:

The sentence "The appeal is dismissed" is deleted.

The order reads:

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

The Registrar: The Chairman:

D. Meyfarth W. Zellhuber