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**Datasheet for the decision
of 14 March 2023**

Case Number: T 1921/19 - 3.4.02

Application Number: 05108050.5

Publication Number: 1638054

IPC: G07C3/00, G05B19/042

Language of the proceedings: EN

Title of invention:

Method for detecting and managing faults, particularly for industrial machines

Applicant:

Logomat S.R.L.

Headword:

Relevant legal provisions:

EPC Art. 83, 123(2)
RPBA 2020 Art. 12(2)
RPBA Art. 12(4)

Keyword:

Main request - Sufficiency of disclosure - (no)

Auxiliary requests 1 and 2 - submitted with the statement of grounds of appeal - could have been filed in first instance proceedings - admitted (no)

Auxiliary requests 3 and 4 - Amendments - allowable (no)

Decisions cited:

Catchword:



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Case Number: T 1921/19 - 3.4.02

D E C I S I O N
of Technical Board of Appeal 3.4.02
of 14 March 2023

Appellant: Logomat S.R.L.
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Representative: Modiano, Micaela Nadia
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Decision under appeal: **Decision of the Examining Division of the
European Patent Office issued on 3 January 2019
refusing European patent application No.
05108050.5 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman R. Bekkering
Members: C. Kallinger
C. Almberg

Summary of Facts and Submissions

- I. In its decision refusing the European patent application No. 05 108 050.5 (hereinafter "the application") the examining division concluded, inter alia, that the application documents of the main request did not meet the requirements of Articles 83, 84 and 54 EPC and that those of the first and second auxiliary requests did not meet the requirements of Articles 123(2), 83 and 84 EPC.
- II. The appellant appealed against this decision and requested that the contested decision be set aside and that a patent be granted on the basis of the claims according to the main request or one of the first to fourth auxiliary requests all filed with the statement of grounds of appeal.
- III. Claim 1 of the main request reads as follows (numbering of steps (a) to (e), as used by the appellant, added by the board)

A method for detecting and managing faults of an industrial machine (1) in the form of a packaging plant comprising a plurality of operating units (3) connected in mutually interacting conditions and that may not be dependent exclusively on a faulty operating unit, comprising the steps of:

- (a) detecting the faulty operating unit (3) by means of a plurality of sensors (2) distributed on said operating units (3) of said machine (1),*
- (b) detecting all the operating units (3) of the machine (1) by means of a processor (4) that during*

- the operation of said machine (1) interact even indirectly with the faulty operating unit (3),
- (c) determining the instant by means of the processor (4) when each one of said units (3) will interact, even indirectly, with said faulty operating unit (3),
 - (d) disabling by means of the processor (4) each one of said units (3) exactly in the respective determined instant of interaction,
 - (e) making the machine (1) operate at a reduced rate, with all the units (3) that interact with the faulty operating unit (3) disabled, exactly in the respective instant of interaction, until the fault is suppressed.

IV. Claim 1 of the first auxiliary request reads as follows (amendments in comparison to the main request are marked by the board):

"A method for detecting and managing faults of an industrial machine (1) in the form of a packaging plant comprising a plurality of operating units (3) ~~connected in mutually interacting conditions and that may not be dependent exclusively on a faulty operating unit, each operating unit (3) comprising a plurality of components performing the same function, the method~~ comprising the steps of:

detecting ~~the~~ a faulty component of an operating unit (3) by means of a plurality of sensors (2) distributed on said operating units (3) of said machine (1),

detecting the components of all the operating units (3) of the machine (1) by means of a processor (4) that during the operation of said machine (1) interact even indirectly with the faulty component ~~operating unit (3),~~

determining the instant by means of the processor (4) when a component of each one of said units (3) will interact, even indirectly, with said faulty component~~operating unit (3),~~

disabling by means of the processor (4) a component of each one of said units (3) that will interact even indirectly with the faulty component exactly in the respective determined instant of interaction,

making the machine (1) operate at a reduced rate, with all components of the units (3) that interact even indirectly with the faulty component~~operating unit (3)~~ disabled, exactly in the respective instant of interaction, until the fault is suppressed."

