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**D E C I S I O N**  
of 20 December 1994

**Case Number:** T 0839/92 - 3.2.2

**Application Number:** 84850207.6

**Publication Number:** 0130958

**IPC:** B30B 15/22

**Language of the proceedings:** EN

**Title of invention:**

Method and apparatus for pressing powder material

**Patentee:**

Convey Teknik AB

**Opponent:**

Dorst-Maschinen- und Anlagenbau, Otto Dorst und Dipl.-Ing.  
Walter Schlegel GmbH & Co.

**Headword:**

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**Relevant legal provisions:**

EPC Art. 54, 56, 114(1), 117(1)

**Keyword:**

"Novelty (yes) - public prior use"

"Inventive step (yes)"

"Means of giving evidence"

**Decisions cited:**

T 0482/89, T 0270/90

**Catchword:**

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Case Number: T 0839/92 - 3.2.2

**D E C I S I O N**  
of the Technical Board of Appeal 3.2.2  
of 20 December 1994

**Appellant:**  
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**Respondent:**  
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**Decision under appeal:** Interlocutory decision of the Opposition Division  
of the European Patent Office dated 7 July 1992  
concerning maintenance of European patent  
No. 0 130 958 in amended form.

**Composition of the Board:**

**Chairman:** P. Dropmann  
**Members:** M. G. Noel  
J. Van Moer

**Summary of Facts and Submissions**

I. In consequence of an opposition filed by the Appellant against the European patent No. 0 130 958, the Opposition Division decided in an interlocutory decision dated 7 July 1992 to maintain the European patent as amended during oral proceedings in the version dated 20 June 1992.

II. Claim 1 (method) and Claim 4 (apparatus) read as follows:

"1. A method of pressing powder material that is dosed into a movable die (48) and with the aid of movable upper punch (42) is compressed into a ready article, pressing taking place until a desired final position of the pressing means (14-20) or a desired press force has been obtained whereby the die is moved during the pressing step, characterized in that the actual values for the position of the upper punch (42) and of the die (48) are sensed when the respective desired actual press force values are achieved or alternatively the actual values for the press force of the upper punch and of the die are sensed when the desired actual final position values have been reached, in that the registered actual values are compared with criterion values determined beforehand for the quantity which is sensed and in that the article is accepted or rejected depending on the size of the deviation between actual and criterion values."

"4. Apparatus for carrying out the method according to any of claims 1-3, including a press cylinder (14) arranged for controlling the movement of an upper punch (42), a withdrawal cylinder (30) arranged for controlling the movement of a die (48) which die is

moved during the pressing step and control means for controlling the press force of the upper punch, characterized in that at least one position indicator (62) together with a force transducer is coupled to each cylinder (14, 30), said indicators and transducers actuating the cylinders via operating means to the desired setting positions or press and withdrawal forces, the die (48) is movable with the aid of the withdrawal cylinder (30) and relative a stationary lower punch (58) for ejecting the ready article, and in that a picking device (38) is movable between a position above the die (48) and a rejection position or an acceptance position respectively for the pressed article."

III. The reason given by the Opposition Division for the maintenance of the European patent in amended form was that the claimed subject-matter involved an inventive step having regard to the prior art based on public prior uses supported by the following documents:

- (2) Hydr. Preßautomat TPA 500 H-F2
- (3) Hydr. Preßautomat TPA 500 H-11
- (4) Hydr. Preßautomat TPA 500 H-45 Bl. 1
- (5) Hydr. Preßautomat TPA 500 H-72
- (6) Betriebsanleitung TPA 500 H, pages 11, 12, 13, 23, 24, 36
- (7) Fundamentplan TPA 20/3-F1
- (8) Digitiser-Anbau TPA 15/10 - 48.0 Bl. 1
- (9) Preßcontroller und Digitiser Anbau TPA 15/10 - 48.0 Bl. 2
- (10) Auswurfkontrolle und Weiche TPA 15/10 - 83.0
- (11) Bedienungsanleitung PC 2, Bl. 16 to 18
- (12) Preßcontroller und Digitiser Anbau TPA 15/10 - 48.1 Bl. 2
- (13) Rechnung Nr. 11.241 of 11 March 1981 (TPA 500 H) along with typescript - Lieferung Sintermetall/Füssen

