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**Datasheet for the decision
of 3 May 2016**

Case Number: T 1473/12 - 3.2.05

Application Number: 03005275.7

Publication Number: 1316406

IPC: B29C45/50

Language of the proceedings: EN

Title of invention:
Injection molding machine

Patent Proprietor:
Sumitomo Heavy Industries, Ltd.

Opponent:
Arburg GmbH + Co. KG

Relevant legal provisions:
EPC 1973 Art. 56
EPC Art. 123(2)
RPBA Art. 13(1), 13(3)

Keyword:

Amendments - added subject-matter (yes)

Inventive step - auxiliary request (no)

Late-filed request - justification for late filing (no) -
change of subject-matter - request clearly allowable (no) -
procedural economy



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Case Number: T 1473/12 - 3.2.05

D E C I S I O N
of Technical Board of Appeal 3.2.05
of 3 May 2016

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Decision under appeal: **Interlocutory decision of the Opposition**
Division of the European Patent Office posted on
4 May 2012 concerning maintenance of the
European Patent No. 1316406 in amended form.

Composition of the Board:

Chairman M. Poock
Members: S. Bridge
 J. Geschwind

Summary of Facts and Submissions

- I. The appeal was lodged against the interlocutory decision of the opposition division proposing to maintain the European patent No. 1 316 406 in amended form.
- II. An opposition was filed against the patent as a whole based on Article 100(a) EPC (lack of novelty and lack of inventive step, Articles 54 and 56 EPC 1973).
- III. Oral proceedings were held before the board of appeal on 3 May 2016 in the absence of respondent, whose representatives had previously informed the board that they would not attend.
- IV. The appellant (patent proprietor) requested that the decision under appeal be set aside and that the patent be maintained on the basis of the sets of claims filed as main request and first to fourth auxiliary requests during the oral proceedings.

The appellant further requested the reimbursement of the appeal fee, because of a procedural violation by the opposition division

- V. The respondent (opponent) did not file any requests.
- VI. Claim 1 according to the main request reads as follows:

"An injection molding machine comprising:

- (a) a cylinder member (12);
- (b) an injection member (22) disposed within said cylinder member (12) such that said injection member can advance and retract;
- (c) an injection motor (145); and

- (d) a metering motor (144) for rotating said injection member (22);
 - (e) a ball nut (169) supported unable to rotate relative to a frame (17);
 - (f) a transmission shaft (165) to which rotation of the injection motor (82) is transmitted and in screw-engagement with said ball nut (169) to thereby constitute a motion conversion portion (123) for converting rotational motion to linear motion; and
 - (g) a drive force transmission device (113) disposed between said motion conversion portion (123) and said injection member (22), which allows relative rotation between said injection member (22) and said motion conversion portion (123) while restricting relative axial movement between said injection member (22) and said motion conversion portion (123);
- wherein
- (h) said injection motor (145) and said motion conversion portion (123) are disposed on the same axis;
 - (i) said injection motor (145) is fixed to the frame (17) at a rear portion of the drive section casing (111); and
 - (j) an outer diameter of a rotor shaft (157) of said injection motor (145) is smaller than an outer diameter of said ball nut (169)."

VII. Claim 1 according to the first auxiliary request differs from claim 1 according to the main request in that:

- feature (e) has been replaced to read:
"(e) a ball nut (169) supported unable to rotate relative to a drive section casing (111)";
- feature (i) has been replaced to read:
"(i) said injection motor (145) is disposed at a rear portion of the drive section casing (111)"
and

- feature (j) has been deleted.

VIII. Claim 1 according to the second auxiliary request differs from claim 1 according to the first auxiliary request in that:

- the reference sign "210" has been added after reference sign "111" at the end of respective features (e) and (i); and
- the following additional features (j) to (n) are appended to the claim:
 - "(j) said injection motor (145) comprises a stator (148) and a rotor (149);
 - (k) a rotor shaft (157) is fixedly fitted into the rotor (149);
 - (l) said rotor shaft (157) is supported to be rotatable relative to the drive section casing (111, 210) via bearings (153, 154);
 - (m) an outer frame size of the stator (148) is smaller than an outer frame size of the drive section casing (111, 210), and
 - (n) an outer diameter of said rotor shaft (157) is smaller than an outer diameter of said ball nut (169)."

