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D E C I S I O N
of 25 January 1999

Case Number: T 0182/96 - 3.2.3

Application Number: 89901427.8

Publication Number: 0382793

IPC: B02C 1/02

Language of the proceedings: EN

Title of invention:
Concrete crusher

Patentee:
La Bounty Manufacturing, Inc.

Opponent:
Verachtert B.V.

Headword:
-

Relevant legal provisions:
EPC Art. 56

Keyword:
"Inventive step - obvious combination of known features"

Decisions cited:
-

Catchword:
-

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Case Number: T 0182/96 - 3.2.3

D E C I S I O N
of the Technical Board of Appeal 3.2.3
of 25 January 1999

Appellant: (Opponent)
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Decision under appeal: **Decision of the Opposition Division of the European Patent Office 11 December 1995, posted on 21 December 1995, rejecting the opposition filed against European patent No. 0 382 793 pursuant to Article 102(2) EPC.**

Composition of the Board:

Chairman: C. T. Wilson
Members: F. Brösamle

J. P. Seitz

Summary of Facts and Submissions

I. In the oral proceedings of 11 December 1995 the opposition division rejected the opposition against European patent No. 0 382 793 pursuant to Article 102(2) EPC, whereby the written decision was posted on 21 December 1995.

In the decision the opposition division came to the result that the prior art, as revealed particularly in the following documents

(D1) US-A-4 558 515 and

(D2) JP-A-59-187 976 **and its English translation**

did not prejudice the maintenance of the patent in its granted form.

II. Claim 1 as granted reads as follows:

"1. A heavy duty attachment (10) for crushing articles (c) of concrete and the like for connection to the boom structure (11) and hydraulic system (13) of a mobile machine such as a hydraulic excavator, comprising a jaw structure (15) including a pair of relatively swingable jaws (16, 17) having jaw faces (a, b), and teeth (47, 48, 49) protruding from the jaw faces to engage and crush concrete articles (c), a hydraulic cylinder (14) to swing one jaw (16), each of the jaws having an inner end portion adjacent the pivotal connection and also having an outer end portion, a pin (18) for

mounting the jaw structure on the boom structure of the mobile machine, said one jaw (16) having a pin (26) connected to a hydraulic cylinder (14) operated by the hydraulic system of the mobile machine to be swingably operated thereby toward and away from the other jaw (17), characterized in that the jaws are pivotally connected to each other, a brace (27) is provided for retaining said other jaw (17) in a predetermined orientation with respect to the boom structure of the mobile machine, each of the jaws has a multiplicity of rigid plate-like tines (31, 32, 33 and 37, 38, 39, 40) extending generally outwardly from the inner portion of the jaw toward the outer end portion thereof, said plate-like tines on each jaw confront each other, are oriented substantially normal to the axis of swinging and are spaced from each other by open areas (35, 36 and 42, 43, 44) of width well in excess of the thickness of the plate-like tines on the opposite jaw, the plate-like tines on the two jaws are wholly offset with respect to each other when the jaws are in the closed position and each of the jaws has a cross plate (34, 41) adjacent the outer end portion thereof and extending transversely of and between the outer end portions of said plate-like tines and being affixed thereto."

III. Against the above decision of the opposition division the opponent Verachtert B.V. - appellant in the following - lodged an appeal on 20 February 1996 paying the appeal fee on the same day. The statement of grounds of appeal was filed on 18 April 1996.

He requests to set aside the impugned decision and to revoke European patent No. 0 382 793.

IV. The proprietor - respondent in the following - requests to dismiss the appeal i.e. to maintain the description, claims and drawings as granted.

V. In a communication to the parties dated 23 April 1997 the board set out its provisional opinion that it was doubtful whether claim 1 as granted defined non-obvious subject-matter within the meaning of Articles 56 and 100(a) EPC in the light of (D1) and (D2).

Within the granted time-limit of four months of the above communication neither the appellant nor the respondent filed any observations with respect to the board's provisional findings on the case.

VI. The arguments of the parties in support of their above requests are essentially as follows:

(a) appellant:

- from(D2) all features of granted claim 1 are known with the exception that the areas by which the plate-like tines of the upper jaw are spaced are open areas;

- contrary to the findings of the opposition division in the impugned decision broken/cut material, (see Figure 2 of (D2)), is forced through the openings in the lower jaw even if

the upper jaw is free of any cross plate;

- claim 1 does not exclude the existence of cross plates in the lower jaw so that the cross plates "8, 8" of (D2) can be seen as a means for obtaining a finer crushing of the concrete;

- from (D1) upper and lower jaws are known which have interleaving tines when brought into their closed position, (see Figures 2 and 5), so that broken/cut parts can be pushed through openings either in the upper or lower jaw without leading to jamming;
- there cannot be seen an inventive step in combining the teachings of (D2) and (D1) since (grapple) shears and crushers belong to closely related technical fields and produce the technical effect that broken/cut material can escape both from the lower or upper jaw;

- the material "steel-reinforced concrete" in itself brings together the technical fields of shears and crushers since in one apparatus the steps of crushing and shearing are carried out simultaneously.

(b) respondent:

- in a concrete crusher the material is pushed through the open areas of the tines whereas in a shear the material is cut and uses that relief to achieve its by-pass so that the sheared material stays on the same side of the

attachment where it was before it was processed;

- grapples in contrast to crushers are used to handle material and are much lighter and are not intended for processing material and producing a by-product;

- the closest prior art crusher is disclosed in (D2), in which crushed material cannot escape from the upper jaw since open areas are not existent;

- jamming is avoided in the subject-matter of claim 1 by the spacing of the plate-like tines on each jaw;

- since (D1) is in fact a metal grapple shear and not useful for crushing of concrete its teaching cannot be combined with the teaching of (D2) since in its upper jaw holes and a cross plate are missing and since the two foremost teeth "5" of (D2) are quite different in construction and action from the cross plate provided at the upper jaw according to claim 1;

- in (D2) the cross plate of the upper jaw is needed to push material cut by its teeth through the openings in the lower jaw so that a skilled person would not envisage a combination of (D2) with (D1);

- summarizing, the subject-matter of claim 1 is

non-obvious so that the appeal should be dismissed.

