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D E C I S I O N
of 20 December 1995

Case Number: T 0749/93 - 3.2.4

Application Number: 88200410.4

Publication Number: 0283078

IPC: A01B 33/12

Language of the proceedings: EN

Title of invention:
A soil cultivating machine

Applicant:
C. van der Lely N.V.

Opponent:
-

Headword:
-

Relevant legal provisions:
EPC Art. 83, 123(2), 54 and 56

Keyword:
"Inventive step (yes)"

Decisions cited:
-

Catchword:
-

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Case Number: T 0749/93 - 3.2.4

D E C I S I O N
of the Technical Board of Appeal 3.2.4
of 20 December 1995

Appellant: C. van der Lely N.V.
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Decision under appeal: **Decision of the Examining Division of the European Patent Office posted 5 March 1993 refusing European patent application No. 88 200 410.4 pursuant to Article 97(1) EPC.**

Composition of the Board:

Chairman: C. A. J. Andries
Members: R. E. Gryc
J. P. B. Seitz

Summary of Facts and Submissions

I. The appellant lodged an appeal, received on 20 April 1993, against the decision of the Examining Division, dispatched on 5 March 1993, on the refusal of the application No. 88 200 410.4.

The fee for appeal was paid on 20 April 1993 and the statement setting out the grounds of appeal was received on 12 July 1993.

II. The Examining Division held that the subject-matter of Claim 1 did not meet the requirements of Article 56 EPC, having regard to the embodiments disclosed in the following prior art documents:

D1: EP-A-118 868, and

D2: GB-A-2 088 683.

In the search report and during the examination proceedings the following other documents have been cited:

D3: GB-A-2 139 462,

D4: FR-A-2 388 473, and

D5: FR-A-2 564 687.

III. In his statement of the grounds of appeal, the appellant argued in particular that the aim of the invention was to prevent the forming of ridges under all normal circumstances and that this aim was neither known from D1, nor from D2. Applicant drew the attention of the

Board to the fact that when the machine of D1 works deeper, the side plate should be shifted backwardly and not forwardly as the plate according to the invention.

IV. An oral proceedings took place on 20 December 1995.

The Appellant explained that ridges could be created in two positions along each side of a cultivating machine, either behind the rotating tools, between the trailing edge of the side plate and the side end of the roller, or in front of the tools by the clods being pushed in the forward direction by the tines of the soil working elements and being shifted sidewards while remaining accumulated in front of the soil working elements.

The Appellant contended that the side plates shown in D1 might avoid the formation of ridges by the extremities of the roller behind the tools but could not prevent the clods of earth being pushed laterally past the leading edge of the side plate so that a ridge would be created by the plate on its external side. To lengthen the side plates could prevent the formation of such ridges but it would make the plates much more heavy and expansive and would reduce the manoeuvrability of the machine on the field.

The Appellant was of the opinion that the structure and the mounting of the side plate according to the invention in combination with the provision of a speed variator for the rotation of the tools would permit the formation of any ridge in front and at the end of the side plates to be avoided and would allow an optimum cooperation between each plate and its adjacent rotating tool under all conditions.

V. The Appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of **Claims** 1 and 2 as filed during the oral proceedings.

The wording of Claim 1 reads as follows:

"A soil cultivating machine comprising a plurality of soil working members (3) arranged in a row, each being provided with two downwardly extending tines, which are power-driven by gear-wheels (43) arranged inside a frame portion (1) in side-by-side relationship in a row which extends transversely to the direction of operative travel (A) of the machine, which soil working members (3) are rotatable about upwardly directed axes (2), while on both ends of the row of soil working members (3) there is provided an upwardly extending plate (11, 11A, 11A') disposed at least substantially parallel to the direction of operative travel (A), which plate co-operates with the tines of the outermost one of the row of soil-working members (3) during operation so as to obtain a crumbling of the soil, which plate being deflectable as a whole with respect to the frame portion, the plate having, viewed transverse to the direction of operative travel of the machine, a width exceeding the width of the working member with which said plate is co-operating, the plate being vertically and horizontally movable relative to the remainder of the machine, the machine being provided with a supporting roller (10) in order to change the working depth of the machine, said machine further being provided with a speed variator by which the speed of the soil working members can be changed, characterised in that the plate (11, 11A, 11A') is mounted to a supporting plate (13) and is vertically adjustable relative to said supporting plate (13) within a vertical or substantially vertical plane, adjusting means being provided by means of which the plate, which is at the

rear side provided with an inwardly directed guide means (18, 18'), can also be adjusted with respect to said supporting plate into and fixed in a plurality of positions, forwardly or rearwardly, independent from said vertical adjustability, parallel to or substantially parallel to the direction of operative travel."

Reasons for the Decision

1. The appeal is admissible.

2. *Amendments*

2.1 Claim 1 has been amended in order to define more clearly and more precisely the different parts of the machine, in particular the mounting of the side-plate relative to the frame portion. The added characteristics are supported either by the description and the claims and/or by the drawings of the application as originally filed.

2.2 Claim 2 is supported by the description and by Figures 1, 2, 6 and 8 to 10.

2.3 The amended claims fulfill the requirements of Articles 84 and 123(2) EPC and are therefore allowable.

3. *Novelty (Article 54 EPC)*

3.1 The side-plates of the soil cultivating machines represented in Figures 12, 2 and 3 of respectively D1, D3 and D4 are vertically and horizontally movable;

however they cannot be adjusted forwardly or rearwardly independent of the vertical adjustability as claimed in Claim 1.

