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D E C I S I O N
of 24 April 1997

Case Number: T 0951/95 - 3.2.4

Application Number: 91200913.1

Publication Number: 0509151

IPC: A01G 25/09

Language of the proceedings: EN

Title of invention:
Drive unit for rotary drum sprinkler irrigation devices

Applicant:
C.I.P.A. - S.R.L.

Opponent:
-

Headword:
-

Relevant legal provisions:
EPC Art. 56

Keyword:
"Inventive step (no)"
"Provisional opinion of board unchallenged"

Decisions cited:
T 0009/86

Catchword:
-

Case Number: T 0951/95 - 3.2.4

D E C I S I O N
of the Technical Board of Appeal 3.2.4
of 24 April 1997

Appellant: C.I.P.A. - S.R.L.
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Decision under appeal: **Decision of the Examining Division of the European Patent Office posted 18 July 1995 refusing European patent application No. 91 200 913.1 pursuant to Article 97(1) EPC.**

Composition of the Board:

Chairman: C. A. J. Andries
Members: M. G. Hatherly
J. P. B. Seitz

Summary of Facts and Submissions

I. On 8 September 1995 the appellant (applicant) lodged an appeal against the decision of the Examining Division dispatched on 18 July 1995 to refuse European patent application No. 91 200 913.1 for lack of inventive step (Articles 52(1) and 56 EPC). The appeal fee was paid on 18 September 1995 and the statement of grounds of appeal received on 2 November 1995.

II. Claim 1 under consideration as filed with the letter dated 14 February 1995 and amended by the written statement setting out the grounds of appeal dated 27 October 1995 is worded as follows:

"A drive unit for sprinkler irrigation devices of drum type comprising a turbine (6) connected in parallel with the main water feed pipe (4) to the drum, there being provided, in that part of said main pipe between the two points from which the turbine branches, a manually operable gate valve (9) able to vary the flow of water through said main pipe, characterized by that the output shaft of the turbine (6) is directly coupled to a four-speed gear unit (13) having a maximum step-down ratio of between 1:650 and 1:800 and a minimum step-down ratio of between 1:150 and 1:90, the output pinion of said four-speed reduction gear unit engaging with a step-down ratio of between 1:17 and 1:27 a ring gear (15) rigid with the drum (3) on which the hose (33) is wound."

III. The prior art documents referred to in the appeal

proceedings include the following:

D1: US-A-4 186 881
D2: US-A-4 003 519
D3: DE-A-26 09 442

IV. In the statement of grounds the appellant discussed documents D1 and D3 which formed the basis for the first instance's refusal of the application. The essence of the appellant's argumentation is that a combination of documents D1 and D3 cannot deprive the claimed invention of inventive step since this combination contains no hint in the direction that it could be **advantageous** to replace the power transmission train of document D1 with a reduction unit as disclosed in document D3. On the contrary document D3 considers a solution involving a vaguely described "Getriebe" to be expensive and thus to be avoided. The appellant further states that in any circumstances said vague reference to a "Getriebe" cannot be taken to mean a reduction unit having a changeable gear ratio. Finally, the appellant points to commercial success and pending infringement cases in support of the alleged inventive activity of the claimed subject-matter.

V. The board summoned the appellant to oral proceedings, provisionally commenting in the annex dated 11 February 1997 that:

- the subject-matter of claim 1 is distinguished from the closest prior art disclosure of document D1 by the reduction ratio between the turbine output shaft and the hose drum being provided by a four-speed reduction gear unit with

specified ranges for the reduction ratio and by a specified range of reduction ratio between the output pinion of the gear unit and the ring gear on the drum;

- during operation of the claimed drive unit under specific conditions a pre-selected reduction ratio of the gear unit and the final reduction ratio remain fixed so that the end effect of all the reduction ratios involved is solely reflected in the rotational speed of the drum and thus the basic travelling speed of the sprinkler carriage;

- in consequence, the objective problem to be solved when starting from document D1 would appear to reside in the provision of an irrigation device with the possibility to **easily** select a reduction ratio resulting in a desired sprinkler travel speed;