- (14) Rechnung Nr. 19.379/12 of 6 April 1983 (TPA 20/3) along with typescript - Lieferung China
- (15) Eidesstattliche Versicherung of 28 April 1989, Dipl.-Ing. H. Schaidl
- (16) Mittelstift mit Differentialzylinder TPA 500 H-51.5 B11 - Lieferung SAINI/Italy
- (17) Eidesstattliche Versicherung of 29 January 1992, Herr Hubert Schaidl.

IV. The Appellant lodged an appeal against this decision on 8 September 1992. A Statement of Grounds was submitted within the prescribed time limit.

The Respondent (Proprietor of the patent) made no written reply.

V. Oral proceedings were held on 20 December 1994.

- (i) In support of its written submissions and during the oral proceedings, the Appellant submitted essentially the following arguments:

The method according to Claim 1 is not new, in any case not inventive, when considering the prior use of press TPA 500 H-51.5 of the firm Dorst delivered to Italy, having all the features of the series TPA 500 H. This press is provided with a position transducer and a force transducer on both the upper punch and the die, although the second force transducer on the die is not absolutely necessary. Moreover, the press is stopped automatically whenever one of the four sensed values or parameters falls outside of set limiting values. Acceptance or rejection of the pressed article is implicit, since in the method according to the present patent the press is stopped before the article is removed.

The apparatus according to Claim 4 is also obvious having regard to the combination of the previously mentioned prior use with that of press TPA 20/3. The version delivered to China is fitted with a press controller PC2, the operating instructions of which mention the provision of a press-stop which operates when the actual values are outside of tolerances. Moreover, this press is provided with a picking device for removing pressed articles. It comes within the common design practice of a person skilled in the art to provide the press type TPA 500 H-51.5 with a picking device according to press type TPA 20/3, in addition to a press-stop, and this whatever the number of the parameters sensed may be.

- (ii) At the oral proceedings, the Respondent argued essentially that documents (16) and (17) were filed after the opposition period and thus were to be disregarded by the Board, that plan (16) was so unclear that it was questionable whether a force transducer on the die was disclosed or not and that none of the cited documents or evidence suggested nor disclosed the simultaneous use of four sensed parameters to operate a picking device.

IV. The Appellant requested that the decision under appeal be set aside and that the European patent be revoked and, as an auxiliary request, that the witness Mr Schaidl be heard.

The Respondent requested that the appeal be dismissed and the patent maintained.

## Reasons for the Decision

1. The appeal is admissible.

2. *Amendments*

The method Claim 1 is based on Claim 1 as originally filed, complemented by features drawn up from the description. Dependent Claims 2 and 3 are based on corresponding claims of the application as filed.

The apparatus Claim 4 results from the combination of Claims 4 to 6 according to the patent as granted, based likewise on corresponding claims of the application as filed.

The requirements of Articles 123(2) and (3) EPC are, therefore, satisfied.

3. *Admissibility and accessibility of the prior uses*

The Respondent contested admissibility of the prior uses introduced in the proceedings for the reasons that documents (16) and (17) were filed after the expiry of the nine-months opposition period. However, the Board agrees with the view of the first instance that the particular relevance of this evidence must take precedence over the time of its introduction. Consequently, the Board admits this evidence in the appeal proceedings in the exercise of discretion under Article 114(1) EPC.

The Respondent also disputed, however, without bringing any supporting argument, that the alleged prior uses could be regarded as prior art within the meaning of Article 54(2) EPC. The Board is left in no doubt as to

the availability to the public of said prior uses, taking account of the wording of the two affidavits (15) and (17) submitted by Mr H. Schaidl and the following evidence as to the delivery of different presses of the firm Dorst, before the priority date of the patent:

- Press TPA 500 H (documents (2) to (6)) delivered to Sintermetall/Füssen (Germany) (documents (13), (15))
- Press TPA 500 H-51.5 (document (16)) delivered to Saini/Italy (document (17))
- Press TPA 20/3 previously called TPA 15/10 (documents (7) to (12)) delivered to Metallurgical Import and Export Corp./China (documents (14), (15)).

