DECISION of 4 May 1981

T 01/81

Applicant: AECI LIMITED

Keyword: "Sockets and/or spigots"

EPC Articles 52(1), 54(2) and 56; Rules 29(1) and 30

"Inventive step" - "Actual practice and state of the art" - "Homogeneous fusing" - "Reversal of known procedure" - "Independent claims for product and process"

Headnote

I. In assessing the state of the art, including a brochure and patent publications, the fact that the former was claimed to represent current actual practice was not decisive. In the art of jointing thermoplastics parts to form an end product, the teaching of accomplishing a homogeneously fused joint considered obvious from the prior art. Consideration of reversal of procedure with regard to steps in producing component parts in assessing inventive step.

II. In the case of independent claims for a product and a process, the patentability of one has no necessary influence on the patentability of the other.

Europäisches Patentamt
Technische Beschwerdekammern

European Patent Office
Technical Boards of Appeal

Office européen des brevets
Chambres de recours techniques

File Number T 01/81

DECISION

of the Technical Board of Appeal 3.2.2

of 4 May 1981

Appellant: AECI LTD
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Decision impugned: Decision of the Examining Division 118 of 23 September 1980 to reject European patent application No. 78 300 387.4 according to Article 97(1) EPC

Composition of the Board:

S. Lewin, Chairman
K. Schügerl, Member
L. Gotti Porcinari, Member

Facts and submissions

I. The application was filed on 14 September 1978, with priority claimed from an application made in the Republic of South Africa on 15 September 1977. The Examining Division refused the application by a decision delivered on 23 September 1980. The decision was based on description and claims submitted in amended form on 10 November 1979. The claims read as follows:

1. A transversely ribbed thermoplastics pipe provided with a thermoplastics socket and/or spigot one end of which socket or spigot has been homogeneously fused onto an end of the pipe characterised in that the end of the socket or spigot which is fused onto the pipe is provided by an axial extension of the socket or spigot in the form of a neck whose outer surface is provided with one or more transversely extending protrusions.

2. A cylindrical pipe according to claim 1 characterised in that at least one of the protrusions on the neck is a radially protruding circumferential rib.

3. A method for making a transversely ribbed thermoplastics pipe having an integral thermoplastics socket and/or spigot wherein:

   (a) there is used a mould having male and female parts spaced apart to provide a cavity which defines a length of the pipe and the female parts contain recesses which define the transverse ribs of the pipe,

   (b) the end of the socket or spigot which is to become integral with the pipe is accommodated in one end of the cavity around the male mould part,

   (c) that part of the cavity unoccupied by the end of the socket or spigot is filled with molten thermoplastics material which is allowed to contact the end of the socket or spigot whereupon homogeneous fusion occurs, and

   (d) when the thermoplastics material is sufficiently form-

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stable, the socket or spigot is removed from the cavity,

characterised in that the socket or spigot is provided with an axial extension in the form of a neck whose outer surface is provided with one or more transversely extending protrusions and one or more of these protrusions is engaged in one of the recesses in the female mould parts when the socket or spigot is accommodated in the cavity around the male mould part so permitting the use of injection pressures of over 10 bar.

II. In its decision, the Examining Division declared that the invention claimed, although new, did not involve an inventive step, having regard to the following patent publications:

(1) DE B 1 962 737,
(2) DE B 1 158 239 and
(3) US A 992 503,

hereinafter referred to as citation (1), (2) and (3) respectively.

III. Starting with the independent claim 3, concerning a method, the decision states inter alia that the subject-matter of the claim is distinguished in the main from the disclosure of citation (3) merely in that the previously formed pipe section according to citation (3) is provided with a socket or spigot. The further statement in the claim "permitting the use of injection pressures of over 10 bar" imposed no real limitation. Since it was known from citation (2) that a welded or adhesive joint between socket and pipe does not afford enough strength, it would be evident for the man skilled in the art to use the method of homogeneous fusing disclosed in citation (3) also for the attaching of sockets. Further,in proceeding that way, it would be obvious to provide the socket with a ribbed neck in order to use it in the same manner as the pipe section in citation (3).

IV. Against this the applicant argued that the practitioner could not foresee that to join the molten material to the separately formed and therefore aged material of the socket, which has

undergone changes in polymer and crystalline structure, would yield satisfactory results. This argument was not accepted by the Examining Division on the grounds that already in citation (3) provision is made by way of a heating element to offset the effects of cooling, which would hold in prospect that satisfactory homogeneous fusion could also be obtained between a cold, aged socket and a freshly formed pipe length. Accordingly, claim 3 was refused due to lack of inventive step with reference to Article 52(1) EPC.

V. In dealing with the independent claim 1, concerning the product, the Examining Division points out that this claim does not determine whether the socketed section or the pipe proper is the pre-formed part. In the latter case, the claimed product would correspond to the product according to citation (1) with the exception of the ribs. To provide such ribs on the pipe and, in an analogous manner, on the neck of the socket was within the normal design freedom of the skilled man.

Furthermore, since anyone following the method of claim 3, which was an obvious method would inevitably arrive at a product falling within the terms of claim 1,for this reason also claim 1 failed for lack of inventive step.

