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D E C I S I O N
of 5 July 2000

Case Number: T 0573/97 - 3.2.3

Application Number: 90307368.2

Publication Number: 0407197

IPC: B24C 7/00, B24C 9/00, B24C 11/00

Language of the proceedings: EN

Title of invention:
Pliant media blasting device

Applicant:
SPONGE-JET, INC.

Opponent:
-

Headword:
-

Relevant legal provisions:
EPC Art. 52, 54, 56

Keyword:
"Inventive step (yes)"

Decisions cited:
-

Catchword:
-



Case Number: T 0573/97 - 3.2.3

D E C I S I O N
of the Technical Board of Appeal 3.2.3
of 5 July 2000

Appellant: SPONGE-JET, INC.
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Representative: Watts, Peter Graham
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Decision under appeal: Decision of the Examining Division of the
European Patent Office posted 16 January 1997
refusing European patent application
No. 90 307 368.2 pursuant to Article 97(1) EPC.

Composition of the Board:

Chairman: C. T. Wilson
Members: J. du Pouget de Nadaillac
J. P. B. Seitz

Summary of Facts and Submissions

- I. The appeal is directed against the decision dated 16 January 1997 of an Examining Division of the European Patent Office, which refused the patent application EP-A2-0 407 197 for lack of an inventive step of the claimed subject-matter, having regard to the disclosures of documents D6 (US-A-4 731 125) and D8 (US-A-2 910 812) among the prior art citations which were considered during the examination proceedings. In its decision, the Examining Division incidentally mentioned that dependent claim 3 did not comply with Article 123(2) EPC.
- II. The appellant, the applicant of the patent application, lodged the appeal on 17 March 1997 and paid the appeal fee at the same date. In the statement of grounds of appeal filed on 16 May 1997, he contested the grounds of the above decision, however stated his willingness to amend claim 3 and made a specific proposal to overcome the Article 123(2) objection.

In a communication dated 10 February 1999, the board of appeal expressed its provisional opinion

- that Claim 3 according to the decision under appeal indeed infringes Article 123(2) EPC, whereas a corresponding claim amended as proposed in the statement of grounds would be acceptable,
- that the novelty of the subject-matter of Claim 1 is doubtful having regard to US-A-2 652 662 (hereinafter referenced D0), which was also cited in the patent application, and

- that the grounds of the impugned decision are at least partly correct, since Claim 1 does not clearly indicate under which pressures the claimed blasting media should be pliant.

III. The appellant submitted on 14 June 2000 new pages of the description and new Claims 1 to 4. Claim 2 corresponds to the amended claim proposed by the appellant in order to replace Claim 3 according to the decision under appeal.

Claims 1 and 2 read as follows:

"1. A method of treating a contaminated surface with a plurality of individual particles of pliant particulate blasting media (23) using a blasting system including a storage container (8) for storing the blasting media (23), an air supply (5) for providing a flow of air under pressure and a discharge conduit (18) connected from the storage container (8) and the air supply (5) for discharging the blasting media (23), said method including the steps of:

- (a) conveying the pliant blasting media (23) from the storage container (8) to the discharge conduit (18);
- (b) supplying the air flow under pressure to the discharge conduit (18) and mixing the air flow under pressure and the pliant particulate media (23) together to form a pressurised mixture in the discharge conduit (18); and
- (c) discharging the pressurised mixture against the contaminated surface to remove contaminants from

the contaminated surface; said method being characterised in that:-

the pliant blasting material consisting of an essentially dry synthetic resilient open cell sponge material, said sponge material defining interstices and being easily deformable at the pressure at which the blasting material (23) is discharged from the discharged conduit (18), so that it is capable of entrapping contaminants in the interstices of the sponge material."

"2. A method according to Claim 1 characterised in that the blasting media (23) is pretreated with a powder and/or a liquid."

IV. The appellant made essentially the following submissions:

The novelty of the present invention indeed resides in the selection of the blasting media. However, it should be noticed that the claimed blasting method is not limited to low abrasive applications at pressures between 35 and 45 psi as it is the case with the blasting system according to D6, but may also be used in aggressive applications with pressures preferably about 90 psi. In the method according to D6, soft plastic materials are used but this document does not refer to the pliancy of these materials and to the objects of the present invention.

