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**Datasheet for the decision
of 28 January 2011**

Case Number: T 0130/08 - 3.2.04

Application Number: 01961564.0

Publication Number: 1326489

IPC: A01B 15/16

Language of the proceedings: EN

Title of invention:
DISC

Patentee:
Väderstad-Verken AB

Opponents:
Amazonen-Werke
Molbro A/S

Headword:
Disc/VÄDERSTAD

Relevant legal provisions:
EPC Art. 54, 56

Relevant legal provisions (EPC 1973):

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Keyword:
"Novelty (yes)"
"Inventive step (no)"

Decisions cited:

-

Catchword:

-



Case Number: T 0130/08 - 3.2.04

DECISION
of the Technical Board of Appeal 3.2.04
of 28 January 2011

Appellant: Väderstad-Verken AB
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Decision under appeal: Decision of the Opposition Division of the
European Patent Office posted 21 November 2007
revoking European patent No. 1326489 pursuant
to Article 102(1) EPC 1973.

Composition of the Board:

Chairman: M. Ceyte
Members: P. Petti
T. Bokor

Summary of Facts and Submissions

- I. The opposition division, by its decision dispatched on 21 November 2007 revoked the European patent No. 1 326 489.

The opposition division found that the subject-matter of claim 1 of the auxiliary request filed during the oral proceedings on 26 October 2007 lacked novelty over FR-A-1 187 337 (D5).

- II. The patent proprietor (hereinafter appellant) lodged an appeal against this decision on 22 January 2008 and simultaneously paid the appeal fee. A statement setting out the grounds of appeal was received on 19 February 2008.

- III. The appellant requested that the decision under appeal be set aside and the patent be maintained on the basis of the auxiliary request filed during oral proceedings before the opposition division on 26 October 2007.

Claim 1 of this request reads as follows:

"Disc for an agricultural machine, comprising a first and a second side (3', 4'), which first side (3') is designed to bear against a flange (6') formed on a hub (5'), the first side (3') of the disc (1') comprising a recess (15) designed to at least partly accommodate the flange (6') formed on the hub (5') and to connect the disc (1') to the hub (5') therein, wherein a portion of the recess of the disc is provided with at least one through-hole (19) for connecting the disc (1') to the hub (5') by means of fastening elements (20), said

portion being substantially perpendicular to the central axis (23) of the disc, said through-hole (19) being arranged in said portion in such a way that its central axis extends substantially parallel to the central axis (23) of the disc (1'), said disc includes an essentially annular section (27') of the disc (1'), which is formed between the outer periphery (28) of the disc (1') and the recess (15), wherein the essentially annular section (27') of the disc (1') constitutes the lateral area of a truncated cone, **characterized** in that the second side (4') of the annular section (27') being the inner side of such truncated cone."

IV. Respondents I and II (opponents O1 and O2) requested that the appeal be dismissed.

V. The appellant essentially submitted that the claimed subject-matter was novel over D5.

VI. Both respondents submitted that the claimed subject-matter lacked novelty over D5.

Furthermore, respondent I (opponent O1) also submitted that the claimed subject-matter lacked inventive step over WO-A-85/05246 (D1) in combination with D5.

VII. In a communication dated 12 May 2010, the board pointed out the issues to be discussed, namely that of novelty having regard to D5 and that of inventive step having regard to the combination of D1 with D5.

VIII. By letter dated 15 July 2010 the appellant withdrew his request for oral proceedings. By the board's communication dated 22 July 2010 the parties were

informed that the scheduled oral proceedings were cancelled.

Reasons for the Decision

1. The appeal is admissible.
2. *Novelty having regard to D5*

Claim 1 requires *inter alia* that

- (i) the portion of recess of the disc provided with the through-hole is substantially perpendicular to the central axis of the disc;
- (ii) the annular section of the disc, formed between the outer periphery of the disc and the recess constitutes the lateral area of a truncated cone.

Though the Board has some reservations concerning the exact scope of the term "substantially perpendicular" by itself, in this matter it can be inferred from the description and the drawings as a whole that feature (i) requires the recess of the disc provided with the through-hole to be "substantially perpendicular" over a finite, existing portion, and not only in a single point, such as the center of the through-hole for the central axis. In other words, the portion in question must be substantially plane in order to be perpendicular to the central axis.

With reference to the limiting feature (i), it is stated in D5 on page 2, left hand column, second

paragraph, that in the embodiment of Figure 3 the frontal surface of the recess is curved with a curvature parallel to the curvature of the disc. Since the disc has a generally spherical curvature, the recess i.e. the portion of the disc provided with the through-hole also has a spherical curvature and is thus not substantially perpendicular to the central axis of the disc as required by the above limiting feature (i).