Claim 2 of the first auxiliary request reads as follows (amendments in comparison to the main request are marked by the board)

"A machine that performs the method according to claim 1, characterized in that said sensors (2) are distributed at each operating unit (3) in order to detect the correct operation of each component at least a part thereof."

- V. Compared to claim 1 of the first auxiliary request, claim 1 of the second auxiliary request contains in feature a) the following additional feature:

"... wherein said sensors (2) are distributed at each operating unit (3) in order to detect the correct operation of each component thereof,"

- VI. Claim 1 of the third auxiliary request reads as follows (amendments in comparison to the main request are marked by the board):

"A method for detecting and managing faults of an industrial machine (1) in the form of a packaging plant comprising a first and second plurality of operating units (3) ~~connected in mutually interacting conditions and that may not be dependent exclusively on a faulty operating unit, wherein each of the first plurality of operating units (3) performs the same operation and each of the second plurality of operating units (3) performs the same operation which is distinct from the operation of the first plurality of operating units,~~ comprising the steps of:

detecting ~~the~~ a faulty operating unit (3) in the first plurality of operating units (3) by means of a plurality of sensors (2) distributed ~~on said operating units (3) of said machine (1)~~ on the first plurality of operating units (3),

detecting all the operating units (3) in the second plurality of operating units (3) ~~of the machine (1)~~ by means of a processor (4) that during the operation of said machine (1) interact even indirectly with the faulty operating unit (3) in the first plurality of operating units (3),

determining the instant by means of the processor (4) when each one of said units (3) of the second plurality of operating units (3) will interact, even indirectly, with said faulty operating unit (3) in the first plurality of operating units (3),

disabling by means of the processor (4) each one of said units (3) in the second plurality of operating units (3) exactly in the respective determined instant of interaction,

making the machine (1) operate at a reduced rate, with all the operating units (3) in the second plurality of operating units (3) that interact with the faulty operating unit (3) disabled, exactly in the

respective instant of interaction, until the fault is suppressed."

VII. Compared to claim 1 of the third auxiliary request, claim 1 of the fourth auxiliary request contains the following additional feature:

"... wherein said sensors (2) are distributed at each operating unit (3) in order to detect the correct operation of at least a part thereof."

Reasons for the Decision

1. Main request

1.1 Sufficiency of disclosure - Article 83 EPC

1.1.1 The examining division argued that steps (b), (c), (d) and (e) were not disclosed in the claims or the description in a manner sufficiently clear and complete to be carried out by a person skilled in the art.

1.1.2 The appellant argued that the person skilled in the art would learn from the description of the application as filed that the invention was directed to a scenario in which each unit of a first plurality of units performed the same operation. In turn, the first plurality cooperated with at least a second plurality of units. Each unit of the second plurality performed the same operation which however differed from that of the first plurality. Alternatively, the first plurality cooperated with at least one individual unit performing yet a different type of operation.

This was immediately apparent when considering page 1 of the description as filed, lines 19 to 23, which stated: *"This machine therefore comprises a plurality of units for picking up the blisters, a plurality of units for picking up the cardboard boxes and a set of units for picking up the information leaflets, as well as additional individual units, which mutually cooperate in order to perform the other required operations"*.

The further description on pages 1 and 2 of the application as filed referred specifically to the failure of one unit in a plurality of units performing the same operation and also to the improvement of the type of machine described above. In particular, page 1, lines 25 to 27, of the application as filed envisaged a scenario in which *"failure of one of the pick-up units to operate, as required for correct packaging, would lead to the production of incomplete products or, worse still, would block the machine"*.