IX. Claim 1 according to the third auxiliary request differs from claim 1 according to the second auxiliary request in that the following additional features (o) to (u) are appended to the claim:

- "(o) an outer diameter of said rotor (149) is smaller than an inside diameter [sic] of said stator (148);
- (p) said rotor shaft (157) is disposed on a rear side of said ball nut (169);
- (q) a spline shaft portion (124) is formed on said transmission shaft (165);

(r) an outer diameter of said spline shaft portion (124) is smaller than said outer diameter of said rotor shaft (157);

(s) a cylindrical engagement member (121) is attached to said rotor shaft (157);

(t) rotation of said rotor shaft (157) is transmitted to said transmission shaft (165) through the engagement member (121) and the spline shaft portion (124); and

(u) rotation of said injection motor (145) is converted into linear motion by said motion conversion portion (123) such that the injection member (22) can be advanced without rotation."

X. Claim 1 according to the fourth auxiliary request differs from claim 1 according to the first auxiliary request in that feature (i) has been replaced to read: "(i) said injection motor (145) is fixed to a rear side of the drive section casing (111)".

XI. The following documents are referred to in the present decision:

D2: JP-A-08 183 079;

D4: EP-A-0 723 848.

XII. The arguments of the appellant in the written and oral proceedings can be summarised as follows:

Request for reimbursement of the appeal fee

The new summons to oral proceedings faxed by the opposition division on 25 January 2012 for oral proceedings on 1 March 2012 was not in conformity with Rule 115(1) EPC. The appellant only attended these oral proceedings under protest and therefore requests the

reimbursement of the appeal fee in view of this procedural violation. It should have been implicit for the opposition division that the request for postponement of the oral proceedings were not merely for one day.

Upon a query from the board, the appellant confirms that it does not request that the case be remitted to the department of first instance as a result of the alleged procedural violation.

Main request and first to third auxiliary requests

The main request and first to third auxiliary requests constitute a response to the provisional opinion of the board set out in the annex to the summons to oral proceedings. These requests should be admitted into the proceedings.

Main request

Even though there is no corresponding text in the description of the application as filed, the skilled person can nevertheless derive feature (j) of claim 1 from figures 6 and 7 in which the ball nut 169 and the rotor shaft 157 are clearly identified. The part to the top right of the region marked 169 constitutes an attachment portion for the ball nut 169. Transmission shaft 165 extends through the ball nut 169. The remainder of the region identified by the reference sign 169 allows the skilled person to identify the outer diameter of the ball nut 169 and see that the outer diameter of the rotor shaft 157 is smaller than this outer diameter of the ball nut. This applies all the more so as the skilled person is familiar with the arrangement of document D4 (figure 4) in which the ball

nut 69 lies within the rotor shaft 57: When subsequently considering figures 6 and 7 of the application as filed, the skilled person's attention is immediately drawn to feature (j) which constitutes a striking difference with respect to figure 4 of document D4.

Therefore, feature (j) is directly and unambiguously derivable from figures 6 and 7 of the application as filed.

First auxiliary request

In opposition, document D2 was considered to constitute the closest prior art. In figure 1, the rear plate 36a can be assimilated with a drive section casing according to claim 1. Thus, the subject-matter of claim 1 only differs from the injection moulding machine of document D2 in that the injection motor is disposed at a rear portion of the drive section casing. When the injection moulding machine of document D2 meters an amount of resin, the motor 33 moves to the rear of the machine. In this situation, the motor 33 is only disposed at a rear portion of the drive section casing without being fixed to the drive section casing. Feature (i) of claim 1 according to the first auxiliary request should be interpreted to mean that the injection motor is fixed at a rear portion of the drive section casing. This being the case, the inertia of the injection drive is reduced, because, unlike the situation in figure 1 of document D2, the injection motor would not move during the injection cycle.

Therefore, the subject-matter of claim 1 involves an inventive step with respect to the injection moulding machine of document D2.

