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D E C I S I O N
of 6 December 2005

Case Number: T 0405/03 - 3.5.01

Application Number: 93310449.9

Publication Number: 0607694

IPC: G06K 11/16

Language of the proceedings: EN

Title of invention:
Cordless digitizer

Patentee:
T.D.S. CAD-GRAPHICS LTD.

Opponent:
WACOM Co., Ltd.

Headword:
Cordless digitizer/TDS CAD-GRAPHICS

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

Keyword:
"Amendments to claim 1 supported (yes)"
"Inventive step of main request (yes)"

Decisions cited:
-

Catchword:
-



Case Number: T 0405/03 - 3.5.01

D E C I S I O N
of the Technical Board of Appeal 3.5.01
of 6 December 2005

Appellant: T.D.S. CAD-GRAPHICS LTD.
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Respondent: WACOM Co., Ltd.
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Decision under appeal: Decision of the Opposition Division of the
European Patent Office posted 17 February 2003
revoking European patent No. 0607694 pursuant
to Article 102(1) EPC.

Composition of the Board:

Chairman: S. Steinbrener
Members: W. Chandler
A. Pignatelli

Summary of Facts and Submissions

- I. This appeal is against the decision of the opposition division to revoke European patent No. 0 607 694.

The opposition division held that claim 1 of the granted patent was not new over D9 (US-A-5 023 408) and that claim 1 of the first and second auxiliary requests contained subject matter that extended beyond the content of the originally filed application.

The opposition division did not consider, and hence did not decide whether to admit, document D15 (WO-A-85/04975), introduced by the opponent before the oral proceedings.

- II. The appellant (proprietor) lodged an appeal against the decision and paid the prescribed fee. With the grounds of appeal, the appellant filed first to fourth auxiliary requests.

- III. Oral proceedings, requested by both parties as an auxiliary request, were held on 6 December 2005. At the oral proceedings, the appellant requested that the decision under appeal be set aside and the patent be maintained on the basis of claim 1, filed during the oral proceedings, and claims 2 to 11 as granted (main request), or claims 1 to 11 of the fourth auxiliary request filed with the grounds of appeal dated 27 June 2003.

The respondent requested that the appeal be dismissed. At the end of the oral proceedings the Chairman announced the decision.

IV. Claim 1 of the main request reads as follows:

"1. Digitizing apparatus comprising a reference surface (10) and a position indication device (11) including a tuned circuit arranged in use to indicate a position of the position indicating device (11) relative to the reference surface (10), the apparatus comprising drive means (12), sensor means (13), drive signal generation means (17), and demodulator means (18), the drive means (12) being arranged, in use, to be inductively coupled to an electrical coil (22) of the position indication device (11), and the sensor means (13) being arranged in use to be inductively coupled to the electrical coil (22) of the position indication device (11), the drive signal generation means (17) being arranged, in use, to provide an electrical signal to the drive means (12), the drive means (12) being arranged, in use, to induce an electrical signal in the coil (22) of the position indication device (11), the coil (22) of the position indication device (11) being arranged in use to induce an electrical signal in the sensor means (13), wherein the sensor means (13) comprises at least one coil of electrically conducting material characterised in that:

- the demodulator means (18) is arranged to demodulate the electrical signals induced in the sensor means (13);
- the apparatus is arranged to measure a resonant frequency of the position indication device (11);
- the drive signal generation means (17) is arranged to lock onto the central frequency of the tuned circuit of the position indication device (11) by the demodulation of the induced electrical signal in the sensor means (13); and
- the apparatus is arranged to cause the drive means (12) to induce said electrical signal in the coil (22)

as an alternating electrical signal, having a frequency which accurately matches the central frequency of the tuned circuit of the position indication device."

V. The appellant argued as follows:

The term "measure" relating to the resonant frequency of the position indication device should be interpreted to mean "determine".

The amendments to claim 1 of the main request were limitations to the embodiment described at paragraph 49 of the patent, and were therefore supported.