Reasons for the Decision

1. The appeal is admissible.

2. *Novelty*

Novelty not being disputed by the parties or the board no detailed arguments are necessary in this respect.

3. *Inventive step*

3.1 Nearest prior art document is (D2), (see impugned decision, remark 3.1), from which document contrary to respondent's findings a cross plate **on each jaw** is known, (see also impugned decision page 3, line 5 from bottom to page 4, line 1), so that the feature of claim 1 not known from (D2) is that the areas by which the plate-like tines of the upper jaw are spaced are open areas, (see impugned decision, remark 3.2, first paragraph).

3.2 The terms "for crushing ... concrete and the like" and "for connection to ... a hydraulic excavator" of claim 1 have to be seen as "suitable for" and not as a restriction of claim 1 to these "features" so that any heavy duty attachment for crushing articles **having the structural features** of claim 1 is seen as an attachment that produces **the same technical effects** irrespective of its wording be it a "crusher" or a "grapple shear".

3.3 Since the crusher according to (D2) provides for openings only in the **lower** jaw, (see Figures 1, 2, 6, 7, 8 and 11), the crushed material can only exit from the **lower** jaw. The technical problem to be solved was therefore to decrease jamming of material between the jaws, (see again impugned decision, remark 3.2, second paragraph).

3.4 The above technical problem is solved with the features of claim 1. Contrary to the known heavy duty attachment according to (D2) claim 1 prescribes that the plate-like tines of the upper jaws are spaced from each other by open areas well in excess of the thickness of the plate-like tines of the opposite jaw. Crushed material can therefore escape through the lower **and** upper jaw so that the danger of jamming is avoided since in addition the open areas are wide enough for broken material readily to pass through the spaced tines.

3.5 It has now to be decided whether or not the subject-matter of claim 1 is based on an inventive step; the following is observed in this respect:

3.5.1 It could be argued that there is a direct lead from (D2) to the subject-matter of claim 1 since it would be sufficient to provide for the same open areas known in combination with the lower jaw on the **upper jaw** should there be any problem with respect to jamming between the jaws, i.e. to simply duplicate a known structural feature.

3.5.2 Even if this approach for the assessment of inventive

step is, however, not followed the prior art in form of (D2) **and** (D1) **directly** leads to the claimed invention.

3.5.3 As set out in the board's communication to the parties crushers and shears are closely related apparatus, (see (D2) page 4, second paragraph, page 5, first paragraph, page 11, first paragraph and page 12), since even in a **crusher** materials such as concrete **and** steel are processed, namely crushed or cut at the same time.

3.5.2 While (D2) puts more stress on crushing, (D1) - (see column 1, lines 21 to 46, pointing to **concrete and steel**) - puts more stress on shearing whereby, however, both documents combine crushing and shearing. Under these circumstances any skilled person not knowing the claimed invention and confronted with the above technical problem to be solved by the invention would turn from (D2) also to (D1) since in a shear according to (D1) cut material can also escape through the **upper** jaw, namely between the blades "35, 36" so that there is no tendency of jamming, (see also column 3, lines 21 to 25 and Figures 3 to 5 of (D1) in this respect).

3.5.3 Since identical structural features must produce identical technical effects the combination of teachings of (D2) and (D1) directly solves the technical problem according to above remark 3.3 and achieves the advantage that jamming can be avoided by providing open areas also on the **upper** jaw.

3.5.4 Summarizing, the subject-matter of claim 1 is obvious within the meaning of Articles 56 and 100(a) EPC so that this claim is found to be not valid. The impugned

decision can therefore not be upheld.

4. The board is in agreement with the appellant that it is possible to avoid any cross plate on the upper jaw and nevertheless to be able to force crushed material out of the lower jaw. The means are identical in claim 1 and (D2/D1), namely interleaving tines which are correctly spaced to achieve a comb- arrangement/inter-relationship.

Additional cross plates "8, 8" according to (D2) are not excluded by the wording of claim 1 and would therefore also be useful to achieve a **finer** crushing.

Contrary to respondent's findings that in a (multi-knife-) shear as in (D1) any sheared material stays on the same side of the attachment the board is rather convinced that it is forced through opposite openings of the other jaw, (see also (D2) and its arrangement of tines according to Figure 8 or see (D1) and its Figures 4 and 5). Any differentiation between processing/crushing/handling is not appropriate in the present case since the initial material in itself is non-uniform, namely concrete and steel, concrete to be crushed and steel to be cut/sheared. It is therefore not appropriate to argue that shears are lighter in construction than crushers; whether a by-product is achieved by the heavy duty attachment is therefore not a question of the structural configuration, but rather a question of the nature of initial material. Since distal cross plates on the upper **and** lower jaws are already known from (D2), (see Figures 1, 3, 4, 5 and 6) - namely curved for the upper jaw and flat for the

lower jaw - it is not appropriate to point to a difference between the subject-matters of claim 1 and (D2), (see also respondent's argument with respect to any teeth linked to the cross plate of the upper jaw), since claim 1 does not exclude by its wording such additional teeth.

Order

For these reasons it is decided that:

1. The impugned decision is set aside.

2. The patent is revoked.

The Registrar: The Chairman:

N. Maslin C. T. Wilson