Second and third auxiliary request

The arguments which were advanced with respect to feature (j) of claim 1 according to the main request apply likewise to corresponding feature (n) of the respective claim 1 according to the second and third auxiliary request.

Therefore, feature (n) is directly and unambiguously derivable from figures 6 and 7 of the application as filed.

Fourth auxiliary request

The fourth auxiliary request should be admitted into the proceedings, because it only became clear during the oral proceedings before the board, that feature (i) of claim 1 according to the first auxiliary request does not say what the appellant intended.

XIII. The respondent did not file any substantive observations.

Reasons for the Decision

1. *Alleged procedural violation*

1.1 Facts of the case

1.1.1 Opposition procedure

With the communication dated 21 October 2011 the opposition division summoned the parties to oral proceedings scheduled for 28 February 2012.

With the letter dated 17 January 2012 the representative of the appellant requested the postponement of the oral proceedings, because of a summons to oral proceedings in another case on the same day.

On 25 January 2012 the opposition division re-scheduled the oral proceedings for 1 March 2012.

With a communication faxed on 25 January 2012 and a confirmation dated 30 January 2012 the parties were summoned to the rescheduled oral proceedings on 1 March 2012.

With the letter dated 1 February 2012 it was noted on behalf of the appellant "*that the new summons is not in conformity with Rule 115(1) EPC, according to which at least two months' notice of the summons shall be given*" (point I.1), without further elaborating on this issue or filing any specific request with regard to the situation.

Evidently, the representative of the appellant attended oral proceedings on 1 March 2012 and filed, and subsequently further amended, a further auxiliary request during these proceedings.

1.1.2 Appeal procedure

In a communication annexed to the summons to oral proceedings, the board pointed out that the appellant did not draw any particular conclusions from his objection that the new summons was not in conformity with Rule 115(1) EPC.

In the appeal proceedings the appellant merely repeated this objection.

Upon query from the board, the appellant confirmed that it did not request that the case be remitted to the department of first instance as a result of the alleged procedural violation and did not identify any facts which adversely affected the appellant as a result.

1.2 Since the appellant:

- had had reasonably sufficient time since the communication dated 21 October 2011 to prepare the substance of its case and did argue the substance of its case, both in the letter dated 1 February 2012 and in the oral proceedings on 1 March 2012,
- did not advance having been adversely affected, and
- the oral proceeding before the opposition division had been postponed as a result of the appellant's request,

the board cannot see to what extent the appellant was adversely affected.

The board considers that the communication dated 21 October 2011 had already triggered the two-months deadline required by and in conformity with Rule 115(1) EPC as argued by the opposition division (point 2 of the contested decision).

The appellant's argument that the guidelines for examination have since been amended in the sense that postponed oral proceedings should not be re-scheduled for the next day cannot be accepted, because the amendment advanced by the appellant is not in the 2010 guidelines applicable at the time (see sections E-III, 7 and E-III, 8.3, fifth paragraph as referenced in the contested decision) and an opposition division can only act in accordance with the then current version of the

guidelines since it is necessarily unaware of future changes.

In the absence of any explicit adverse effects affecting the appellant, the board cannot see how the opposition division could have committed a substantial procedural violation which could justify the reimbursement of the appeal fee unde Rule 103 EPC.

2. Main request and first to third auxiliary requests

The main request and first to third auxiliary requests, as filed during oral proceedings, correspond to the modified fourth to seventh auxiliary requests filed with the letter dated 23 April 2016.

The modified fourth to seventh auxiliary requests filed with the letter dated 23 April 2016 are themselves amended forms of the fourth to seventh auxiliary requests filed with the letter dated 1 April 2016 in response to the annex to the summons to oral proceedings issued by the board.

A priori, these requests constitute a response to the provisional opinion of the board set out in annex to the summons to oral proceedings. In the absence of any argumentation on behalf of the respondent, the board sees no reasons not to admit these requests into the proceedings.

