



(12)

EUROPEAN PATENT APPLICATION

- (43)

Date of publication:
15.05.2024 Bulletin 2024/20
- (51)

International Patent Classification (IPC):
G07F 9/10 (2006.01) G06Q 30/00 (2023.01)
G07F 11/00 (2006.01) G06Q 10/08 (2024.01)
- (21)

Application number: 23204341.4
- (52)

Cooperative Patent Classification (CPC):
G06Q 30/00; G07F 9/105; G07F 11/00
- (22)

Date of filing: 18.10.2023

- (84)

Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB
GR HR HU IE IS IT LI LT LU LV MC ME MK MT NL
NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA
Designated Validation States:
KH MA MD TN
- (72)

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Priority: 10.11.2022 IT 202200023196
- (71)

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AUTOMATIC MARKET SYSTEM

- (57)

An automatic market system (1) is described comprising: a plurality of containing elements 3, containing products, the containing elements 3 being operatively connected to at least one conveyor belt 5 for the products; at least one dispensing element designed to dispense the products from each containing element 3 to the conveyor belt 5, the dispensing element being installed in
- each containing element 3; at least one product collecting element 9 operatively connected to a delivery end of the conveyor belt 5; and at least one user interface 7 designed to operatively cooperate with the containing element 3, controlling the dispensing of products from the containing element 3 via at least one sensor installed on the containing element 3.

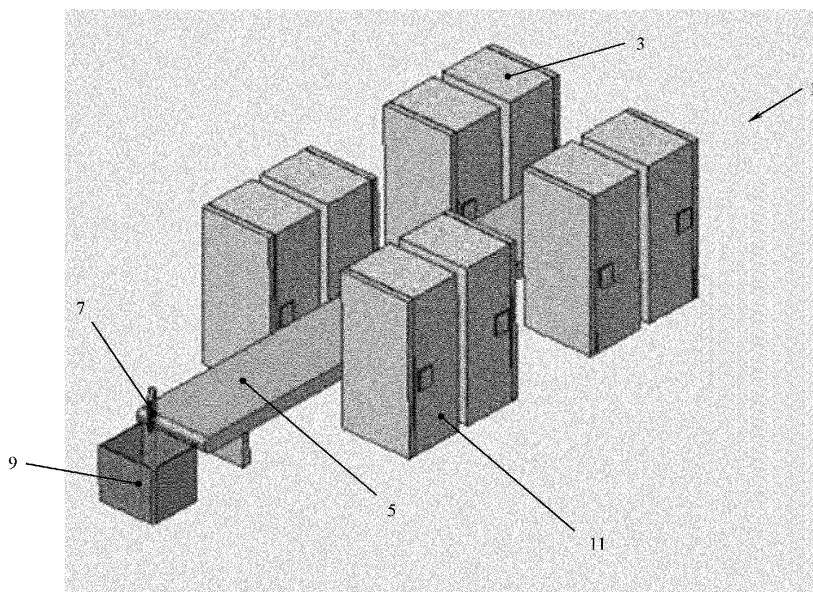


FIG. 1

Description

[0001] The present invention refers to an automatic market system, in particular for food products.

[0002] The present invention will be described with reference to all types of food products, but it is clear that the same can be applied to any other type of commercial product, for example clothing, industrial products, household or leisure items.

[0003] To date, single dispensers (containers) of food products (especially drinks or snacks) are known which allow them to be stored and dispensed upon payment by the user.

[0004] However, true automated systems are not envisaged in which there are a plurality of such dispensers, connected to each other by at least one distribution belt, to allow a wider range of products to be administered to a user.

[0005] Object of the present invention is solving the aforementioned prior art problems, by providing an automatic market system that is easy and intuitive to use, making the purchase and identification, by the user, of the food products to be purchased much simpler.

[0006] Another object of the present invention is providing an automatic market system where the machinery, once the products have run out, can be easily recharged.

[0007] Another object of the present invention is providing an automatic market system with low energy consumption.