With reference to the above limiting feature (ii), since the disc of Figure 3 in D5 is spherically curved, its annular section between the outer periphery of the disc and the recess is also spherically curved and thus does not have the shape of a truncated cone.

Accordingly the subject-matter of claim 1 is novel having regard to the embodiment according to Figure 3 of D5.

In the embodiment of Figure 6 the portion of the disc provided with a through-hole has a spherical curvature and in the embodiment of Figure 4 the annular section of the disc between the outer periphery of the disc and the recess is generally spherically curved. Thus this annular section does not have the form of a truncated cone.

Accordingly the subject-matter of claim 1 is also novel having regard to the embodiments according to Figures 4 and 6 of D5.

3. *Inventive step*

3.1 As rightly submitted by respondent I, WO-A-85/05246 (D1) discloses (see particularly Figure 7) an agricultural machine provided with at least a disc (4) of the type stated in the pre-characterising portion of claim 1, that is comprising the following features:

- the disc comprises a first side and a second side;
- the first side is designed to bear against a flange formed on a hub and comprises a recess designed to at least accommodate the flange of the hub (The disc includes a central transversely projecting portion (44), which forms a recess on the first side of the disc and allows the disc to be rotatably mounted - by means of a rolling bearing - about a spindle ("journaling pin" 48) mounted on an arm (17) of the agricultural machine. For this purpose, the inner race of the rolling bearing (6) is arranged on the spindle (48) and the outer race is arranged on an rotatable element on which a flange is formed);
- a portion of the recess of the disc is provided with a through-hole for connecting the disc to the rotatable element by means of a fastening element;
- said portion of the recess is substantially perpendicular to the central axis of the disc (4), the central axis of said through-hole extending substantially parallel to the central axis of the disc;

- the disc includes an essentially annular section, which is formed between the outer periphery (35) of the disc and the recess,
- the annular section constitutes the lateral area of a truncated cone (see page 9, lines 20 to 22).

3.2 The disc of D1, in particular due to the fact that the flange of the hub is accommodated within a recess, provides the advantage of reducing the stresses in the area where the disc is connected to the hub. Thus, the disc according to this prior art document solves in essence the same technical problem as that stated in the patent specification (paragraph [0006]).

3.3 The subject-matter of claim 1 differs from the disc of D1 by the features in the characterising part, i.e. in that the second side of the annular section is the inner side of the truncated cone. In other words, the second side of the disc, i.e. the side opposite to the recess, presents a convex central section surrounded by a concave annular section, so that the second side of the disc forms the working side, i.e. the furrow cutting side of the disc.

The effect of such a configuration is that during the preparation of the ground the soil moved by the concave annular section toward the centre of the disc is displaced by the central convex section in the axial direction of the disc.

Thus, starting from D1 as closest prior art, the objective technical problem to be solved may be seen in improving the working efficiency of the disc, while

retaining the advantage regarding the reduction of the stresses in the area where the disc is connected to the hub.

- 3.4 D5 discloses a disc having on its working side a concave annular section formed between the outer periphery of the disc and a recess provided with a through hole. Reference is made in this respect to the disc shown in Figure 3, which presents on its working side ("face active ou interne" b), i.e. (using the terms of claim 1) on its second side, a concave annular section surrounding a recess whose surface forms a projection protruding into the inner part of the concave annular section.

D5 also indicates the advantages which can be achieved by such a disc configuration: the combination of a central convex surface formed by the recess and a peripheral concave portion forces the soil to be correctly turned over (see page 2, left hand column, 2nd paragraph, 3rd sentence in conjunction with Figure 3).

Therefore, it would be obvious for the skilled person seeking to improve the working efficiency of the disc of D1 to take into consideration D5 which teaches to configure the disc so that its working side presents a concave annular section surrounding a convex central section. The skilled person would apply this teaching to the disc of D1 whose annular section is in the form of a truncated cone and arrive - without exercising any inventive skill - to the claimed subject-matter, i.e. to a disc provided with an annular section whose second side is the inner side of the truncated cone.

3.5 Therefore, since the claimed subject-matter lacks an inventive step (Article 56 EPC) in view of the combination of D1 with D5, the ground for opposition mentioned in Article 100(a) EPC prejudices the maintenance of the patent as amended.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:

C. Eickhoff

M. Ceyte