3. Main request

Claim 1 according to the main request comprises the following feature:

is represented without the level of structural detail provided for the other parts of the drive section. Region 169 includes an extension (towards the top right in figures 6 and 7) which serves to attach the ball nut to other parts of the drive mechanism. In the absence of the level of structural detail provided for the other parts of the drive section, it is not possible to determine the diameter of the ball nut 169 from the purely symbolic representation as a blank region labelled with the reference sign 169. Furthermore, even if a particular diameter were to be inferred for the ball nut 169, a clear teaching concerning the relative sizes of the diameters of the ball nut 169 and the rotor shaft 157 cannot be inferred from figures 6 and 7, because these figures are not scale drawings. Therefore, the skilled person cannot directly and unambiguously infer from figures 6 and 7 that an outer diameter of a rotor shaft 157 smaller than an outer diameter of said ball nut 169 is a feature of the invention.

The fact that *transmission shaft 165* extends through the ball nut 169 and into the rotor shaft 157 is not sufficient on its own to imply that the outer diameter of the *rotor shaft 157* is necessarily smaller than an outer diameter of the ball nut 169.

The appellant's argument that feature (j) would be obvious to the skilled person when comparing figure 4 of document D4 with figures 6 and 7 of the application as filed cannot be followed, because this supposes that the skilled person becomes active in seeking out further information from the application as filed by carrying out a comparison with the prior art. This is contrary to the principle that the subject-matter of the invention should be directly and unambiguously

derivable from the application as filed as such, without actively seeking out differences with respect to some particular items of prior art.

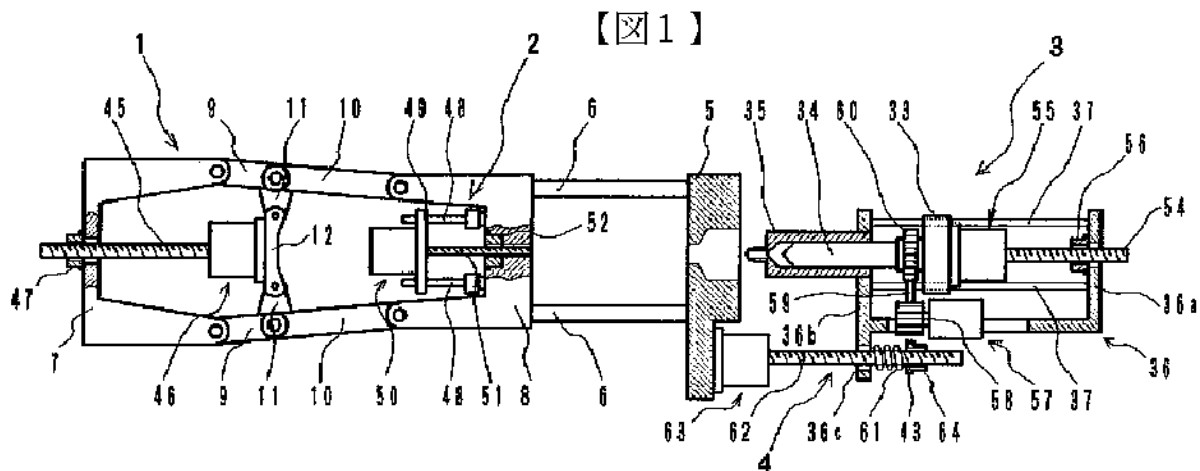
In consequence, the subject-matter of claim 1 according to the main request does not meet the requirements of Article 123(2) EPC.

4. First auxiliary request

4.1 Document D2 constitutes the closest prior art. This corresponds to the decision of the opposition division and was not contested by the appellant.

4.2 Document D2 discloses an injection moulding machine comprising (reference numerals according to figure 1 of document D2):

- (a) a cylinder member 35;
- (b) an injection member 34 disposed within said cylinder member 35 such that said injection member can advance and retract;
- (c) an injection motor 55; and
- (d) a metering motor 57 for rotating said injection member 34;



(e) a ball nut 56 supported unable to rotate (see figure 1 and in view of the underlying principle of the disclosed configuration) relative to a *rear plate 36a*;
(f) a transmission shaft 54 to which rotation of the injection motor 55 is transmitted and in screw-engagement with said ball nut 56 to thereby constitute a motion conversion portion (54, 56) for converting rotational motion to linear motion; and
(g) a drive force transmission device (33, 60) disposed between said motion conversion portion (54, 56) and said injection member 34, which allows relative rotation between said injection member 34 and said motion conversion portion while restricting relative axial movement between said injection member 34 and said motion conversion portion (underlying principle of the device disclosed in figure 1); wherein
(h) said injection motor 55 and said motion conversion portion (54, 56) are disposed on the same axis; and
(i) said injection motor 55 is disposed at a rear portion of the drive section.

