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**Datasheet for the decision
of 3 February 2023**

Case Number: T 0211/21 - 3.3.09

Application Number: 18155360.3

Publication Number: 3360423

IPC: A23G9/04, A23G9/08

Language of the proceedings: EN

Title of invention:

MACHINE FOR MAKING FOOD PRODUCTS IN LIQUID OR SEMI-LIQUID FORM

Applicant:

ALI GROUP S.r.l. - CARPIGIANI

Headword:

Machine for making food products/ALI

Relevant legal provisions:

EPC Art. 56

Keyword:

Main request and auxiliary requests 1 and 2: Inventive step -
(no)

Decisions cited:

Catchword:

Complementing automatisisation with human intervention. Providing means enabling a skilled artisan to actively intervene in an automated process and provide a backup to pre-programmed procedures - Obvious measures - (yes)
(Points 2.19 to 2.33)



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Case Number: T 0211/21 - 3.3.09

D E C I S I O N
of Technical Board of Appeal 3.3.09
of 3 February 2023

Appellant: ALI GROUP S.r.l. - CARPIGIANI
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Decision under appeal: **Decision of the Examining Division of the
European Patent Office posted on 6 October 2020
refusing European patent application No.
18155360.3 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman A. Haderlein
Members: A. Veronese
F. Blumer

Summary of Facts and Submissions

I. The appeal was filed by the applicant against the decision of the examining division refusing the European patent application. The decision is based on a main, a first and a second auxiliary request, all filed on 22 May 2020.

II. Claim 1 of the main request reads:

"1. A system for making food products in liquid or semi-liquid form, comprising:
- a machine for making food products in liquid or semi-liquid form, comprising:
a container (10) for processing a basic product;
a stirring element (20) mounted inside the processing container (10);
a thermal treatment system (12) associated with the processing container (10) to thermally treat the basic product inside the processing container (10);
a control and drive unit (50) for controlling and driving the thermal treatment system (12) and the stirring element (20), the control and drive unit (50) being equipped with sensing elements (51) and actuating elements (52) configured to detect and act, respectively, on different variables correlated with the devices or components making up the machine;
a user interface (60) provided with operator controls and connected to the drive and control unit (50); and
- a remote processor (201) connected to an internet network,
the system being characterized in that it comprises one personal computer (200) available to a maintenance operator, and wherein:

- *the user interface (60) is configured to allow a remote service request to be sent by activating an operator control (61),*
- *the remote processor (201) is configured to receive the remote service request from the machine when the aforementioned control (61) is activated and is also configured to send a text or voice message to the aforementioned personal computer (200) available to a maintenance operator after receiving the remote service request,*
- *the machine is configured to establish a data transmission link to the remote processor (201), by means of the drive and control unit (50), when the aforementioned control (61) is activated, for transmitting information in real time relating to state parameters and/or operating parameters and/or configurations of the machine itself, and*
- *it comprises a remote service point configured to operate on the actuating elements (52) by means of the remote processor (201),*

wherein the operator controls are pushbuttons and the user interface (60) is configured to allow a remote service request to be sent by pressing a pushbutton, the pushbuttons comprising a first pushbutton configured to allow sending the remote service request and a second pushbutton configured to allow establishing the data transmission link to transmit information in real time."

III. Claim 1 of the first auxiliary request differs from claim 1 of the main request in that it further characterises the thermal system and in that it requires three temperature sensors, one associated with the circuit of thermal treatment, one associated with the container and one for determining the ambient temperature.

IV. Claim 1 of the second auxiliary request differs from claim 1 of the first auxiliary request in that it requires, in addition to the aforementioned temperature sensors, three additional sensors, two for detecting the pressure in at least two points of the circuit and one for measuring a parameter associated with the torque of the motor in the system.

V. The documents cited during the proceedings included:

D1: US 2012/223094 A1

D2: WO 2006/081727 A1 (and its English translation)

D3: US 2011/011887 A1

D4: US 2012/240780 A1

VI. In its decision, the examining division found essentially the following.

- The claimed system differed from that of D3, the closest prior art, in the presence of a user interface comprising a first push-button configured to allow the sending of a "remote service request" to a remote processor connected to a personal computer and a second push-button allowing to establish data transmission with the remote processor and computer.
- The problem was how to modify the system of D3 to initiate servicing of the machine in proactive way when needed. Since servicing the machine was a business rather than a technical activity, the invention did not solve any technical problem and could not involve an inventive step.

