(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) **EP 2 045 211 A2**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
08.04.2009 Bulletin 2009/15

(51) Int Cl.:
B67D 3/00 *(2006.01)*

(21) Application number: **08425185.9**

(22) Date of filing: **20.03.2008**

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

(30) Priority: **30.03.2007 IT BS20070045**

(71) Applicant: **Lar Sistemi S.r.l.**
25082 Botticino (Brescia) (IT)

(72) Inventors:
- **Lonati, Pietro Antonio**
  I-25082 Botticino (Brescia) (IT)
- **Sassella, Alex**
  I-25082 Botticino (Brescia) (IT)

(74) Representative: **Sangiacomo, Fulvia**
BIESSE S.R.L.,
Corso Matteotti 42
25122 Brescia (IT)

(54) **Automatic dispenser of liquids, in particular of milk**

(57) This invention proposes an automatic dispenser of liquid products, in particular milk coming from dairy farms. It comprises at least one, two, three or more individual, containers (11) for the product, of a limited capacity, transportable and replaceable manually, at least one dispenser nozzle (12) controlled by the product in communication with each container, a recycle line (16) of the product using said nozzle between each successive delivery, and an automatic washing system (19-21) of said nozzle after each delivery of the product.

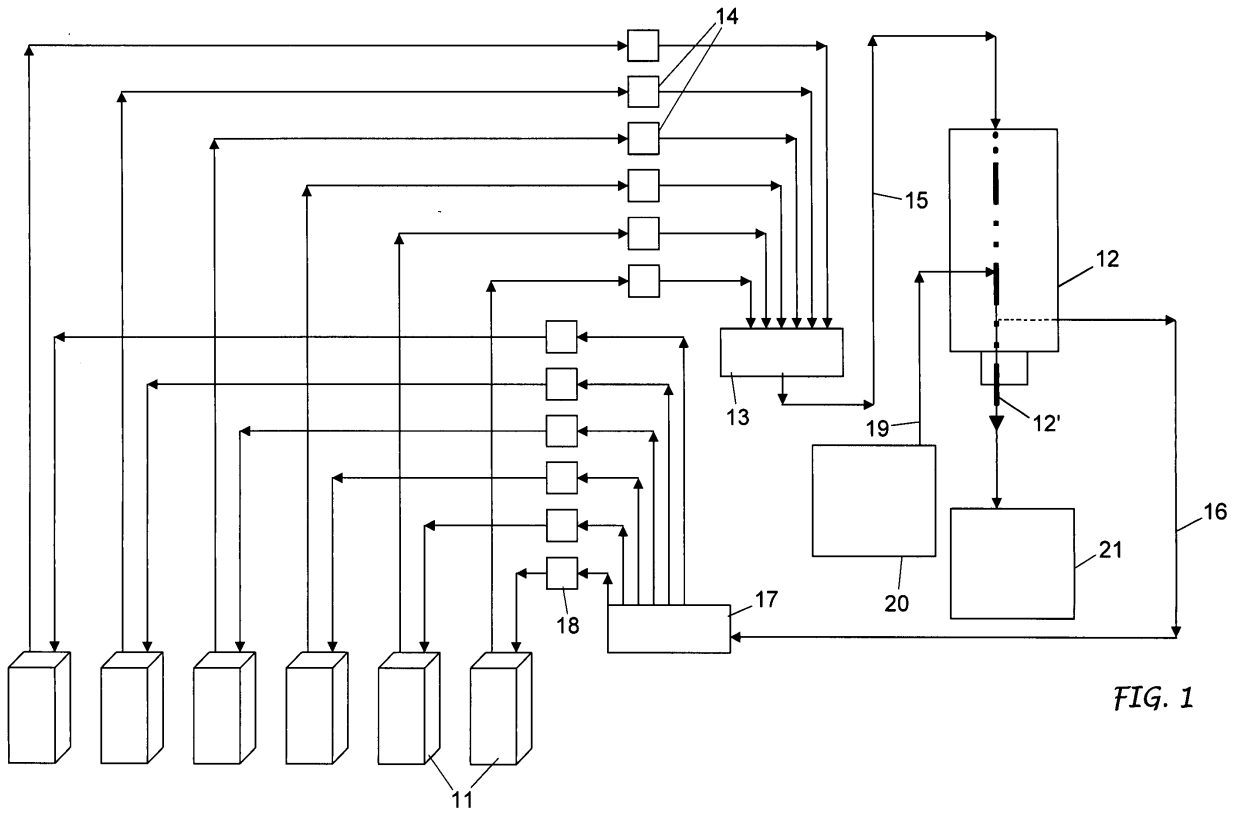

FIG. 1

EP 2 045 211 A2

Description

Field of Invention

[0001] This invention concerns the automatic dispensers of products or goods with prepayment, and refers particularly to an automatic distributor of liquids, in particular milk, without however excluding the distribution of any other kind of drink.

State of the Technique

[0002] In the sector taken into consideration, automatic pre-paid milk distributors, generally crude, whole milk, supplied directly from dairy farms have already been proposed and adopted. These distributors however, even if functional, have an important drawback in the fact that they use a large capacity container or tank and, as such, with disadvantages of various types.