4.3 The subject-matter of claim 1 according to the first auxiliary request only differs therefrom in that claim 1 refers to the drive section casing as the reference point for features (e) and (i), i.e. that

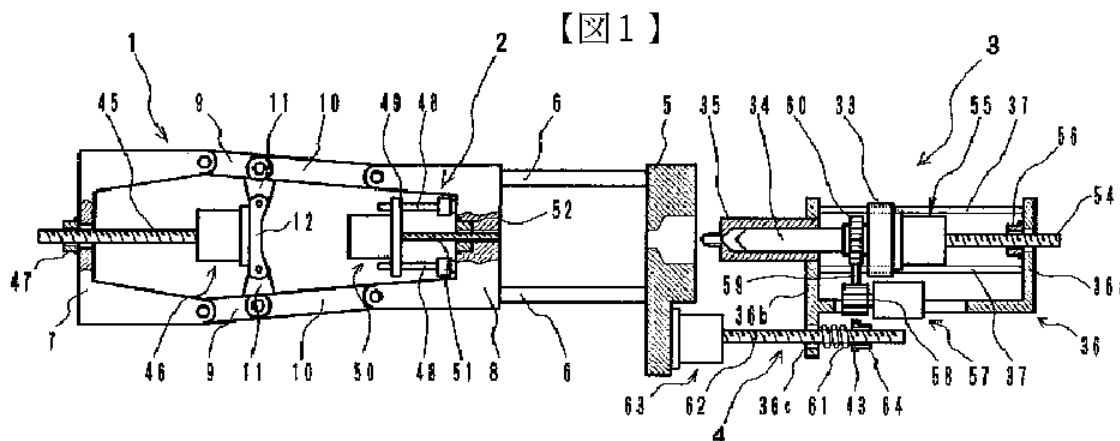
- (e) the ball nut is unable to rotate relative to a *drive section casing*; and
- (i) the injection motor is disposed at a rear portion of the *drive section casing*.

4.3.1 Document D2 does not explicitly disclose the drive section casing in figure 1. Although it was advanced on behalf of the appellant that the rear plate 36a may be associated with such a casing, rear plate 36a does not necessarily form part of the drive section casing. However, the board considers that it is implicit for

the skilled person that the drive section of a injection molding machine such as the one disclosed in document D2 is necessarily encased in a suitable casing for reasons of protection and security.

4.3.2 Since ball nut 56 of the injection molding machine according to document D2 is supported by the rear plate 36a and unable to rotate relative to that plate, it is also necessarily unable to rotate relative to an implicitly disclosed drive section casing - should the casing be separate from rear plate 36a. In consequence, the first difference identified above only amounts to a different manner of expressing an otherwise identical technical feature. Such a linguistic difference cannot contribute to an inventive step.

4.3.3 With respect to the second difference, the patent in suit only discloses the disposition of the injection motor set out in feature (i) in the context of the embodiments of figures 6, 7 and 9. Since there is no teaching concerning a particular technical effect resulting from the injection motor being disposed at a rear portion of the drive section casing, this feature only constitutes a routine design choice for the skilled person and cannot contribute to any inventive step.



4.3.4 In addition, according to figure 1 of document D2, the injection motor 55 is shown in a relatively more forward part of the travel of screw pressure plate 33. When metering the injection resin, the screw pressure plate 33 (and injection motor 55) are necessarily displaced further towards the rear of the machine (i.e. to the right in figure 1). In consequence, it is immediately obvious to the skilled person that the injection motor 55 will necessarily be disposed at a rear portion of any casing surrounding the drive section when a greater amount of injection resin has been metered. Insofar as the rear plate 36a does not itself form part of the drive section casing, the board considers that disposing a casing around the machine of figure 1 of document D2 corresponds to normal engineering practice and does not involve an inventive step.