4. *Closest prior art*

Document (6) describes along with reference to plans (2) to (5) structural embodiments and the functioning of different presses of the series TPA 500 H. These documents disclose a method of pressing powder material which is dosed into a movable die and, with the aid of movable upper punch, is compressed into an article, pressing taking place until a desired final position of the pressing means or a desired press force has been obtained whereby the die is moved during the pressing step. The actual values for the position of the upper punch and of the die are sensed (72-6; 72-18) when the respective desired actual press force is achieved or, alternatively, the actual values for the press force of the upper punch are sensed (45-24) when the desired actual final positions have been reached. Further, the registered actual values are compared with criterion values determined beforehand for the quantity which is



sensed, so that when the actual values go out of tolerances, an emergency signal causes the press to stop (see (6), in particular page 36, paragraph 4.1.9).

The above documents also show a press for carrying out the method, including a press cylinder (72-6) arranged for controlling the movement of an upper punch, a withdrawal cylinder (11-5) arranged for controlling the movement of a die, which is moved during the pressing step, and control means for controlling the press force of the upper punch, wherein at least one position indicator (72-18; 11-9) is coupled to each cylinder (72-6; 11-5) and a force transducer (45-24) is coupled to the press cylinder, said indicators and transducer actuating the cylinders via operating means to the desired setting positions or press force.

The press type TPA 500 H-51.5 delivered to Italy represents the closest prior art since it comprises all the features of the series TPA 500 H and, in addition, a fourth sensor in the form of a force transducer on the die ("Dehnmeßstreifen", plan (16) and affidavit (17)). Although plan (16) is not very clear as to the exact location of the transducer with respect to the die, the force of the die is very likely to be sensed when considering plan (16) in the light of the indications given in document (6) about the "Mittelstift" (paragraph 3.14) and of the credible use of the "Dehnungsmeßstreifen" as force transducer in conformity with explanations given in document (11), Bl. 16, first paragraph.

However, nothing is said or shown as to how the signal delivered by this fourth sensor is actually utilized.

5. *Novelty*

With respect to the embodiment disclosed by the closest prior art, the subject-matter of Claim 1 differs essentially in that:

- the desired press force of the die is predetermined while the press positions are sensed when the press operates according to the force control mode or, alternatively, the actual force values on the die are sensed for comparison with criterion values when the press operates according to the positional control mode; and
- the pressed article is accepted or rejected depending on the size of the deviation between actual and criterion values.

The subject-matter of Claim 4 differs from the closest prior art in that:

- additionally, the force on the die is sensed as setting value or actual value for actuating the appropriate die cylinder; and
- a picking device is movable between a position above the die and a position for rejection or acceptance of the pressed article.

Since no other prior art comes closer to the subject-matter of Claims 1 or 4 than the prior use of press type TPA 500 H-51.5, these claims are regarded as novel within the meaning of Article 54(1) EPC.

The Appellant's argument that method Claim 1 lacks novelty is not accepted by the Board. Even if the press previously used is actually stopped when one of the

sensed parameters is outside the set limiting values, it is neither implicit nor derivable from the evidence referred to that all positional and force parameters sensed on both the punch and the die are simultaneously assigned to sorting defective articles, depending upon a deviation between actual and criterion values.

6. *Problem and solution*

The distinguishing features recited above result in acceptance or rejection of an article depending on the size of the deviation between actual and criterion values of four parameters, i.e. the positions and press forces on the upper punch and on the die, respectively.

The technical problem to be solved was, therefore, to increase accuracy of pressing and density homogeneity of the compressed article while at the same time automatically controlling acceptance or rejection of the article.

By using as a fourth parameter the force sensed on the die by registering the force on the withdrawal cylinder, the press forces of the upper punch and the die in different operational positions could be sensed simultaneously with great accuracy so as to enable automatic control and sorting of a compressed article with respect to its quality (dimensional characteristics and physical properties).

