Europäisches Patentamt
Beschwerdekammern

European Patent Office
Boards of Appeal

Office européen des brevets
Chambres de recours

Veröffentlichung im Amtsblatt Ja/Nein
Publication in the Official Journal Yes/No
Publication au Journal Officiel Oui/Non

000756

17

Aktenzeichen / Case Number / N° du recours : T 156/85

Anmeldenummer / Filing No / N° de la demande : 81 850 166.0

Veröffentlichungs-Nr. / Publication No / N° de la publication : 0 049 230

Bezeichnung der Erfindung: Vibration damped rivet bucking tool
Title of invention:
Titre de l'invention :

Klassifikation / Classification / Classement : B 21 J 15/08

ENTSCHEIDUNG / DECISION

vom / of / du 29 February 1988

Anmelder / Applicant / Demandeur : Atlas Copco Aktiebolag

Patentinhaber / Proprietor of the patent /
Titulaire du brevet :

Einsprechender / Opponent / Opposant :

Stichwort / Headword / Référence :

EPÜ / EPC / CBE Article 56
"Inventive step" - (Yes)
Kennwort / Keyword / Mot clé :

Leitsatz / Headnote / Sommaire

Europäisches Patentamt | European Patent Office | Office européen des brevets

Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number : T 156/85

D E C I S I O N
of the Technical Board of Appeal 3.2.2
of 23 February 1988

Appellant : Atlas Copco Aktiebolag
Nacka
S-105 23 Stockholm (SE)

Representative : Pantzar, Tord et al
c/o Atlas Copco Aktiebolag Patent Department
S-105 23 Stockholm (SE)

Decision under appeal : Decision of Examining Division 091 of the European Patent Office dated 06 February 1985 refusing European patent application No. 81 850 166.0 pursuant to Article 97(1) EPC

Composition of the Board :

Chairman : C. Maus
Members : R. Gryc
W. Moser

Summary of Facts and Submissions

I. European patent application No. 81 850 166.0, filed on 23.09.81, published under publication number 0 049 230 and claiming the priority of a previous application of 01.10.80, was refused by a decision of the Examining Division 091 dated 06.02.85 on the basis of Claims 1 to 3 filed on 26.11.83.

II. In its decision, the Examining Division held that, starting from the prior art disclosed in citation (1) US-A-2 274 091 and bearing in mind the teaching of citation (2) DE-B-183 481, it was obvious for the man skilled in the art to imagine the subject-matter of the present Claim 1.

III. The Applicant appealed against the decision on 09.04.85, paid the appropriate fee at the same time and filed the Statement of Grounds on 30.05.85 together with a new set of three claims.

In the Statement of Grounds, the Appellant argued essentially that citation (1) did not disclose a vibration damped tool, that citation (2) did not show a rivet bucking tool at all or even an adjustable pressure regulating valve means in the sense of the application and that, therefore, it could not be normal practice of a skilled man to arrive at a tool according to the invention by combining the teachings of these two references.

IV. In response to two communications of the Board, the Appellant filed on 11.12.87 a new set of claims together with new pages 1A and 3 of the description and requested the grant of a patent on the basis of the amended documents.

Present Claim 1 reads as follows:

1. A hand held vibration damped rivet bucking tool, comprising a housing (11) subjectable to a manually applied bucking force, a cylinder bore (12) in said housing (11), a recoil absorbing piston (13) sealingly guided in said cylinder bore (12) and carrying at its forward end a rivet engaging die (23), said piston (13) defining by its rear end a damping chamber (42) in said cylinder bore (12), an abutment means (20) in said cylinder bore (12) arranged to limit the forward movement of said piston (13), and a passage means (39) for communicating compressed air to said damping chamber (42), and an adjustable pressure regulating valve means (28) associated with said housing (11) and communicating through said passage means (39) with said damping chamber (42) for enabling selective adjustment of the air pressure within said damping chamber (42) for balancing the pressure air force acting on said piston (13) against the nominal bucking force actually applied on the tool housing (11), such that during rivet bucking said piston (13) floats axially within said cylinder bore (12) out of contact with said abutment means (20), characterised in that the pressure regulating valve means (28) is an automatic cut-off valve means comprising means (29-32) for presetting the cut-off in relation with the pressure inside the damping chamber (42).

VI. A new page 1 of the description and an amended page 4 were filed on 06.02.88.

VII. For the original claims and description, reference should be made to publication No. 0 049 230.

Reasons for the Decision

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

2. Present Claim 1 incorporates the following features which are not explicitly described in the application as filed:

(a) "... during rivet bucking said piston floats axially within said cylinder bore out of contact with said abutment means ...".