Feature (i) of claim 1 according to the first auxiliary was amended with respect to feature (i) of claim 1 according to the main request, inter alia, in that the requirement that the injection motor be fixed to the frame was deleted. Since the feature (i) of claim 1 according to the first auxiliary does not require that the injection motor is fixed to the rear portion of the drive section casing, the subject-matter of the claim is correspondingly broader. The board cannot accept an inventive step argument advanced on behalf of the appellant based on a feature ("*the injection motor be fixed to the frame*") which has been deleted from the claim and which feature is therefore not part of the claimed subject-matter.

4.3.5 In consequence, the subject-matter of claim 1 according to the first auxiliary request does not meet the requirements of Article 56 EPC 1973.

5. Second and third auxiliary requests

The respective claim 1 according to the sixth and seventh auxiliary request each comprises the following feature:

"(n) an outer diameter said a rotor shaft (157) is smaller than an outer diameter of said ball nut (169)"

This feature (n) is in substance identical to feature (j) of claim 1 according to the main auxiliary request. In consequence, the arguments presented in the context of feature (j) of claim 1 according to the main auxiliary request carry over to feature (n) of the respective claim 1 according to the second and third auxiliary request.

Therefore, the subject-matter of respective claim 1 according to the second and third auxiliary request does not meet the requirements of Article 123(2) EPC.

6. Fourth auxiliary request - Admissibility

6.1 The fourth auxiliary request is presented very late in the appeal proceedings, namely towards the end of the oral proceedings before the board.

According to Article 13(1) of the Rules of Procedure of the Boards of Appeal (RPBA - Supplementary publication OJ EPO 1/2016, 40-50), any amendment to a party's case after it has filed its grounds of appeal or reply may be admitted and considered at the board's discretion. The discretion shall be exercised in view of inter alia the complexity of the new subject-matter submitted, the

current state of the proceedings and the need for procedural economy.

In addition, the following criteria may be taken into account for the exercise of discretion: whether or not there are good reasons for the late filing and whether or not the amendments and submissions are relevant to a resolution of the issues to be discussed at the oral proceedings.

According to Article 13(3) RPBA, amendments to a party's case shall not be admitted after oral proceedings have been arranged if they raise issues which the board or the other party cannot reasonably be expected to deal with without adjournment of the oral proceedings.

- 6.2 In the present case, the argument advanced on behalf of the appellant for the late filing was that it did not expect that a feature would have a broader scope once a more concrete requirement had been omitted from the claimed subject-matter with respect to the corresponding claim from the preceding request and that this would have as consequence that the deleted more concrete requirement does not contribute to an inventive step. This argument for the late filing cannot be accepted, because the appellant is represented by a professional representative.

Furthermore, the fourth auxiliary request does not merely involve re-instating the omitted feature ("*... fixed to the frame*") into claim 1 but instead introduces a completely new formulation ("*... fixed to a rear side of the drive section casing*") which requires an ab initio examination for compliance with Articles 84, 123 and 56 EPC at this late stage of the appeal

proceedings. In consequence, this request is not clearly allowable. The fourth auxiliary request thus raises issues which the board cannot reasonably be expected to deal with at such a late stage in the appeal proceedings, namely towards the end of the oral proceedings before the board.

The appellant already had the opportunity to file auxiliary requests and has made ample use of this opportunity in that the present *fourth auxiliary request* constitutes the thirteenth substantive request presented in the course of the appeal proceedings while effectively creating yet another new case. In view of the need for procedural economy, and insofar Article 13(3) RPBA does not already apply, the board exercises its discretion under Article 13(1) RPBA not to admit this request into the proceedings.

Order

For these reasons it is decided that:

1. The appeal is dismissed.
2. The request for reimbursement of the appeal fee is refused.

The Registrar:

The Chairman:



D. Meyfarth

M. Poock

Decision electronically authenticated