[0008] The above and other objects and advantages of the invention, as will appear from the following description, are achieved with an automatic market system such as that described in claim 1. Preferred embodiments and non-trivial variants of the present invention form the subject matter of the dependent claims.

[0009] It is understood that all attached claims form an integral part of this description.

[0010] It will be immediately obvious that numerous variations and modifications can be made to what is described (for example relating to shape, dimensions, arrangements and parts with equivalent functionality) without departing from the scope of the invention as appears from the attached claims.

[0011] The present invention will be better described by some preferred embodiments, provided by way of a non-limiting example, with reference to the attached drawings, in which:

- FIG. 1 shows a perspective view of an embodiment of the automatic market system according to the present invention;
- FIG. 2 shows a top view of the automatic market system in FIG. 1; and
- FIG. 3 shows a detailed view from above with the unloading directions of the products on the conveyor belt of the automatic market system of FIG. 1.

[0012] Referring to the Figures, it is possible to note

that the automatic market system 1 according to the present invention substantially includes:

- a plurality of containing elements 3, containing products, said containing elements 3 being operatively connected to at least one conveyor belt 5 for the products;
- at least one dispensing element (not shown) designed to dispense the products from each containing element 3 to the conveyor belt 5, the dispensing element being installed in each containing element 3 and being equipped with an elevator (not shown) capable of lifting/lowering the products to dispense them in the conveyor belt 5;
- at least one product collecting element 9 operatively connected to a delivery end of the conveyor belt 5; and
- at least one user interface 7 designed to operatively cooperate with the containing element 3, controlling the dispensing of products from the containing element 3 via at least one sensor installed on the containing element 3.

[0013] Advantageously, the products selected by the user via the interface 7 are managed by the containing elements 3 via lifts and horizontal draggers placed inside the containing elements 3 themselves.

[0014] These products are sorted and placed on the conveyor belt 5 depending on the left or right exit of the containing element 3 as oriented in combination with the conveyor belt 5.

[0015] Moreover, each containing element 3 can be equipped with doors 11 with or without glasses, each containing element 3 being further equipped with spirals (not shown) or similar delivering mechanisms inside.

[0016] Furthermore, the identification of the dispensed product is carried out via sensors of various types (not shown) capable of identifying its passage and delivery to the collection point, corresponding to the product collecting element 9 by the user.

[0017] In particular, the automatic market system includes software capable of synchronizing the exit of the products from the containing element 3 and positioning them on the conveyor belt 5 so as to be able to deliver all goods into the collecting element 9 without having interference between various types of products.

[0018] Advantageously, an updateable database, both from the machine and remotely, manages the products inside the containing element 3 so that the user can select only the products actually available inside the containing element 3.

[0019] For better general automation, the automatic market system 1 according to the present invention can therefore be interconnected with an external environment via Wi-fi modules or 4G/5G SIM connection, so that it can possibly be remotely controlled by the user, also for example via a mobile phone, a laptop or PDA, a tablet

and the like.

[0020] Furthermore, the system of containing elements 3 and user lines is modular in a matrix shape with an indefinite number of containing elements 3 and of conveyor belts 5 per line.

[0021] We can also consider the containing elements 3 as small automated warehouses of variable shape and capacity.

[0022] Furthermore, these containing elements 3 can be refrigerated machines, in order to preserve any type of food product, even frozen ones.

Claims

1. Automatic market system (1) **characterized in that** it comprises:

- a plurality of containing elements (3), containing products, said containing elements (3) being operatively connected to at least one conveyor belt (5) for the products;
- at least one dispensing element designed to dispense the products from each containing element (3) to the conveyor belt (5), the dispensing element being installed in each containing element (3) and being equipped with an elevator capable of lifting/lowering the products to dispense them in the conveyor belt (5) ;
- at least one product collecting element (9) operatively connected to a delivery end of the conveyor belt (5); and
- at least one user interface (7) designed to operatively cooperate with the containing element (3), controlling the dispensing of products from the containing element (3) via at least one sensor installed on the containing element (3).

2. Automatic market system (1) according to claim 1, **characterized in that** it comprises at least one software designed to synchronize the exit of the food products from said containing element (3) and to position them on said conveyor belt (5) .

3. Automatic market system (1) according to claim 1 or 2, **characterized in that** it comprises at least one database designed to operatively cooperate with said user interface (7), said database also being designed to show food products to at least one user available in said containing element (3).

4. Automatic market system (1) according to any of the previous claims, **characterized in that** said containing element (3) is refrigerated.

5. Automatic market system (1) according to any of the previous claims, **characterized in that** each containing element (3) is equipped with doors (11) with

or without glasses.

6. Automatic market system (1) according to any of the previous claims, **characterized in that**, each containing element (3) is equipped with spirals or similar delivering mechanisms inside.

7. Automatic market system (1) according to any of the previous claims, **characterized in that** said automatic market system (1) is interconnected with an external environment via Wi-fi modules or 4G/5G SIM connection.

8. Automatic market system (1) according to any of the previous claims, **characterized in that** said products are food products, clothing, industrial products, objects for the home or for leisure.

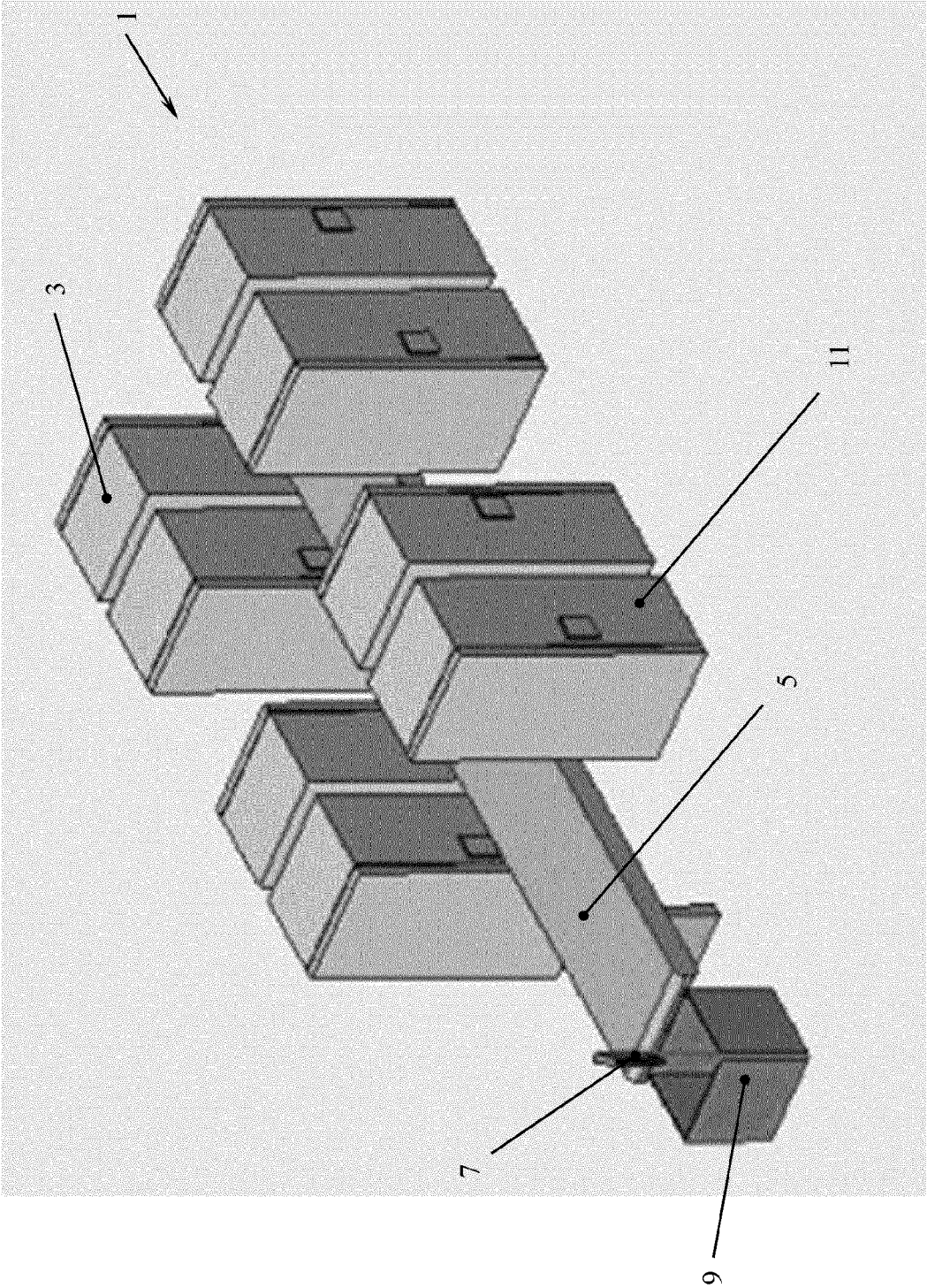


FIG. 1

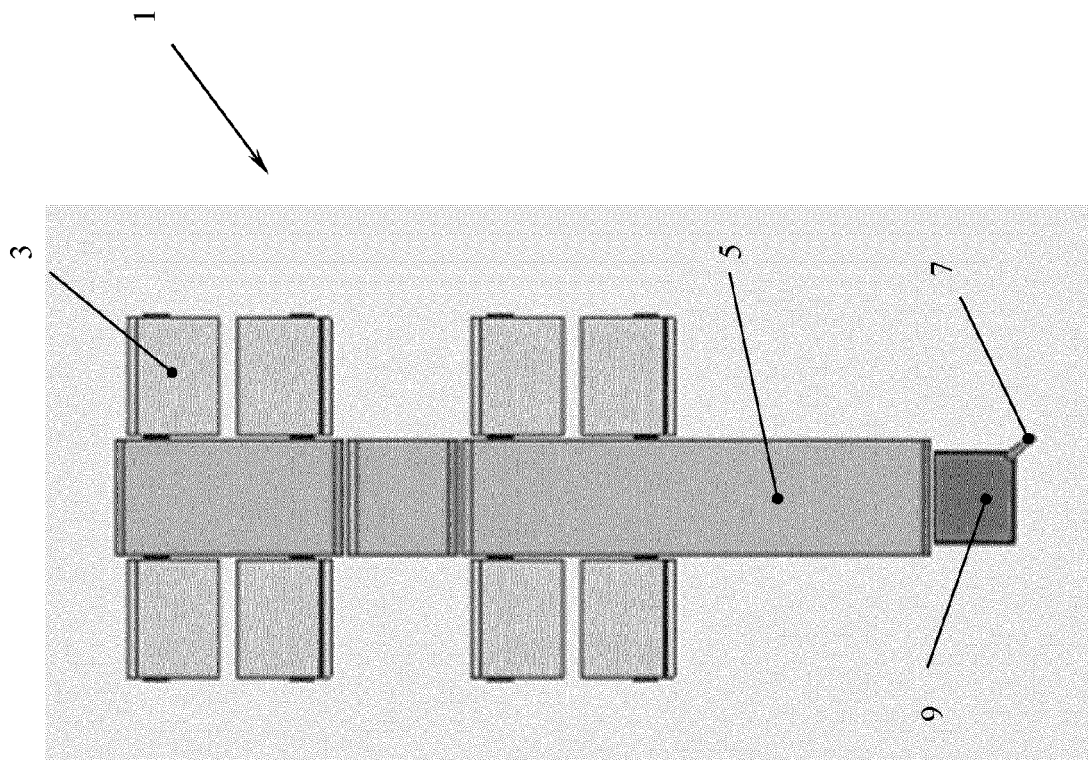


FIG. 2

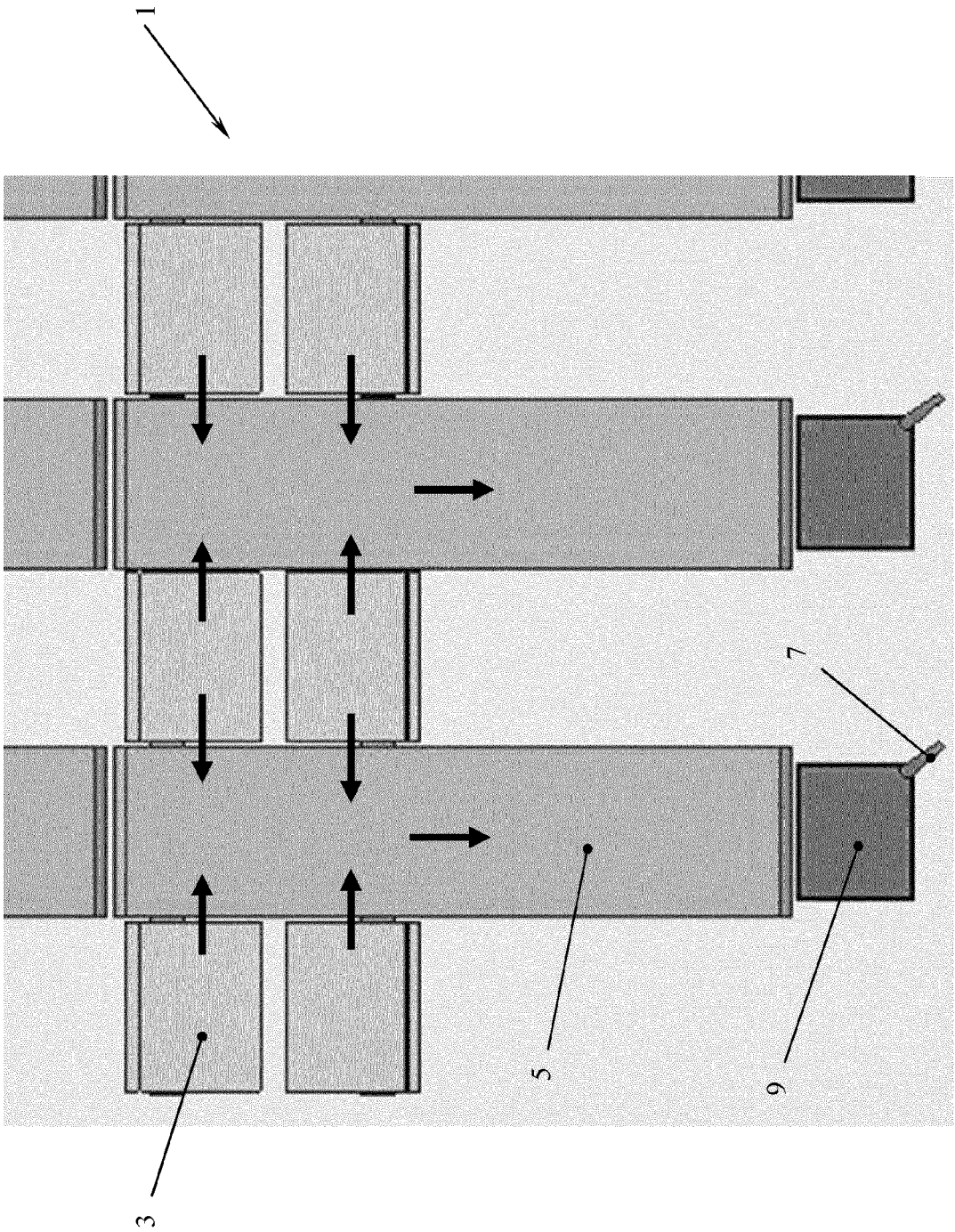


FIG. 3



EUROPEAN SEARCH REPORT

Application Number

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The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 25 March 2024	Examiner Radovic, Dusica
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**ANNEX TO THE EUROPEAN SEARCH REPORT
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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

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