The applicant acknowledged that page 1 of the application as filed referred generally to plants normally used for production or packaging. However, page 2, lines 3 to 7, of the description of the application as filed also expressly discussed other industrial sectors (in fact all industrial sectors), and thus the teachings of page 1 of the description as filed were applicable to all industrial fields. In particular, page 2, lines 3 to 7, of the application as filed taught that *"[w]hat has been described for a packaging machine is true also in all industrial sectors in which each operation is performed by respective elementary units, each operation being correlated to the others during the production process,*

all the elementary units therefore cooperating in the process."

Moreover, on page 2 of the application as filed, lines 9 to 13, it was expressly disclosed that the object of the invention was to eliminate the drawbacks of the machines previously disclosed, i.e. machines comprising a plurality of units performing the same operation, in which elementary or individual units of a plurality of units performing the same operation failed.

In addition, also page 3 of the application as filed, lines 5 to 12 explicitly used the plural form, e.g. for the forming apparatuses, and thus clearly disclosed machines comprising a plurality of units performing the same operation.

In other words, the person skilled in the art would learn from reading the description as filed that the invention did not only concern units arranged in series and performing operations sequentially, but that it concerned at least one group of units operating in parallel and performing a first operation and cooperating with another group of units also operating in parallel and performing a second operation, or cooperating with a sequential (i.e. serially arranged) single unit performing a further operation different from the first operation.

In addition, the paragraph bridging pages 3 and 4 explained the identification of units which interact with faulty components.

Therefore, the application provided a generic disclosure covering parallel and serial arrangements of units. The person skilled in the art would be able to

implement any of these arrangements and also the detection of units interacting even indirectly with a faulty operating unit without any undue effort.

By way of example, the appellant described a case in which a unit in a first parallel arrangement of units failed. A corresponding cooperating unit of a second parallel arrangement would then also shut down in order to reduce the throughput of the second parallel arrangement. In the case of a sequentially co-operating single unit, the throughput of the single unit could be adjusted. Other combinations were also conceivable to the person skilled in the art, such as reducing the throughput of the second parallel arrangement by reducing the operating speed of individual units.

A typical example was, for example a packaging machine comprising two interacting carousels. In one carousel boxes were formed or prepared and a second carousel provided blisters. At an interaction point between the two carousels, the blisters were inserted into the boxes, for example by a pusher. If due to a malfunction in the first carousel less boxes were prepared, then, according to the invention, the operating speed of the second carousel could be adapted in order to match the reduced number of boxes provided by the first carousel.

With respect to the examining division's decision, the appellant argued more specifically that disabling in step d) of claim 1 was to be understood as reducing the operation speed of non-faulty upstream or downstream units which, depending on the circumstances, might be the physical stopping of a unit or a reduction in the operating speed of a unit. In particular, if there was a set of units upstream or downstream of a faulty unit, claim step d) had to be understood as disconnecting or

stopping one or more units in the set of units performing the same operation in order to adapt to the reduced throughput of the system. On the other hand, if the non-faulty upstream or downstream unit was a single sequential unit, claim step d) had to be understood as resulting in the reduction of the operating speed of the single sequential unit, also with the result of following or adapting to the reduced throughput of the system.

Furthermore, if there was a set of units upstream or downstream of the faulty unit, claim step e) had to be understood as reducing the speed or throughput of the system by disconnecting one or more units of a set of upstream or downstream units. If only a single sequential unit was provided upstream or downstream of the faulty unit, the operating speed of that single sequential unit was reduced which also resulted in a reduced operating rate of the system.

Obviously, the invention of the present application also envisaged a situation where a single unit was upstream of a faulty unit and a number of units were downstream of the faulty unit and vice-versa. With a mind willing to understand, the above could be unambiguously derived from the description of the patent application and from its claims.