The patent explicitly states at paragraph 49 that it solved the problem of having to tune accurately the pointers and compensating for changes in the resonant frequency of the tuned circuit as the pointer ages. None of the available prior art relating to digitising apparatus mentioned these problems and so it was not even obvious to consider solving them.

D15 related to the different field of security tags and the skilled person would not have considered it. D15 also had a different objective, namely to destroy the tuned circuit in the tag.

VI. The respondent argued as follows:

The originally filed application did not support any meaning of the term to "measure" beyond that of simply "determine". D9 disclosed such a determination of the resonant frequency of the position indication device.

Amended claim 1 was unclear because there was no connection between the "measurement" of the resonant frequency of the position indication device and the locking of the drive signal generation means to the central frequency of its tuned circuit. Since there was also no support for the combined teaching of these two features, the amendment extended the content of the application.

Although claim 1 had been limited to the embodiment described in paragraph 49 of the patent, the claimed "demodulation" was more general than the "phase and quadrature" demodulation disclosed in the embodiment. The amendment was therefore an intermediate generalisation that was not allowable under Article 123(2) EPC.

The feature of locking the drive signal onto the central frequency of the tuned circuit of the position indication device solved the problem of compensating for changes in the resonant frequency of the tuned circuit in the pointer. The skilled person, trying to find a solution to this problem, would have come across D15, which related to security tags also containing tuned circuits. Such a tag must be deactivated by finding its resonant frequency and transmitting a deactivation signal at that frequency. D15 disclosed at page 2, paragraph 2 the same problem solved by the patent, namely that the resonant frequency would vary within a range due to manufacturing tolerances. D15 also disclosed at page 8, line 14 to page 9, line 14 and Figures 13, 14 and 15, solving this problem by determining the resonant frequency of the tag by performing a stepwise frequency sweep of the tag until

a minimum current was detected in the sense antenna 90 and providing a deactivation signal at that frequency.

Concerning the objective technical problem, the problem and solution approach did not require that the problem to be solved was mentioned in the closest prior art, only that it was obvious. In this case, the skilled person would have inevitably come across the problem in the apparatus of D9 as the pointer aged and no longer resonated in response to the drive signal.

Reasons for the Decision

1. The appeal complies with the requirements referred to in Rule 65(1) EPC and is, therefore, admissible.
2. The patent generally concerns a graphic digitiser for inputting coordinates to a computer aided design (CAD) system (see paragraphs 1 to 9). In particular, it concerns the problem of compensating for changes in the resonant frequency of the tuned circuit in the position indication device (pointer) due to fabrication tolerances or ageing effects (see paragraph 49).
3. The problem is solved by the last three features of the characterising portion of claim 1 according to which:
 - a) the apparatus is arranged to measure a resonant frequency of the position indication device (11);
 - b) the drive signal generation means is arranged to lock onto the central frequency of the tuned circuit of the position indication device by the demodulation of the induced electrical signal in the sensor means (13);and

c) the drive means induces the electrical signal in the coil as an alternating electrical signal, having a frequency which accurately matches the central frequency of the tuned circuit of the position indication device.

Interpretation of claim 1

4. Before the oral proceedings, there was some dispute as to what the term to "measure" relating to the resonant frequency of the position indication device (feature a), above), meant. The appellant appeared to have been seeking particular meanings of the term "measure" in order to distinguish the claim from D9. The respondent had objected that the originally filed application did not support these meanings. At the oral proceedings, the appellant stated that the term should be interpreted as meaning "determine".

5. The Board judges that this interpretation, which the respondent did not dispute, is the correct interpretation. The last two features of claim 1 and paragraphs 49 and 50 of the patent description require that the drive signal locks onto and accurately matches the central frequency of the tuned circuit of the pointer. In order to lock on to this frequency, it is implicit that the resonant frequency, or at least a frequency at which the tuned circuit is resonating, must be determined in some way. However, the additional facet of determining the numerical value of the frequency as potentially implied by the term "measure" is not relevant.