(b) "... the pressure regulating valve means is an automatic cut-off valve means comprising means for presetting the cut-off in relation with the pressure inside the damping chamber."

These features are implicitly disclosed in and unambiguously derivable from the originally filed documents and a support can be found in the original description page 4, lines 14-19 or page 5, lines 7-15 and page 3, lines 2-7 or page 4, lines 1 to 5 or 36-38 respectively or in the drawings in Figures 1 and 4.

The subject-matter of Claim 1 therefore does not extend beyond the content of the application as filed (Article 123(2) EPC) and the aforementioned amendments are allowable.

3. Having examined the documents cited in the search report, the Board has come to the conclusion that DE-B-183 481 discloses the closest prior art to the subject-matter of Claim 1 when the rivetting hammer incorporated in this known tool is not maintained in use, i.e. when this known tool works like a conventional rivet bucking tool (see page 4, lines 4-13 of this anteriority).

Since the preamble of Claim 1 has been derived from said known tool and incorporates in combination the features common to said known device and to the one according to the invention, it fulfills the requirements of Rule 29(1)(a) EPC and is not open to objection in this respect.

4. DE-B-183 481 discloses tools having a valve means which enables a selective adjustment of the air pressure within the damping chamber by opening and closing the valve means manually. But, according to the description page 1, a predetermined minimum pressure cannot automatically be maintained inside the chamber to cope with the actual working conditions.

5. The problem underlying the invention according to Claim 1 is, therefore, to improve the recoil and vibration damping properties of such a rivet bucking tool and to ease the adaptation of the tool to changing work conditions determined by the type of rivets to be headed.

Since the statement of this problem was already in the original description of the application as filed (see page 1, lines 23 to 25), the requirements of Article 123(2) EPC are fulfilled in this respect.

6. The Board is satisfied that the aforementioned problem is solved by the provision of the technical features of the characterising portion of Claim 1 which distinguishes its subject-matter from the above cited closest prior art (cf. paragraph 3).

Having regard to the relevant state of the art disclosed in the documents of the search report, the subject-matter of Claim 1 is therefore novel (Articles 52 and 54 EPC).

7. On the question of whether this relevant prior art could suggest to modify the known bucking tool in order to solve the aforementioned problem (cf. paragraph 5), the following should be observed:

7.1 None of the documents cited in the search report contemplates the possibility of adapting the damping properties of a bucking tool to changing work conditions determined by the rivets to be headed, and the man skilled in the art would not find any hint at all in the state of the art for the presetting of a minimum pressure in the damping chamber of a bucking tool.

7.2 In the only document disclosing a vibration damped bucking tool having a throttle valve means which can be used as an adjustable pressure regulating valve (i.e. DE-B-183 481, because US-A-2 274 091 does not concern a vibration damped tool) the opportunity of adjusting the pressure is contemplated only in relation with the control of the air flow through the damping chamber and the impact mechanism, i.e. only to control the functioning of the rivetting hammer and not the damping properties of the tool as a bucking tool. On the contrary, when the tool is to be used for bucking, this anteriority teaches the man skilled in the art to admit a constant full air net pressure inside the damping chamber instead of adjusting it to cope with the actual working conditions.

7.3 Therefore, there is no reason for the person skilled in the art to use an automatic valve means having means for the presetting of its functioning in relation with the air pressure within the damping chamber of the bucking tool.

7.4 Consequently, the teachings of the cited documents even considered in combination could not lead the skilled person to the use of presetting means in combination with an automatic valve means on such a tool.

8. Therefore, the subject-matter of Claim 1 involves an inventive step within the meaning of Article 56 EPC and is patentable in view of Article 52 EPC. Claim 1 is thus allowable.

9. Dependent Claims 2 and 3 concern particular embodiments of the tool according to Claim 1 and are thus likewise allowable.

10. The description of the application has been adapted to the wording of the present Claim 1 and acknowledges the closest prior art from which the invention starts. These amendments are therefore not open to objection.

Order

For these reasons, it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the first instance with the order to grant a European patent on the basis of the following documents:

Claims 1 to 3 submitted on 11 December 1987;

pages 1 and 4 of the description submitted on 6 February 1988;

pages 1A and 3 of the description submitted on 11 December 1987;

pages 2, 5 and 6 of the description as originally filed;
original drawing sheet 1/1.

The Registrar: The Chairman:

S. Fabiani C. Maus