The present invention (see page 2, lines 9 to 13) solved the problem of *"providing a method for detecting and managing faults particularly for industrial machines that allows operation even when one or more of the elementary component units is even only partially faulty."*

The technical effect of the present invention was also clearly stated on page 5, lines 24 to 29, where it was

disclosed that "*[i]n this manner, downtime of the machine I is avoided; it should be noted that for packaging machines such as for example the ones used for medicines, productivity is very high and so is the cost of the final product. Avoiding downtime of the machine 1, by operating at a reduced rate, allows to reduce considerably the economic losses associated with it while waiting to be able to repair or replace the faulty component.*"

In conclusion, the application met the requirements of Article 83 EPC.

- 1.1.3 The board is not convinced by the appellant's argument but agrees with the examining division's findings for the following reasons.

According to established case law, substantially any embodiment of the invention, as defined in the broadest claim, must be capable of being realised on the basis of the disclosure (see Case Law of the Boards of Appeal, 10th edition 2022, section II.C.3.1).

Claim 1 relates to a method for detecting and managing faults of an industrial machine in the form of a packaging plant comprising a plurality of units (3) connected in mutually interacting conditions. Claim 1 is therefore not limited to units in a parallel arrangement but also relates to an arrangement in which the units are arranged in series. Claim 1 further defines in step (e) that the machine is made to "*operate at a reduced rate, with all the units (3) that interact with a faulty operating unit (3) disabled*". However, the description does not disclose how a machine having mutually interacting units arranged in

series can operate at a reduced rate, when one of those units is disabled.

The appellant's arguments regarding a parallel arrangement of the units are not convincing, because claim 1 is not limited to a parallel arrangement of the units but merely states that the units are connected in mutually interacting conditions without further defining or limiting the arrangement of the units. A serial arrangement is therefore within the scope of the claim.

Furthermore, also the description of the sole embodiment does not disclose a parallel arrangement of the units 3 but discloses that the units are arranged in series (see page 3, line 25 to page 4, line 1 and page 5, lines 5 to 12). Nor does the description as a whole disclose clearly and unambiguously the restriction to a parallel arrangement as described by the appellant in its statement of grounds of appeal. The passage in particular referred to by the appellant (page 1, lines 19 to 23) refers to the state of the art, not the claimed invention, and is not suitable to provide a clear basis for a parallel arrangement of the units 3, let alone to limit the claimed arrangement to a parallel arrangement.

The appellant's argument that the disabling in step d) was to be understood as reducing the operating speed of a non-faulty unit or stopping one or more units in a set of units performing the same operation is not convincing since there is no disclosure in the application as filed for such an interpretation. The passages referred to by the appellant (description, page 2, lines 9 to 12 and page 5, lines 24 to 29) merely refer to the aim of the present invention and

indicate that this aim is achieved by operating at a reduced rate. However, these passages do not disclose how the operation at a reduced rate (as opposed to the complete stop required in the prior art) is achieved and, in particular, that the disabling of a unit is to be understood as a reduction in operating speed of a single unit or as the stopping of one of a plurality of units in a parallel arrangement. In fact, the description explains on two occasions (see page 2, lines 29 to 30 and page 4, lines 10 to 15) that the reduced rate means that all units 3 which interact with a faulty component are disabled. This does not support the appellant's interpretation and is also inconsistent with claim 1, which defines that all the units interacting with the faulty operating unit are disabled.

In conclusion, the board is of the opinion that the application does not disclose the invention according to the main request in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art (Article 83 EPC).

2. First and second auxiliary requests - Admission

2.1 The appellant stated that the claims of the first auxiliary request are based on the claims of the first auxiliary request subject of the contested decision, but were "slightly amended". In the second auxiliary request, claims 1 and 2 of the first auxiliary request have been combined.

The appellant argued that these requests were filed as soon as possible after receipt of the examining division's decision, which, in the appellant's view,

showed (see first paragraph on page 6 of the decision) that there was a misunderstanding between the appellant's arguments and the examining division's conclusion.