- a solution to this problem - in the form of providing a gear box connecting the turbine output shaft 37 of document D1 to the pinion 47 - would readily be recognised by and realisable to the skilled person;

- although document D2 relates to a winch type irrigation device it none the less discloses a conventional transmission assembly 32 with a means to select the ratio of its input and output speeds to control the travel speed of the sprinkler unit. Despite the somewhat different constructions of winch and hose drum type devices, each has a

driven drum whose rotational speed determines the basic travelling speed of the sprinkler and with both types it must be possible to vary the travel speed according to circumstances. It seems that despite the different mechanical concepts there are such similarities that the skilled man would see no problem in transferring details from one concept to the other according to circumstances and need;

- regarding the specific gearbox ratios and the final reduction step, the problem of providing a large overall reduction ratio was not new to the skilled man, and the fact that reduction ratios are not explicitly stated in the prior art does not necessarily mean that they were not applied - they were inherently present in the form of the resultant sprinkler travelling speed.

Based on the above considerations, the board provisionally concluded that the subject-matter of claim 1 is not inventive.

VI. In the above identified communication the board also noted that the application mentions a further problem encountered with travelling irrigation devices, namely the difficulty involved in keeping the speed of the sprinkler constant while successive layers of hose are wound onto the drum, increasing its diameter. The board considered firstly that this problem seems to be unconnected to the problem of easily selecting a reduction ratio resulting in a desired sprinkler travel speed, secondly that claim 1 seems to contain no features to solve this problem and thirdly that the

problem has been recognised and dealt with in a similar way in the prior art, e.g in document D3 where feeler lever 21 acts on valve 23 to alter the amount of water passing through the turbine 15.

Additionally, concerning the mechanical efficiency of the drive unit, the board noted that document D2 discusses the choice of driving means for sprinkler irrigation systems (see column 2, line 13 to column 3, line 18) and decides upon a radial inflow turbine which "characteristically provides a high torque, relatively low speed output, and this type of output is ideal for use in travelers." The document D2 adds (see column 3, lines 19 to 22) that "Another characteristic of radial inflow turbines is that they have a given operating speed where their efficiency is maximised." Thus the skilled person wishing to use the radial inflow turbine disclosed by document D2 in the irrigating apparatus of document D1 would be led towards trying to stay as close as possible to a particular rotational speed of the turbine even though the rotational speed of the hose reel must be able to be changed to allow different amounts of water to be applied to the ground.

VII. With a facsimile dated and received on 22 April 1997 the representative for the appellant kindly informed the board that he (the representative) could not attend the oral proceedings set for 24 April 1997, that no request for postponement was made and that he agreed to the oral proceedings being held in his absence.

VIII. The oral proceedings were held on 24 April 1997 in the representative's absence in accordance with Rule 71(2)

EPC.

IX. The appellant requests that the decision of the examining division be set aside and that a patent be granted on the basis of:

Claim 1 - pre-characterising portion filed with the letter of 14 February 1995, and

- characterising portion filed with the letter of 27 October 1995, and

Claim 2 - filed with the letter of 14 February 1995.

Reasons for the Decision

1. The appeal is admissible.

2. The appellant has advanced no arguments to refute the provisional reasons of the board as stated in the annex to the summons dated 11 February 1997 why the subject-matter of claim 1 is not inventive (see sections V and VI above). Moreover, the representative of the appellant chose not to attend the oral proceedings. The board, after again checking its provisional opinion which it arrived at after duly considering the alleged commercial success and simplification of the claimed drive unit, sees no reason to modify this provisional opinion.

Therefore, for the reasons stated above in sections V

and VI, the subject-matter of claim 1 does not involve an inventive step, contrary to Articles 52(1) and 56 EPC.

3. The appellant's arguments relating to document D3 need not be commented upon by the board since the board's inventive step arguments do not rely on this document.

4. The board points out that whereas in decision T 9/86 (OJ EPO 1988, 012) the simple solution was one which was not yet known in the prior art, in the present case however document D2 already discloses a multiple speed reduction gearbox directly coupled to the outlet of the turbine involved.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

N. Maslin C. Andries