Added subject-matter in claim 1

6. The respondent argued that there was no support for the combined teaching of this determination of the resonant frequency and the claimed locking onto the central frequency of the tuned circuit (features a) and b), above). The Board judges that this argument, which the opposition division essentially followed in rejecting the auxiliary requests, only holds if the measuring feature implies a measurement that goes beyond the embodiment, and is therefore itself not supported. However, this is now no longer the case since, as pointed out above, both parties now agree on a less extensive meaning of this term. Moreover, a measurement in the sense of a determination of the resonant frequency is implicit in the locking and matching function of the apparatus as explained above (see point 5). Thus, the Board judges that the combination of the determination and the locking is inherently supported so that there is no extension of subject-matter under Article 123(2) EPC.

7. Claim 1 was amended to include "demodulator means" and "demodulation" of the sensed signals, which the respondent argued was an unsupported generalisation of the terms "synchronous de-modulator" and "phase and quadrature de-modulation" used in the description.

However, the Board judges that the skilled person would realise that the purpose of the demodulation in the patent is to produce an output that is representative of the signals from the sense coils and that any demodulation could be used. Synchronous demodulation is only a preferred method of demodulation used in the

embodiment to achieve this (see paragraph 45). D9, for example, uses the generally less complex envelope detector (see column 10, lines 26 to 33) for the same purpose.

Moreover, the use of demodulation in connection with the locking on function is described at paragraph 49 as "using conventional radio techniques". Again, the skilled person would understand that such techniques include various types of demodulation, of which phase and quadrature demodulation is only one possibility.

The Board therefore judges that the amendment satisfies Article 123(2) EPC.

Novelty of claim 1

8. It was common ground that D9 disclosed an apparatus similar to claim 1 having various pointers, such as a writing tool and an erase tool, each with a different nominal value for its resonant frequency. The drive frequency is stepped through the possible resonant frequencies (f_0 , f_1 , f_2 , etc.) until the resonant frequency of the pointer being used is identified (Figures 9 and 10 and column 11, line 8 to column 12, line 6 and column 13, lines 35 to 52).
9. After amendment, it was not disputed that claim 1 of the main request differed from D9 by last two features of the characterising part (features b) and c), above).
10. The subject-matter of claim 1 is thus novel (Article 54 EPC).

Inventive step of claim 1

11. It was common ground that these features solved the general problem of compensating for changes in the resonant frequency of the tuned circuit in the pointer due to fabrication tolerances or ageing effects.

12. However, the Board does not agree with the next step in the respondent's chain of argument, namely that the above-mentioned problem is obvious. Firstly, the respondent did not show that any of the documents relating to digitising apparatus mentioned or suggested a similar problem. Secondly, in the absence of such a suggestion, the skilled person would construct the pointer of D9 using conventional components so that it would work stably and reliably. In this case, the Board judges that it is not inevitable that in the normal use of the pointer any problems would arise or be apparent. Thus, the skilled person would not need to look for a solution.

13. Consequently, the Board judges that the respondent's objective problem inadmissibly incorporates elements of the solution and a more general problem is called for that does not include compensating for changes in the resonant frequency of the tuned circuit in the pointer. In this case, the Board judges that such a problem is to find an alternative construction of the pointer to ensure reliable operation. Faced with such a problem, the Board judges that the skilled person would not consider D15 because it is not from the field of digitisers, but from security tags, which do not have such pointers. Moreover, the tuned circuit in the pointer of the invention is not to be destroyed, as is

the case for the security tag in D15. There is therefore no requirement to "lock onto" the resonant frequency in the sense generally understood in conventional radio techniques.

14. The Board accordingly judges that the subject-matter of claim 1 of the main request involves an inventive step (Article 56 EPC). The remaining patent documents as amended at the oral proceedings also meet the requirements of the Convention.
15. Since the main request is allowable, the appellant's auxiliary request need not be considered.

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 department with the order to grant a patent in the following version:

Claim 1 filed during oral proceedings

Claims 2 to 11 as granted

Description pages 2 and 5 filed during the oral proceedings

Description pages 1, 3, 4, 6 and 7 as granted

Drawings as granted.

The Registrar:

The Chairman:

M. Kiehl

S. Steinbrener