The blasting media or material of the present invention must be both pliant and resilient at the pressure at which it is discharged so as to flatten against the surface to be treated in order to capture contaminants

in the interstices of said material and then rebound to its original shape to entrap the contaminants and remove them from the surface being cleaned. Being pliant and resilient, it has a low rebound energy, generating a low amount of dust during the abrasive operation and, moreover, can be compressed so that, during the step of recovering said blasting media by cleaning it, the entrapped debris and liquids can be squeezed out from it. The other prior art reference mentioned in the decision under appeal, namely D8, utilises black walnut shell grit as material. As the term "grit" implies, it is a hard stone like particulate material without pliancy and having a high tendency to ricochet, thus a very short contact with the surface to be cleaned so that entrapment of debris will be minimal. It is quite different from the material used in D6, so that, already for this reason, the system according to D8 cannot be combined with that of D6. The object of D6 is in fact to overcome problems of using blasting media such as that disclosed in D8. Contrary to the assertion of the Examining Division in the decision under appeal, materials may be pliant without being resilient (example of a golf ball) and, when reference D8 discloses that moistening of the walnut shell grit with hot condensate will give the particles resilience, there is no suggestion that these particles will be pliant. The present invention moreover does not require moistening with steam to render the blasting media resilient.

- V. The appellant requested that the decision under appeal be cancelled and that a patent be granted on the basis of the following documents:

Claims: 1 to 4, as filed on 14 June 2000;

Description: Pages 1 to 6, 9, 11, 12 and 16, as filed on 14 June 2000;
Pages 7, 8, 10 and 13 to 15, as originally filed;

Drawings: Pages 1/5 to 5/5, as originally filed.

Reasons for the Decision

1. The appeal is admissible.

The use of a synthetic resilient open cell sponge material as pliant blasting media is supported by the passage of page 4, lines 19 to 23, of the original application. That this material is essentially dry follows from the whole content of the description and the passage of page 3, lines 33 to 35. That moreover the blasting media is made of individual particles of pliant material was disclosed in the method claims of the application as originally filed. All the other features of claim 1 also have their basis in the claims and the description of the original application. The features of dependent Claims 2 to 4 were disclosed respectively on page 15, lines 33 to 36, on page 6, lines 14 to 19 and on page 7, last lines to page 8, first lines, as originally filed. The description was amended so as to be adapted to the present claims and, further, to introduce S.I. units.

Thus, the new documents of the patent application are in accordance with the requirement of Article 123(2) EPC.

3. *Novelty (Articles 52 and 54 EPC)*

In document D0, cellulosic materials such as ground corn cobs, wood particles (saw dust), rice hulls, ground walnut or pecan shells are given as examples of soft abrasive particles or grits, which can be projected by means of a propellant, for example air, against a surface to remove superfluous material such as grease, carbon and dirt therefrom. Saw dust is a pliant particulate blasting media. However, it is not a synthetic sponge material.

Soft blasting media made of soft plastic particles (urea formaldehyde or another thermoset plastic) are also considered in D6. However, there is no mention in this citation either of plastic particles which have to be both pliant and resilient or of sponge material.

In document D8, black walnut shell grit particles, made resilient by a moistening process, form the blasting media, which consequently is not made of a synthetic material.

Citation D7 (US-A-2 624 988) teaches the use of sponge rubber fragments in a blasting media. However, these sponge fragments together with felt fragments are carried by a liquid mixture made of oils and abrasive pastes, so that jets of a cream-like blasting media impinge the surface to be treated. This blast media cannot be considered as made of a plurality of individual particles of a pliant and resilient sponge particulate material, which is essentially dry.

US-A-3 313 067 (D15), cited in the specification of the present patent application, discloses polycarbonate resin particles, possibly containing a filler, such as silica, glass fibres, Carborundum dust and so on, as

being advantageous for forming a blasting media, since they do not generate dust. Synthetic resins are known as **grit** blasting material because of their hardness, as confirmed by another prior art reference, namely US-A-2 426 072, which is also mentioned in the patent application in suit. Thus, they do not fall under the definition of a pliant and resilient sponge material.

The other documents cited in the Search Report essentially concern blasting devices, subject-matter of claims of the patent application as originally filed and now abandoned. These documents are therefore no longer relevant.