VI. Claim 2 was likewise refused, considering that it did not add anything of inventive significance to the features of claim 1.

VII. On 14 November 1980, the applicant lodged an appeal against the decision of the Examining Division. Notice of the appeal and the statement of grounds were received by the European Patent Office in time and the appeal fee was duly paid. In the statement of grounds the applicant contests the reasoning which the Examining Division followed in its decision and impugnes that decision insofar as it relates to claim 1, 2 and 3 as specified in the grounds for the decision.

VIII. The applicant alleges that a person skilled in the art would not complicate a socket with a transversely ribbed neck

extension. Citations (1), (2) and (3) do not point to the improvement in bonding attained by such a rib and therefore cannot lead the practitioner to such a complication. The neck shown in citation (1) is not long enough to accommodate a rib; furthermore, citation (1) leads away from using a rib on the neck as a retaining element, since another method of retaining is provided, viz. a grip, acting on the outer surface of the pipe. Citation (2) points also away from the invention in that it describes a complicated method of producing a socketed pipe, not comparable to the invention. The ribs disclosed in citation (3) serve merely the purpose of improving crush resistance. Citation (3) also does not suggest the use of sockets, as it contemplates rebates on the pipes as a jointing feature. The heating element according to this citation has only a marginal effect and is therefore not relevant in assessing the inventive step.

IX. According to the applicant, the brochure "Propathene for pipework", submitted as evidence in the course of the examination, indicates that the homogeneous fusion of sockets to pipes was not used in practice. In the absence of any pointers in the documents cited above, the Examining Division's assertion that the invention does not involve an inventive step is the result of ex post facto analysis.

In impugning without qualification the decision as regards all claims the applicant is in fact requesting the cancellation of the decision in full.

Reasons for the decision

1. The appeal complies with Articles 106 to 108 and Rule 64 of the EPC, and is, therefore, admissible.

2. In the appeal the claims which were refused by the Examining Division are maintained by the applicant without further amendment. The application contains mutually independent claims for, respectively, a product designated as a transversely ribbed thermo-plastics pipe provided with a

thermo-plastics socket and/or spigot (claims 1 and 2), and a method for making a transversely ribbed thermo-plastics pipe having an integral thermo-plastics socket and/or spigot (claim 3). (For convenience hereinafter mention of "socket" refers also to a "spigot" as an alternative, or as an additional fixture to a pipe. The possibility of fitting the same pipe with both socket and spigot cannot be separately considered since neither the description nor the claims reveal how that possibility could be realized.) It should be noted that since independent protection is claimed for the product, the question of it being patentable will have to be judged regardless of whether it was produced by the particular method of claim 3, or by some other method giving the same result. This should be especially emphasized since applicant's arguments in the main are directed towards the process of using a socket with an extended transversely ribbed neck in making a pipe completed to the desired length.

3. Reverting then to the product according to claims 1 and 2, a pipe on the end of which the socket has been homogeneously fused was already known as the result of the process shown in citation (1). Furthermore, the socket will also have a neck portion as required in order to accomplish a butt joint with the pipe proper. Obviously, this teaching of butt fusing a socket section with a pipe section could also be used for known pipes with reinforcing transverse ribs, e.g. of the kind shown in citation (3). Whether the pipe, or conversely, the socket-section is pre-formed will have no technical effect with regard to the finished product per se. Nor will it in this respect matter whether the neck portion, which after all has been integrally fused with the remainder of the pipe, has a longer or shorter extension once it has served its purpose in the manufacturing stage. If an extended neck portion is used in connection with a ribbed pipe, it would be a natural consequence thereof to furnish that portion also with reinforcing ribs to avoid weak stretches whereby a product in full conformity with claim 1 will be obtained. Similar arguments have been used by the Examining Division.

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4. The objections thereto raised by the applicant, namely that the ribbed neck extension leads to improved bonding, fails to take account of the fact that the conditions of claim 1 may be met regardless of the purpose for which the ribs are provided. What has now been said is equally applicable to claim 2 since circumferential ribs are also known through citation (3). The argument of the Examining Division, that claim 1 fails because the method of making the product is considered non-patentable, is disregarded since there is no necessary connection between the patentability of the product per se and the way it can be made. Nevertheless, from what has already been mentioned the subject-matter of claims 1 and 2 cannot be considered to involve an inventive step in relation to what was already known through citations (1) and (3).

5. With regard to the method defined in claim 3, the Examining Division has, referring to citation (3), pointed out that technical features corresponding to those indicated under points (a), (b), (c) and (d) in the preamble of the claim were already known in making transversely ribbed thermoplastics pipes. It is also the opinion of the Board that the previously formed pipe section shown as accommodated in the mould while the next section is in the process of being formed, should be seen as corresponding to the socket with the axial extension in the form of a neck in the invention claimed as far as the technical teaching for jointing by homogeneous fusion is concerned. The Examining Division is therefore correct in further asserting, in effect, that the transversely extending protrusion on the previously formed pipe section engages one of the recesses in the female mould part in the same manner as the protrusions on the neck portion according to applicant's method. In this context the applicant alleges inter alia that the only benefit of transverse ribbing disclosed by citation (3) is improved crush resistance. The drawings in citation (3), see figure 2, however, show clearly that the protruding rib in fact is engaged in a recess in the female mould part, thereby providing positive resistance

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to expulsion from the mould by the injection pressure of the parts already formed. Such analysis of the publication cited cannot therefore, as contended by the applicant, be regarded as an argument ex post facto.