The amendments filed with the statement of grounds of appeal were a bona fide attempt to better define the operating units and had a basis in the application as originally filed, in particular on page 1 and page 3, lines 18 to 24.

The appellant therefore argued that the board should exercise its discretion to take these requests into account.

2.2 With respect to the admission of the first and second auxiliary request, the board is not convinced by the appellant's arguments for the following reasons.

According to Article 12(2) RPBA 2020 (applicable pursuant to Article 25(1) RPBA 2020) it is the primary object of the appeal proceedings to review the decision under appeal in a judicial manner, and a party's appeal case shall be directed to the requests on which the decision under appeal was based.

According to Article 12(4) RPBA 2007 (applicable pursuant to Article 25(2) RPBA 2020) the board has the power to hold inadmissible requests which could have been presented in the first instance proceedings.

In exercising this discretion, the board takes the following points into account:

- The examining division summoned the appellant to oral proceedings, where the appellant could have filed a further auxiliary request. However, the

appellant decided not to attend the oral proceedings and to have a decision handed down on the basis of the requests then on file. It was only with the statement of grounds of appeal that the appellant decided to file the present first and second auxiliary requests, adding features from the description. The board is of the opinion that these requests could and should have been filed already during the first instance proceedings in order to give the examining division the opportunity to examine them and the board the opportunity to review a decision taken on them.

- The passage of the decision referred to by the appellant (see the first paragraph on page 6 of the decision) expresses the examining division's disagreement with the appellant's arguments, but is not based on any misunderstanding.
- The description fails to disclose that the components of the units (3) which interact, even indirectly, with the faulty component are disabled in order to allow operation at a reduced rate. The amendment therefore *prima facie* gives rise to an objection under Article 123(2) EPC.

In conclusion, the board does not admit the first and second auxiliary requests (Articles 12(2) RPBA 2020 and 12(4) RPBA 2007).

3. Third and fourth auxiliary requests - Amendments - Article 123(2) EPC

The claims of the third and fourth auxiliary requests are identical to the claims of the first and second auxiliary requests subject of the contested decision.

- 3.1 The examining division found that the amendments in these requests introduced subject-matter that extended beyond the content of the application as filed.
- 3.2 The appellant argued that the description as originally filed provided a basis for the amendments. The description (see page 1, lines 19 to 23) expressly disclosed the use of at least two pluralities of units, each performing the same operation. The skilled person would understand that two of such pluralities would be the minimum required to implement the concept of the invention. Furthermore, the description (see page 5, lines 5 to 12) disclosed, by using the plural, e.g. for the forming apparatuses, that several pluralities of units were used and that each plurality performed the same operation. Finally, the paragraph bridging pages 3 and 4 provided support for the interaction of the units with a faulty component.
- 3.3 The board is not convinced by the appellant's arguments for the following reasons.

The cited paragraph of the description as originally filed, page 1, lines 19 to 23, cannot serve as a basis for amendments because it is not a disclosure of the invention but a description of the prior art. Even if this paragraph were a disclosure of the invention, claim 1 would still suffer from an unallowable intermediate generalisation because this paragraph describes a machine comprising a plurality of units for picking up blisters, cardboard boxes and information leaflets as well as additional individual units. The description therefore discloses a machine with specific types of units, not generic pluralities of first operating units and second operating units.

With respect to the other cited passages the board is of the opinion that these also fail to directly and unambiguously disclose the first and second plurality of operating units (3) as claimed and, in particular, the claimed method steps relating to the detection of faulty operating units (3) in the first plurality of operating units (3) and the disabling of operating units (3) in the second plurality of operating units (3), because the paragraph bridging pages 3 and 4 refers to a "*faulty component*" and the paragraph on page 5 refers to "*elementary units 3*".

The board is therefore of the opinion that claim 1 of the third and fourth auxiliary request does not meet the requirements of Article 123(2) EPC.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



L. Gabor

R. Bekkering

Decision electronically authenticated