The subject-matter of claim 1 is therefore novel in the sense of Article 54 EPC.

4. *Inventive step (Articles 52 and 56 EPC)*

4.1 The two-part form of Claim 1 is based on the disclosure of D0, which as seen above makes use of a blasting media comprising soft abrasive particles of a cellulosic material, for example ground corn cobs, fruit pits, ground walnut shells, saw dust and so on. The blasting device shown in this prior art has all the features of the device mentioned in Claim 1 of the patent application in suit and, moreover, it is used according to the method steps of said claim. Although some of the above kinds of a soft particle are pliant, this citation D0 does not refer to the pliancy and resiliency of the particles. Important in this prior art is only the softness of the blasting material in order to avoid damage to the surfaces to be treated.

4.2 The method according to Claim 1 of the patent

application in suit differs from the method of this prior art in that a pliant blasting media comprises a synthetic resilient sponge material having the properties as claimed in the characterising portion of Claim 1.

The object of the present invention is to provide a method for blast treating contaminated surfaces, which is much safer for the operator of the blasting device. By using the claimed blasting media, this object is achieved, since, under the action of the jet pressures, the pliant media is flattened against the surface to be treated upon impact and subsequently, being resilient, resumes its original shape, so that it will entrap and carry away the debris coming from the blasting media itself and from the treated surface. The heavy cloud of dust, which usually occurs during the blasting operation, is therefore avoided or at least substantially reduced and, as a consequence, the explosion hazard also.

- 4.3 One passage of citation D6, which in the impugned decision represented the closest prior art, indicates that the method disclosed in this prior art eliminates the health, safety, pollution and disposal problems associated with chemical paint stripping (column 5, lines 27 to 31). However, the method therein disclosed is only based on the use of soft plastic particles - a Mohs scale hardness of about 3.0 is mentioned - and on the use of output pressures for the blasting media, which are lower than those used in most sand blasting machines. How the above-mentioned problems are in fact solved is not disclosed in this prior art and there is no mention or suggestion of any pliant and resilient properties of the blasting material. Thus, it cannot be

derived from this prior art that the sponge material as claimed would solve the problem underlying the present invention.

- 4.4 Sponge rubber fragments used with a liquid carrier, as disclosed in document D7, also cannot suggest the solution as claimed. There is, first, no indication in this prior art of any improvement concerning the pollution or dust problem. Secondly, the duties which the sponge rubber fragments are supposed to perform, is the transport by their pores and the delivery of the abrasive paste onto the surface to be treated, the sponge rubber and felt fragments moreover yielding to the contour of the surface so that the entire surface is treated (column 2, lines 33 to 59 of D7). Moreover, the proportion of the sponge rubber fragments are a fourth part of that of the felt fragments, so that the sponge fragments play a secondary role. These fragments are further propelled in a stream of a pasty fluid, which consequently covers or saturates them, so that they cannot fulfill - at least in a correct way - the claimed function of the dry particles of the present invention, even if it is taught that the pores of these fragments can deliver the abrasive paste. Thus, the method disclosed in this prior art is different and a suggestion that pliant and resilient particles of a sponge particulate blasting media could have solved the problem of the present invention cannot be found in this prior art. It should be noticed in this respect that the dependent Claim 3 of the present application, which indicates that the blasting media can be pretreated with a liquid, does not mean that this particular method step has to be carried out so as to saturate the blasting media. The appellant has confirmed in his letter dated 19 August 1994 that the

blasting media would essentially be dry, as claimed in Claim 1.

- 4.5 Since none of the other cited documents discloses a blasting media made of sponge synthetic material, it has to be concluded that the subject-matter of Claim 1 involves an inventive step in the sense of Article 56 EPC. The dependent Claims 2 to 4, which concern further steps of the method according to Claim 1, are as a consequence allowable.

Order

For these reasons it is decided that:

1. The impugned decision is set aside.
2. The case is remitted to the first instance with the order to grant as patent on the basis of the following documents:

Claims: 1 to 4, received on 14 June 2000.

Description: pages 1 to 6, 9, 11, 12 and 16, as filed on 14 June 2000;
pages 7, 8, 10 and 13 to 15, as originally filed.

Drawing: Pages 1/5 to 5/5, as originally filed.

The Registrar:

The Chairman:

A. Counillon

C. T. Wilson