6. A main argument of the applicant is further that in the art there is a reluctance to join aged to fresh material by homogeneous fusion. This argument was refuted by the Examining Division already on the basis of citation (3). Heating elements are there shown which would reheat the end of the previously formed section. The applicant contends that the heating element shown is intended merely to offset the small amount of heat lost between consecutive mouldings. This contention, however, cannot detract from the fact that as stated for instance on lines 36-40, column 4, of citation (3), the heating element provides for additional heating of the pipe end in case it does not reheat sufficiently (by the inflowing hot material), and even, if need be, for softening material that has hardened to a stage that may be called at least close to aged.

7. Nevertheless, it is recognized that the socket together with its neck has to be separately produced as described in the application, and therefore may have aged to a higher degree than is foreseen in the process according to citation (3). However, the description in the application, as amended, acknowledges that it is known through citation (1) to introduce the end of a pre-formed pipe in a socket-defining mould, and to attach the socket onto the pipe by homogeneous fusion using the process of injection moulding. The pipe is introduced into the mould from the outside and then heated to welding temperature. The jointing of parts of thermoplastics pipe which have aged with others newly formed therefore constitutes prior art. The applicant has as evidence of reluctance in practice to join aged to fresh material when attaching sockets to pipes submitted a brochure entitled "Propathene for pipe work". However, when applying Article 54(2) EPC the references cited have to be included in the state of the art as well as the brochure. In assessing novelty and inventive step it has to be considered what part of the

prior art is closest to the invention claimed, i.e. in this case the references cited rather than the brochure. Furthermore, the person skilled in the art when looking for a solution to a problem cannot be unduly confined. He must as a matter of fact be presumed to study patent publications in the relevant patent classes with particular interest.

8. Neither the feature of providing a retaining flange on a pre-formed part of a pipe nor the jointing of an aged pre-formed part to a fresh one were therefore in themselves new at the time of the priority date of the application. To use on an aged part the same flange as the one known in connection with a recently formed part cannot be considered to involve inventive activity. Furthermore, it is obvious to the ordinary practitioner that in such case the flange may show improved resistance to elevated pressure. The reference to the injection pressure in claim 3 therefore does not add any inventive feature to the claim, apart from the fact that it, indicating only a possibility, does not impose any real limitation on the protection sought.

9. In summary therefore, the invention according to claim 3, as far as the formation of a homogeneously fused joint and thereby the production of a suitable length of thermoplastics pipe is concerned, does not involve an inventive step above the teaching that the person skilled in the art will draw from citations (1) and (3). Having supplied the socket with a neck extension the applicant is in fact wholly relying on that teaching to further extend the neck to the length of pipe desired for the final product.

10. The question finally arises whether the procedure of supplying in advance a socket which has a neck extension and thereafter to accommodate this pre-formed piece in the injection mould, is inventive in character. In the way claim 3 is drafted by the applicant, this sequence follows from what appears in the preamble, i.e. the portion of the claim presumably designating what is already known, rather than from the characterising portion. However, as far as the evidence in the case shows, in this respect the method is new, and the Board therefore chooses to answer this question as well.

11. In the method described in citation (1) the pipe rather than the socket is pre-formed. Still, the socket will be provided with a neck in order to meet the diameter of the pipe for the purpose of accomplishing a butt joint. As mentioned above, the pre-formed part is introduced into the mould from the outside and is accommodated in one end of the mould cavity to act as a closure. In the present application the procedure is simply reversed with regard to the socket part and the straight piece of pipe. The choice between these two alternatives, i.e. pre-forming the pipe or the socket part, will depend on convenience in storage and handling and other similar considerations within the normal competence of the practitioner. In starting the process with the socket - as, besides, shown in citation (2) - it is obvious that the neck of the socket has to be extended to enable it to be accommodated in a mould intended for the production of the pipe. In the absence of other features that from a technical point of view would contribute to patentability, the sequence in which the socket and pipe connection is made therefore does not suffice to impart inventive step to the method claimed.

Applicant's statements with regard to the"rebate"and to the dimensions of the pipe according to citation (3) etc., need not to be discussed since they neither relate to any features of the claims nor have any bearing on the evaluation of the invention.

In arriving at the above conclusion the Board has taken into consideration that patents granted under the EPC should have inventive step sufficient to ensure to the patentees a fair degree of certainty that if contested the validity of the patents will be upheld by national courts. This standard should therefore anyhow not be below what may be considered an average amongst the standards presently applied by the Contracting States.

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For these reasons,

it is decided that:

The appeal against the Decision of the Examining Division 118 of the European Patent Office dated 23 September 1980 is rejected with reference to Article 52(1) and 56 EPC and that Decision thereby confirmed.

The Registrar:

The Chairman: