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D E C I S I O N
of 13 November 2002

Case Number: T 1151/00 - 3.5.1

Application Number: 93307448.6

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Title of invention:
DC motor stall-detection system

Patentee:
PITNEY BOWES INC.

Opponent:
Francotyp Postalia Aktiengesellschaft & Co. KG

Headword:
Stall-detection system/PITNEY BOWES

Relevant legal provisions:
EPC Art. 123(2)

Keyword:
"Added subject-matter (yes)"

Decisions cited:
T 0201/83, T 0339/89

Catchword:
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Boards of Appeal

Chambres de recours

Case Number: T 1151/00 - 3.5.1

D E C I S I O N
of the Technical Board of Appeal 3.5.1
of 13 November 2002

Appellant: PITNEY BOWES INC.
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Decision under appeal: Interlocutory decision of the Opposition Division
                              of the European Patent Office posted 14 September
                              2000 concerning maintenance of European patent
                              No. 0 589 668 in amended form.

Composition of the Board:

Chairman: S. V. Steinbrener
Members: A. S. Clelland
               E. Lachacinski

Summary of Facts and Submissions

I.   This is an appeal against the interlocutory decision of
        the opposition division finding that European patent
        No. 0 589 668, in amended form on the basis of claim 1
        of an auxiliary request, met the requirements of the
        EPC. The appellant is the patentee, who has requested
        that the patent be maintained on the basis of claims
        filed on 4 January 2001 with the statement of grounds
        of appeal; this request is identical to the main
        request considered by the opposition division and held
        to be unallowable on the ground of added subject-
        matter, Article 123(2) EPC. An auxiliary request was
        made for oral proceedings.

II.   The respondent (opponent) requested that the appeal be
        dismissed.

III.   Claim 1 of the present request reads as follows:

        "A method of detecting motor stall condition of a dc
        motor under the control of a motor control system
        comprising a programmable microcontroller (21) coupled
        to a motor driver (19), the motor driver communicating
        with the motor (17), and the motor being coupled to a
        position encoder (21) which is in communication with
        the microcontroller (21), the method comprising the
        steps of:
        providing an average stall threshold value ASV
        representing a maximum desirable operating limit;
        providing said microcontroller with a time counter for
        counting time intervals T, to a maximum count value of
        N;

programming said microcontroller to issue a motor
command representing the position error between the
desired motor position and the actual motor position
for a chosen time interval T;
programming said microcontroller to perform the
following steps for each time interval T:

(a) to compare the motor command to the average
stall threshold value ASV, and to proceed to step (b)
if said motor command is greater than said ASV or to
step (d) if said motor command is less than said ASV,

(b) to compare the count in said time counter to
the value N and, if the count is equal to said value N
then to signal a motor stall fault, or if the count is
less than said value N then to proceed to step (c);

(c)   to increment the count value in said counter
to the maximum of N and then proceed to step (e);

(d)   if the count value in said counter equals
zero then to signal motor "OK' and to proceed to step
(e), or if the count value is not equal to zero, then
to decrement the counter and to proceed to step (e);

(e)   to repeat steps (a) to (d) for next time
interval T."

IV.   Claim 2 of the present request, corresponding to
        claim 1 as considered allowable by the opposition
        division, is essentially identical to claim 1 above
        except that the microcontroller is programmed to
        perform the following steps:

"(a) to compare a motor command to the average
threshold value ASV representing a maximum desirable
operating limit, and to proceed to step (b) if said
motor command is greater than said ASV, or to step (d)
if said motor command is less than said ASV;

(b)   to compare the count value in a counter in said microcontroller to zero and, if the count is equal to zero then to signal a motor stall fault, or if the count is non-zero then to proceed to step (c);

(c)   to decrement the count value in said counter and then proceed to step (e);

(d)   if the count value in said counter equals a predetermined maximum value N, then to signal motor "OK' and to proceed to step (e), or if the count value is not equal to N, then to increment the counter up to the maximum of N and to proceed to step (e);

(e)   to repeat steps (a) to (d) for next time interval T."

V.   The appellant argued that the subject-matter of claim 1 was complementary to, and therefore directly and unambiguously derivable from, the single embodiment, which was the subject of claim 2. The basic idea underlying the invention was that in mail processing systems it was advantageous to use low-capacity motors because of their size; these would only provide the necessary transport torque if overdriven, and they could be only overdriven for a short time without damage being caused. Problems arose if the motor stalled whilst being overdriven. It was therefore necessary to provide some means of monitoring the time the motor was overdriven and detecting a stall condition before damage could occur. The solution was to provide an up-down counter to determine this time. It did not matter whether the counter counted up or down so long as either the upper or lower count limit could be used to signal a fault condition.

The embodiment in the originally filed application was the subject of present claim 2 and counted down, but

reference was also made to the alternative of counting
up and this was the subject of original claim 1, see
column 6, lines 11 and 12, and lines 24 to 26. Once the
skilled person knew that the described embodiment could
be modified to count up, all necessary modifications
were minor and followed automatically: when the motor
was above the threshold value the counter 62 (Figure 3)
would have to count up on each loop and a motor fault
would be signalled when the counter reached the maximum
of "N"; similarly, if the motor were below the
threshold value the counter 58 would have to count down
on each loop, the "motor "OK"" state being signalled if
the count was "0". It was not necessary for there to be
a drawing illustrating an embodiment: the subject-
matter of claim 1 as filed sufficed to show the skilled
person what steps were necessary for the alternative to
be made to work.

Although claim 1 of the patent as maintained referred
in step (d) to incrementing the counter "up to the
maximum of N" it was self-evident and the only
reasonable reading of the document that this merely
meant a single increment on each count loop. The motor
would retain some memory of being overdriven and could
return from a safe drive state back to an overdriven
state, so that resetting the counter once a safe state
was reached would fail to detect the previous history
and take it into account in calculating the safe period
if it were again overdriven.

VI.   The respondent argued that the appellant's argument was
        based not on what the patent said but on what he would
        like it to say. The patent nowhere stated that the
        alternatives represented by claims 1 and 2 of the
        application as filed were complementary. Claim 1 as

originally filed did not have functional blocks
corresponding to the blocks 52, 58 and 62 of Figure 3.

The test for added subject-matter was a novelty test.
Claim 1 of the present request was not anticipated by
the originally filed application and therefore failed
this test.

VII.   Oral proceedings were held on 13 November 2002. At the
       close of the proceedings the Chairman announced the
       Board's decision.

Reasons for the decision

1.   In the present appeal the patentee has sought to
       reverse the opposition division's finding that the main
       request was not allowable because claim 1 contained
       added subject-matter. The respondent not having
       appealed, the result of the present appeal can
       therefore only be either to maintain the patent on the
       basis of the present request or on the basis of the
       auxiliary request allowed by the opposition division.

2.   The application as originally filed described and
       claimed a single embodiment corresponding to Figure 3
       of the patent, in which, during the time a motor is
       overdriven, i.e. the motor command is above an "average
       stall threshold value", a counter counts down and a
       fault is signalled if the counter reaches "0" (see
       point V above). Of particular relevance is the
       operation when the motor is commanded at below the
       threshold value: if the counter is at its maximum value
       "N" a "motor "OK"" state is signalled, if not the step
       of "INCREMENT COUNTER TO MAX "N"" takes place, see box

58 of Figure 3. The corresponding step of claim 1 as allowed by the opposition division, step (d), states that the step serves to "increment the counter up to the maximum of N".

3.   At the oral proceedings the question arose of what this step meant. The appellant argued, see point V above, that it did not mean that the counter was reset to the maximum value "N" in a single step; such an interpretation was technically meaningless and failed to take account of the possibility that the motor might return from a safe drive state to an overdriven state. By counting up in incremental steps as opposed to resetting in a single step, any record the motor might have of being overdriven in the past would be taken into account. The wording used merely indicated that the counter could be incremented up to a maximum count of "N", as could be seen by reference to the corresponding wording earlier in claim 1 as originally filed, which referred at column 6, lines 11 and 12 of the published application to "counting each time interval T, to a maximum count of N".

4.   The Board does not accept the appellant's interpretation. Step (d) of claim 1 as originally filed and the corresponding statement of invention at column 2, lines 44 and 45 of the published application refer to incrementing the counter "up to the maximum of N". The description of the embodiment, see column 5, lines 18 to 20, states that "if the time count is not equal to the maximum count the program count is incremented to a maximum count "N" at logic block 58". The plain meaning of these passages is that the increment to "N" is in a single step. The passage at column 6, lines 11 and 12 cited by the appellant indeed

states that the time counter is for "counting each time interval T, to a maximum count of N", but the reference to counting **each** time interval, and the presence of the comma, make clear that what is meant is that the counter is capable of counting incrementally up to N. There is no suggestion in the originally filed application that in the decision branch 58 the count is incremental. Nor does the originally filed description suggest that it is important to preserve the record the motor may have of being overdriven. Although such a feature might be advantageous it arises from an appreciation of the invention not derivable from the originally filed application.

5.   With this in mind, and turning now to the wording of claim 1 of the present request, it is noted that step (d) states that "if the count value is not equal to zero, then ...decrement the counter.". By analogy with step (d) of claim 1 as allowed, even if the appellant's argument that what is now claimed is complementary to the originally filed description were accepted, the step ought to read "...decrement the counter <u>to zero</u>" (Board's emphasis). By suggesting that the decrement to zero is not in a single step the claim adds subject-matter.

6.   Moreover, it is noted that step (c) retains the wording discussed at point 4 above and requires that the counter "increment the count value in said counter to the maximum of N"; if what is claimed were complementary to the described embodiment the counter would merely increase the count by a single increment without going to the maximum.

7.   Finally, the Board wishes to address the patentee's

argument that the skilled person would directly and
unambiguously derive the information necessary to
implement the present claim 1 from the embodiment of
the originally filed application, using common general
knowledge, because what was intended was to disclose
two complementary embodiments. If this were the case
the wording of the two original independent claims
might be expected to reflect this, but in fact they
differ substantially. The original claim 1 claimed a
highly simplified arrangement in which a "MOTOR "OK""
state was signalled if the average threshold value or
the maximum count was not reached, a "MOTOR FAULT"
state being signalled if it were. The disclosure is
incomplete in that no mention is made of how the
counter is incremented and decremented, and although
the appellant sought to show that the skilled person
would fill in the missing features from the described
embodiment, the fact that it is necessary to derive
subject-matter from elsewhere in the document and
modify it to give what the appellant describes as a
complementary functionality is for the Board proof that
what is required of the skilled person is by no means
straightforward. Quoting this Board's decision T 339/89
(not published in OJ EPO) at point 8:

"...the claimed subject-matter is not directly
derivable from the originally filed application
documents but requires the exercise of conscious choice
on the part of the skilled man. This process cannot
properly be described as "interpretation" in the sense
of elucidating the technical content by the application
of the common general knowledge of the art, but rather
requires on the part of the skilled man the application
of that knowledge to derive a new combination."

The Board considers that this is equally true in the present case: the subject-matter of the present claim 1 cannot be derived directly and unambiguously, using common general knowledge, from the disclosure of the originally filed application. The claim thus fails the "novelty test" for added subject-matter, first set out in T 201/83 (OJ EPO 1984, 481) at point 3 and the established jurisprudence of the boards of appeal.

8.   Claim 1 is therefore not allowable because it adds subject-matter, Article 123(2) EPC. It follows that the request as a whole is not allowable.

Order

For these reason it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

M. Kiehl   S. V. Steinbrener