- Even considering the problem to be technical, the solution would have been obvious starting from D3 because user interfaces and push-buttons were part of the common general knowledge.
- The subject-matter of the auxiliary requests, which specified the inclusion of certain sensors, was also obvious, such sensors being shown in D1 and D3 and interfaces with touch screens being shown in D1.

VII. With its statement setting out the grounds of appeal, the appellant filed a main request and two auxiliary requests corresponding to the requests on which the decision under appeal is based.

VIII. The **appellant's arguments** can be summarised as follows.

- The claimed subject-matter involved an inventive step over D3, the closest prior art.
- The claimed system, the user interface, the transmission of the service request and the underlying problem had a technical character.
- The claimed system differed from that of D3 essentially in the presence of a user interface comprising push-buttons configured to send a remote service request and to allow data transmission.
- The provision of a user interface with push-buttons simplified the system and rendered it more effective than that of D3, which was fully automated. The processes carried out by the system were complex. Only an experienced person in

proximity of the machine could effectively monitor its functioning and make an "educated guess" on whether and when to send a request for assistance and to transmit data to a remote operator by pressing the push-buttons.

- The claimed system provided more flexible and accurate monitoring of the process and fault detection, resulting in a simplified and more efficient operation. This could not be achieved in a fully automated system.
- The problem was the provision of a system for making food products whose maintenance was effective and simplified.
- Including a user interface with push-buttons in the system of D3 would require extraordinary effort. Neither D3 nor the other cited documents provided any prompt toward the solution.
- D3 did not mention push-buttons. D3, like D1, D2 and D4, entailed only automatic failure detection. Data transmission was only requested in exceptional circumstances. No push-button for data transmission was mentioned either.
- The temperature and pressure sensors characterising the claims of the auxiliary requests were purposely selected to enhance the diagnostic power of the system. The temperature sensors detected the temperature of the refrigerant and the container.

The requests

- IX. The appellant requested that the decision be set aside and that a patent be granted on the basis of the main request or, alternatively, on the basis of the first or the second auxiliary request, all requests as filed with the statement setting out the grounds of appeal.

Reasons for the Decision

Main request

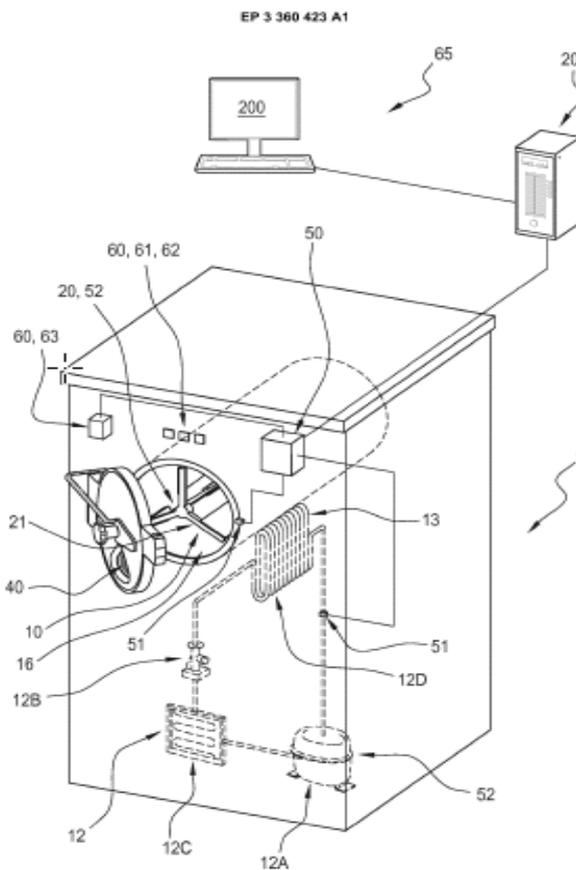
1. *Inventive step*

1.1 The invention concerns a system for making and dispensing liquid or semi-liquid food products, such as soft drinks and ice creams (see page 1, lines 3 to 5 of the patent application).

1.2 The system comprises a machine (1) comprising a container (10), stirring elements (20), a unit capable for performing a thermal treatment (12), a control unit for running and controlling the system, sensing elements (51) and actuating elements (52) for detecting variables and acting on components of the machine, a remote processor (201), and a personal computer (200) accessible to a remote maintenance operator. The machine, the remote processor and the personal computer are linked for exchanging data.

1.3 Furthermore, the machine comprises a user interface (60) including a first push-button configured to send a "remote service request" to a computer accessible to a remote operator and a second push-button (61) configured to establish a data transmission link and

information to be transmitted to the remote processor and the computer.



2. The idea underlying the invention is that in case of a malfunction, an operator close to the machine can send a service request to a remote service point by pressing the first push-button and, subsequently, start the transmission of data describing the status of the machine by pressing the second push-button. After being alerted and receiving data providing a picture of the machine functioning, or malfunctioning, a remote maintenance operator can provide assistance to remedy the malfunction.

Closest prior art

- 2.1 The examining division considered D3 the closest prior art. The appellant did not contest this choice, and the board has no reasons to diverge from it either.
- 2.2 Like the opposed patent, D3 discloses a system for making and dispensing liquid and semi-liquid food products, such as ice creams, creams and soft drinks, which can be easily monitored and controlled (paragraphs [0002] and [0011]). The system comprises "actuators", i.e. means for carrying out the manufacturing steps, a control unit for running different manufacturing programs, sensors for monitoring the activity and detecting malfunctioning of the machine, and a remote processing unit connected to a computer accessible to a remote maintenance operator (paragraphs [0018] to [0070]). The system is designed to transmit data on the functioning of the machine to the remote processing unit and the computer. This allows a remote operator to monitor the processing, detect malfunctions and provide assistance (paragraphs [0032] to [0036], [0052], [0068], [0070] and [0074] and claims).

Distinguishing features and effects

- 2.3 The appellant has not contested the examining division's finding that the claimed system differs from that disclosed in D3 in the following features:
- A) the user interface configured to allow a remote service request from the machine to be sent by activating operator controls

- B) the user interface provided with operator controls
- C) the remote processor configured to receive the remote service request from the machine when a control is activated and send a text or voice message to the personal computer after receiving the remote service request
- D) the operator controls are push-buttons, and the user interface is configured to allow a remote service request to be sent by pressing a push-button
- E) the push-buttons comprising a first push-button configured to allow sending the remote service request and a second push-button configured to allow establishing the data transmission link to transmit information in real time

2.4 The appellant submitted that the claimed system was further characterised in that it did not encompass means for automatic detection of malfunctions, which the systems of the prior art did encompass. In its opinion, this further distinguished the invention from the prior art. However, this is not true because the wording of the claims does not rule out these means. Moreover, the patent application teaches that machines for making food products comprise a control unit which checks whether the different parts of the machine function correctly and issues alert messages in case of malfunction. It is evident from the application that these features are, or at least can be, present in the system according to the invention (pages 1 and 2 and in particular page 2, lines 18-29).

Technical character of certain features and effects

- 2.5 The appellant contested the examining division's finding that the "remote service request" mentioned in claim 1 is a "purely cognitive feature" not having technical character. It also contested the finding that no technical effect was associated with the distinguishing features because these entailed servicing a machine, which was a business rather than a technical activity.
- 2.6 The board agrees with the appellant. Claim 1 defines a "user interface configured to allow a remote service request". In the invention, the "remote service request" is an electronic signal transmitted through a communication channel from the user interface to a remote processor and a computer. This means that the user interface must be constructed so that it is capable of transmitting that signal. Therefore, the claimed "user interface", as well as the transmission of the "service request", have a technical character.
- 2.7 "Servicing" or "maintaining" a machine cannot be considered non-technical activities either. In fact, they require technical steps to be carried out on a physical piece of equipment finding an application in a field of technology.
- 2.8 The other components of the claimed system, and in particular the container, the stirring units as well as the push-buttons, the sensors, and the communication means which enable monitoring and detecting malfunctions in the machine, undoubtedly have technical character.

2.9 Therefore, the examining division's argument that the distinguishing features do not induce a technical effect and that the invention does not involve an inventive step because it does not solve a technical problem is not persuasive.

2.10 What remains to be decided is whether, considering the aforementioned features and technical effects, the claimed invention involves an inventive step over the prior art.

Technical effect and objective technical problem

2.11 According to the appellant, the distinguishing features A to E characterising the claimed system resulted in a substantial improvement over the system of the closest prior art. The system of D3 only allowed automatic and continuous transmission of data acquired from the machine to a remote maintenance operator (paragraphs [0036], [0037], [0068], [0070] and [0074]).

2.12 Full automatisisation was not desirable in systems for producing foods such as ice creams. The manufacture of these products was very complex because it involved numerous chemical and phase transformations affecting the quality and taste of the finished product. Even if assisted by artificial intelligence, fully automated systems operated "blindly". They could only detect faults and malfunctions by collecting and transmitting data according to limited pre-programmed settings.

2.13 The push-buttons on the user interface of the claimed system enabled an operator in proximity of the machine to interact with it during operation. Making an "educated guess" based on experience, this operator could determine a) the right moment to send a request

for assistance to a remote maintenance operator by pushing the first push-button and b) when to start data transmission by pushing the second push-button.

Furthermore, this operator could decide to request assistance and start data transmission after adding an ingredient to the food product and only at the precise moment when the machine was in the right configuration for data acquisition.

- 2.14 For these reasons, according to the appellant, the distinguishing features rendered servicing the machine more flexible, accurate, efficient and simplified.
- 2.15 In its opinion, the underlying technical problem was thus "how to provide a system for making food products in liquid or semi-liquid form which maintenance is effective and simplified".
- 2.16 This formulation of the problem is not convincing. The inclusion of a user interface with push-buttons and the implicit requirement that an operator be physically present to supervise the machine renders the maintenance of the system more complex than that of D3. Automated systems, not requiring the assistance of a human, typically simplify monitoring and maintenance tasks. These systems are usually also more cost efficient.
- 2.17 However, it cannot be disputed that the physical presence of an experienced skilled artisan close to the machine provides an additional level of control to an automated system. Relying on their experience and technical ingenuity, the skilled artisan may take actions to facilitate the detection of faults and malfunctions. They may, for example, decide on their own initiative to modify an operational parameter

during manufacture and observe whether this change amplifies or decreases a malfunction. In other words, they may monitor additional parameters and perform tests which extend beyond those encompassed by a pre-programmed automated system. This increases flexibility and may afford more accurate results.

- 2.18 For these reasons, starting from D3, the objective technical problem can be seen as the provision of a more flexible system which, in some situations, may provide more accurate monitoring of the machine.

Obviousness of the solution

- 2.19 The appellant argued that the prior art did not acknowledge that purely automated systems were unsuitable for monitoring food processing and transmitting information "at the right moment" to a remote operator.

- 2.20 The teaching of D3 was limited to automatic failure detection and continuous data transmission. The system of D3 did not include a user interface comprising push-buttons configured to send a request for assistance and to trigger data transmission. There was no evidence that push-buttons were known in the relevant field for sending requests for assistance and for triggering data transmission. An "extraordinary modification" of the system of D3 would be required to arrive at the claimed one. This involved an inventive step.

- 2.21 These arguments are not persuasive.

- 2.22 Automation has progressed continuously in recent decades, spreading to all fields of technology, including food manufacturing: (see D3 and the other

cited prior-art documents D1, D2 and D4, which describe automated systems for manufacturing the same food products mentioned in the current patent application.

2.23 The decision to carry out and monitor manufacturing processes automatically, rather than involving the assistance of a skilled artisan, is taken balancing different factors. It has advantages and drawbacks. Automatic systems typically afford higher production rates, increased productivity and involve less labour costs. However, it is commonly recognised that, despite the higher labour costs, human intervention has other advantages: a skilled artisan can offer experience, technical ingenuity and abilities and perform tasks that automated systems cannot yet imitate. As mentioned above (point 2.17), the skilled artisan can back up an automated system and, if necessary, override a pre-programmed system setting. This leads to increased flexibility and, possibly, increased accuracy of the manufacturing and monitoring activities. Thus, there are good reasons to enable human intervention in an automatic system.

2.24 According to the appellant, D3 taught away from the claimed invention because it only envisaged a continuous transmission of data. This, however, is not true. D3 teaches that the communication module controlling data transmission between the machine and the remote processing unit can be shifted from a rest condition in which no data is transmitted to an "awake" condition in which transmission is allowed. This occurs when the management module detects divergences from determined operational parameters (paragraphs [0038], [0047] and [0048]). Furthermore, D3 teaches that the management module can be configured so that when a particular alarm occurs, it will transmit the relevant

data to the remote processing unit and send an SMS text to a remote operator to alert them (paragraphs [0052] and [0053]).

2.25 The appellant stressed that D3 does not mention a user interface and touch buttons. However, the inclusion in machines of interfaces comprising push-buttons enabling users to request remote assistance and start communication with remote operators is well known in all technical fields, including food manufacturing.

2.26 This is shown, for example, in D4, which discloses a system for preparing beverages comprising:

- a control unit for monitoring the functioning and occurrence of events, such as malfunctions, and a communication module for communicating with an external device offering resources for managing the event

- a user interface allowing user-input through a touch-pad, buttons or switches (paragraphs [0008], [0009], [0010], [0025], [0027] and [0028])

2.27 D4 specifies that if a malfunction is detected, a warning message is issued on the user interface. The user is then requested to indicate, by pushing a button, whether it wants to establish a connection with a help desk providing remote assistance (paragraph [0116] and Figure 5b).

2.28 Further systems for making food products, e.g. ice creams, containing means for performing and monitoring manufacturing processes and a user interface comprising buttons enabling a user to request remote assistance in case of malfunctions are also disclosed in D1 and D2

(see paragraphs [0002], [0024], [0066] to [0070], [0089], [0094], [0095], [0121] and [0135] of D1 and paragraphs [0002], [0003], [0008], [0013], [0014], [0033] and [0034] of the English translation of D2).

- 2.29 It is true that, as noted by the appellant, the systems of D3 and the other cited documents only envisage automatic detection of malfunctions and do not disclose two separate buttons for sending a remote service request and for starting data transmission.
- 2.30 Nevertheless, when confronted with the underlying problem, the skilled person would have considered modifying the automatic system described in D3 by including means enabling a skilled artisan to interact with the machine, to send requests for assistance and to trigger transmission of data to a remote assistant operator.
- 2.31 For the reasons mentioned in point 2.23, there are good reasons to complement automatisisation with human intervention. Providing means enabling a skilled artisan to actively intervene in an automated process for producing foods and to provide a backup to pre-programmed procedures is an obvious measure.
- 2.32 Including a user interface having two separate push-buttons to enable the skilled artisan to send a request for assistance and for triggering data transmission would also be obvious. As explained above, user interfaces having touch buttons are commonly used in the field. Furthermore, the claimed user interface, push-buttons, control unit and remote processor perform the same functions implemented by the components of the automated systems of the aforementioned prior-art documents.

2.33 Therefore, the subject-matter of claim 1 of the main request does not involve an inventive step (Article 56 EPC).

First auxiliary request

3. *Inventive step*

3.1 Claim 1 of the first auxiliary request differs from claim 1 of the main request in that it requires that the thermal system comprise a compressor, a first and second heat exchanger, and a throttling device and in that it comprise three temperature sensors, one associated with the circuit of thermal treatment, one associated with the container and one for detecting ambient temperature.

3.2 Refrigerating devices are commonly used in systems for making foods, as shown in paragraphs [0031] to [0036] of D1, paragraphs [0027] and [0037] of D2 and paragraph [0018] of D3. It was not contested that these devices contain a compressor, a circuit containing the refrigerant fluid, two heat exchangers and a throttling device (expansion valve). Temperature sensors are also commonly used in these systems. D1 encompasses the inclusion of sensors for measuring the temperature of, *inter alia*, the food product, the container (hopper), the beater, the motor and the cabinet and the external temperature (paragraphs [0094], [0125] and [0149]).

3.3 The only temperature sensor not explicitly disclosed in D1 is that associated with the circuit for thermal treatment.

3.4 The appellant submitted that the combination of the claimed sensors:

"provides an optimal set of data for conducting an easy and effective failure detection diagnosis on the machine, since it has been found that most of the failure can be detected by the combination of these three different temperature sensors. (...) Monitoring the ambient temperature and temperature of the circuit, can for example provide a clear diagnosis of the functioning of the condenser and the other elements of the thermal circuit (compressor, throttling device, etc.). Monitoring the temperature of the circuit and the temperature of the product, can allow to detect a fault of the heat exchanger, by a comparison of the two temperatures. (...) the new added features provide an improved effect in terms of efficiency and simplicity in the maintenance of the production system."

3.5 According to the appellant, these effects are not mentioned in the prior art. However, they are also not disclosed in and cannot be derived from the teaching of the patent application either.

3.6 Notwithstanding this, it is undisputable that the inclusion of one more temperature sensor in addition to those explicitly disclosed in the aforementioned documents will provide further information on the state of the machine and its functioning.

3.7 For these reasons, as in the case of the main request, starting from D3, the objective technical problem can be seen as the provision of a more flexible system which in some situations may provide a more accurate monitoring of the system.

- 3.8 It is evident that to obtain the most complete and accurate picture of the status and the functioning of an apparatus, such as a refrigerating system, sensors should be applied to all its essential components.
- 3.9 As acknowledged by the appellant, the thermal treatment system of machines for manufacturing food products comprises a circuit containing the refrigerant fluid.
- 3.10 Accordingly, the skilled person confronted with the underlying problem and relying on their common general knowledge would have considered including, in addition to the components of a conventional refrigerating system and the sensors mentioned in D1, a sensor for measuring the temperature of the circuit containing the refrigerant fluid.
- 3.11 For these reasons and those presented when discussing the main request, the system defined in claim 1 of the first auxiliary request does not involve an inventive step (Article 56 EPC).

Second auxiliary request

4. *Inventive step*

- 4.1 Claim 1 of the second auxiliary request differs from that of the first auxiliary request in that it requires that the system comprise sensors for measuring and transmitting the values of pressure in at least two points of the thermal circuit and a parameter correlated with the mechanical torque applied by the electric motor in the system.
- 4.2 Sensors for measuring the pressure in two separate points of the refrigerating circuit of systems for food

manufacturing are known in the art (see D1, paragraphs [0093] and [0124]). Sensors for reading parameters associated with the torque of the engine are also known (see D1, paragraphs [0122] and [0123], mentioning the sensing of amperage and voltage applied to the motor of a refrigerating system).

- 4.3 According to the appellant, the combination of the claimed sensors provided an improved effect in terms of efficiency and simplicity in the maintenance of the production system. The appellant stated that:

"Thanks to the pressure sensors, as well as thanks to the sensor on the motor, further important parameters for the processing of ice cream can be monitored, in particular the pressure in two points of the thermal circuit and the torque of the motor". It also added that: *"in a thermal plant, functioning according to a thermodynamic cycle, there are part of the plant in which the fluid is in a coexistence of liquid-vapor, that is the temperature and pressure are linked each other by a physic relation (which relation depends on the fluid used). If, in such part of the plant, the measured temperature deviate with respect to the measured pressure from a predetermined relation (which relation is a feature on the fluid used), an anomaly could be easily detected since the fluid is not in the liquid-vapor coexistence phase. Therefore, the combination of a temperature and pressure measures in the thermal plant could be used to easily detect most of the failure of a thermal plant."*

- 4.4 The appellant argued that these effects were not mentioned in the prior art. However, like the effects mentioned in point 3.4, these effects are not mentioned

in and cannot be derived from the application as filed either.

4.5 It is, however, undisputable that the addition of these additional sensors will provide an even more complete picture of the state of the machine and its functioning.

4.6 Accordingly, for the same reasoning presented for the main and the first auxiliary request, the system defined in claim 1 of the second auxiliary request does not involve an inventive step (Article 56 EPC).

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



M. Schalow

A. Haderlein

Decision electronically authenticated