3.2 The side-plates disclosed in D2 (see Figures 3 and 5) are adjustable only vertically and they cannot be moved forwardly or rearwardly as claimed in Claim 1 of the present application.

3.3 As far as D5 is concerned, it describes a machine comprising side-plates each composed of a plurality of plates by means of which the overall length of the structure can be changed. However the main plate (10) is not movable horizontally and can only be adjusted vertically relative to the frame portion.

3.4 Therefore, in comparison with the above-mentioned prior art, the machine according to Claim 1 is new in the meaning of Article 54 EPC.

4. *The closest state of the art*

4.1 The Board considers that the state of the art closest to the invention is the cultivating machine disclosed in D4 because it comprises not only a speed variator for the rotating tools, but also laterally deflectable side-plates having a length which exceeds the width of the adjacent tool, said side-plates (see D4, Figure 3) being vertically and horizontally movable.

Moreover, D4 is the only prior art document which suggests the idea of displacing the side-plate forward so that the front part of the plate could collect the projected clods when the working depth is decreased (see from page 3, line 37 to page 4, line 2).

4.2 The soil cultivating machine of Claim 1 differs essentially from the above-cited closest prior art in that its side-plates are each at the rear side provided with an inwardly directed guide means and are mounted to supporting plates so as to be adjustable forwardly and rearwardly independent from the vertical adjustability.

5. *Problem and solution*

The Board sees the problem, as objectively determined when starting from the state of the art described in D4, as improving upon the capacity of the known machine to prevent the formation of ridges at the rear side of the plate and at the front side thereof and permitting in an easy way an optimum cooperation between the side-plates and the outermost soilworking member under all working conditions and on any type of soil. (see column 1, lines 15 to 18 and 28 to 39 of the patent application).

The features in the characterising portion of Claim 1 permit not only the avoidance - as is commonly known - of the formation of ridges at the rear side of the plate due to the co-operation of the inwardly directed guide means with the supporting rollers, but also the avoidance of the formation of ridges at the front side of the plate due to the possibility of fixing the plate in such a position that the front edge is located forwardly with respect to the soil working members and that the forwardly and sidewardly pushed clods cannot reach the front edge of the plate any more.

6. *Inventive step (Article 56 EPC)*

6.1 The question to be answered remains thus whether the prior art seen in the light of his general common knowledge would provide the man skilled in the art

starting from the cultivating machine according to D4 with enough information and hints to lead him to the solution proposed in Claim 1.

6.2 In D1 (see Figure 11 and 12), the skilled person would find a confirmation of the teaching of D4 that the side plate should be adjusted horizontally in relation to the working depth and that when the depth is increased the plate should be positioned in a more rearward position. But he would not find any hint that the plate could be adjusted forwardly or rearwardly independently of the vertical adjustability. Furthermore, there is no suggestion that ridges could be formed at the front side of the plate, let alone that such a ridge formation can be avoided easily by fixing the plate in a more forward position. As already stated, while in D4 (cf. page 3, lines 25 to page 4, line 2) a clear teaching is given to shift the plate rearwardly when the working depth is increased, the claimed invention on the contrary requires an horizontally forward displacement of the plates, in case of such a working depth increase, whereby more clods may be pushed forwardly by the working tines.

In D3, the adjusting means of the side-plate are so constructed that the plate would move forward when the working depth was increased but, here again, the horizontal positioning of the plate is dependent on the vertical adjustment, and there is no indication either of the problem of ridge formation at the front side of the plate or of a solution to that problem.

In D2 and D5 there is neither an indication that the side-plate could be adjusted horizontally let alone forwardly nor an indication concerning the formation of ridges at the front edge of the plate. D5 teaches how to prevent the formation of ridges on each side of the

roller by the rearward displacement of an auxiliary plate fixed on the vertically adjustable main plate; however once again it does not even mention a possible formation of a ridge at the front side of the side-plate.

6.3 It may be that the claimed invention seems very simple, but it should be emphasized that the problem of the formation of ridges at the front side of the plate firstly is not disclosed in the cited prior art, which fact can be considered in this case as an additional indication pointing to non-obviousness, and secondly can be solved with the claimed features in a very simple manner, avoiding simultaneously by the presence of inwardly directed guide means the formation of ridges at the rear end of the plate although that end is horizontally shifted away from the supporting roller. Furthermore, it becomes possible to use plates having a minimal width and consequently minimal weight.

6.4 Consequently, in the state of the art the skilled person would not find any indicaton or hint to replace the deformable parallelogram supporting the side-plate of D4 by a supporting plate and for providing adjusting means permitting to adjust the side-plate horizontally with respect to this supporting plate independent of the vertical adjustability.

Since there is a priori no reason why, without any hint, the skilled person should modify the mounting of the side-plate of D4 according to the teaching of Claim 1, the Board considers that the subject-matter of Claim 1 filed during the oral proceedings does not follow plainly and logically from the cited prior art and therefore involves an inventive step within the meaning of Article 56 EPC.

7. Therefore a patent can be granted on the basis of the claims filed during the oral proceedings, provided that the description and the drawings be adapted accordingly e.g. deletion of Figures 4 and 5 and their corresponding description, but without the introduction of new advantages which would constitute new matter.

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 patent with Claims 1 and 2 filed during the oral proceedings and the description and the drawings to be adapted.

The Registrar: The Chairman:

N. Maslin C. Andries

R.G. JPS