7. *Inventive step*

7.1 Even if it can be admitted that a force transducer is present on the die of press TPA 500 H-51.5, nonetheless the specific use of a fourth parameter is not disclosed. Such a transducer can serve various purposes such as to control the die force for preventing any damage exerted

on it and consequently on the press, or to operate any security, display or registering system. The skilled person who follows the instructions given in document (6), according to which all sensed parameters are used to stop the press whenever the actual values exceed the set limiting values, will normally use the additional fourth parameter in the same way as before, i.e. for the purpose of interrupting the press.

Supposing now that the force transducer on the die of press type TPA 500 H-51.5 was also provided for improving homogeneity of the compressed articles, nothing in the different presses previously used suggested to the skilled person that four parameters had to be used simultaneously for sorting out compressed articles within the meaning of the functional features of method Claim 1 or for operating a picking device according to the structural features of apparatus Claim 4.

7.2 According to the affidavit from Mr Schaidl (document (15)), the press type TPA 20/3 (previously named TPA 15/10) delivered to China was presumably provided with a press controller PC2 working in accordance with the operating instructions specified in document (11) and, moreover, with an ejecting and separating device (plan (10)) controlled by the press force.

However, careful examination of the instructions given in document (11) shows that only the force applied to the upper punch is sensed and then used for causing the press to stop when the actual force comes out of tolerances (cf. Bl. 16 "Kraftmessung und -überwachung"). An ejecting or separating device is not provided. Even in the event of the press delivered to China being fitted with a sorting device, it is very likely that

this arrangement was controlled by the only parameters available, of which the die force is excluded.

It results from the foregoing that the skilled person would obtain no lead from the prior use of press TPA 20/3 or 15/10, to using the actual die force in addition to the other three parameters, for sorting defective articles.

- 7.3 If, as put forward by the Appellant, control of the separating device by a fourth parameter could possibly have been regarded as an obvious measure by the skilled person on the basis of his technical general knowledge, because all components are well known, separately, it remains that the skilled person would not have got the idea of combining them as claimed, because at the priority date of the patent in suit the problem as defined above (cf. point 6) simply did not arise. In any case, evidence that difficulties of the same nature had previously arisen, or that solutions to this problem were being sought at this time, was not offered by the Appellant.

The Appellant also submitted that the die force transducer represented, in addition to the transducer for sensing the force of the upper punch, a superfluous duplication of means. In this respect, the Board follows the Respondent's view (cf. letters of 25 April 1990 and 25 March 1991) that this reasoning is incorrect since the press force of the die and the punch are not equal to each other, in particular because the friction forces are different.

By measuring simultaneously the positions and the press forces for both the movable die and the movable punch and, as a consequence, also the relationship between them, a more accurate control of the compressed articles

with respect to the desired density and/or dimensions could be obtained and thus automation of the selection was rendered possible. Making use of the press type TPA 500 H-51.5 does not necessarily allow such a result to be attained since it remains questionable what the force measuring transducer on the die is intended to achieve.

7.4 For all the above reasons, the Board comes to the conclusion that the subject-matter of both method Claim 1 and apparatus Claim 4 is not derivable in an obvious manner from the cited prior art and accordingly involves an inventive step within the meaning of Article 56 EPC.

8. As to the auxiliary request of the Appellant that Mr Schaidl be heard as witness, the Board's opinion is that additional means of giving evidence under Article 117(1)(d) EPC are not necessary in the present case, since the prior uses were admitted in the appeal proceedings and their accessibility to the public accepted. The two affidavits from Mr Schaidl to prove the facts alleged by the Appellant, are deemed to be sufficient for the Board to decide, having regard to the evidence, the facts that occurred on the overall balance of probabilities without it being necessary to undertake further investigations (T 482/89, OJ EPO 1992, 646 and T 270/90, OJ EPO 1993, 725).

Order

For these reasons it is decided that:

The Appellant's main and auxiliary requests are rejected.

The appeal is dismissed.

The Registrar:

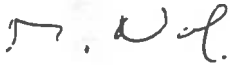


S. Fabiani

The Chairman:



P. Dropmann



16.2.95