[0003] In fact, a large capacity container or tank is in itself heavy and cumbersome and certainly cannot be moved by one person. When its content is consumed, this container has to be re-filled on site, the milk having to be transported and poured in conditions that are not always easy to work in and not always very hygienic. On the contrary, the container should be removed and replaced integrally. Therefore the availability of appropriate equipment to handle it is required. Furthermore, if not consumed in a short period, the milk, even if kept cooled, can deteriorate causing considerable and unnecessary waste. The present milk distributors can also be equipped with a washing system for the container and delivery conduits, but this system is not automatic as it must be activated by an operator.

Object of the Invention

[0004] The object of this invention is however to remove the drawbacks and disadvantages of the noted technique of a means of distribution of liquids, in particular milk, really automatic and simple and handy to run and with safe hygienic conditions.

[0005] The objective is reached with an automatic distributor of liquid products that is characterized fundamentally by the fact that it comprises at least one or, better, two, three or more individual, removable containers, of a limited capacity, transportable and replaceable manually, and at least one dispenser nozzle of the product in association with the product recycling means between successive delivery phases and a completely automatic washing system.

[0006] One of the advantages of this invention which is immediately evident lies in the fact that each container can be handled and transported manually by a person, who in this way is able to reach distributors even in places difficult to access with a vehicle as is often the case at present. Then once the content has been consumed, each container can be removed from the distributor and simply replaced on site with another full container. This can therefore be prepared directly in the company where the product is produced without the need for any additional pouring and, consequently, in compliance with the rules and hygiene that regulate the production and preservation of the product itself, in particular where the product is milk. In addition, the dispenser nozzle of the product is automatically washed each time it is used.

Brief description of the drawings

[0007] This invention will however be illustrated in greater detail in the following description made with reference to the enclosed drawings, in which:

Fig. 1 shows a preliminary diagram of a distributor;
Fig. 2 shows a detail of the retracted supply nozzle without a bottle;
Fig. 3 a similar view to the one in Fig.2, but during the insertion of a bottle; and
Fig. 4 a similar view to the one in Fig. 3, but with the nozzle forward for delivery.

Detailed Description of the Invention

[0008] As shown, the distributor proposed here comprises, on the one hand, more containers 11 for the liquid product to be delivered and, on the other hand, an output 12 with a dispenser nozzle 12' of the product. Each container 11 may have, for example, a capacity in the order of 15-20 litres so that it can be lifted and transported manually. It can be provided internally with an agitator to slowly move the content. Each container 11, then, is individually connected, by means of a pump 14, to the input of a delivery manifold 13 and the latter is connected in output to the dispenser nozzle 12' by means of a delivery conduit 15. A recycling conduit 16 of the product towards a return manifold 17 having in turn some outputs connected individually to each container 11, each by means of a solenoid valve 18, is also connected to the dispenser nozzle 12'.

[0009] Advantageously, the dispenser nozzle 12' is configured, movable and controlled to adopt:

- a retracted position -Figs. 2 and 3- to stop delivery and recycling of the product towards the same container by means of the conduit 16 and the return manifold 17, and
- a forward position -Fig. 4- to open to deliver the product arriving from time to time from a container 11 by means of the respective pump 14 and the delivery manifold 13.

[0010] A washing conduit 19 is also connected to the dispenser nozzle 12' which is connected to a tank 20 containing a washing fluid which it discharges into a collection tank 21.

[0011] The distributor will be programmed to place

each container 11 selectively in communication with the dispenser nozzle 12' and to enable the latter to deliver the product against payment, by means of a coin/token receiver, depending on the quantity of product to be delivered. To allow the delivery of the product required, the distributor has an opening 22 in the delivery area where it is possible to insert a container 23, such as a bottle, to collect the product purchased. With the distributor in stand-by, until that is there is no delivery in progress - Fig. 2 - the dispenser nozzle 12' remains in a retracted position and in connection with the recycling conduit 16. In this case, the product, that reaches the dispenser nozzle 12' from one of the containers 11, passes on to the recycle line 16 and returns to the same container. To receive the product required, the user must insert the container 23 in the opening 22 - Fig. 3, with the nozzle still remaining in the retracted position. When the container, that is the bottle 23, is correctly in place, the dispenser nozzle 12' moves into the forward position so as to be disconnected from the recycle conduit 16 and deliver the product into said container -Fig. 4. Then, on terminating the quantity of product calculated and prepaid, the nozzle returns to the retracted position, restoring the recycle conduit and allowing the container 23 to be removed.

[0012] When a container becomes empty it will be disconnected and remain disconnected from the dispenser nozzle 12'. If and when all the containers are empty the distributor will remain out of order.

[0013] In practice and as stated above, each container can be easily removed and replaced with another one by simply disconnecting the joints or connections of the conduits connecting the container to the delivery manifold and return 13, 17. When the distributor is activated, the dispenser nozzle 12' moves automatically into the forward delivery position. On termination of every delivery, the dispenser nozzle 12' retracts into a position that enables the recycle of a certain quantity of product of the same container so as to avoid deposits or collection in the conduits and likewise automatically starts the washing system using the devices that, although not represented, are suitable to maintain a physical separation between the product, both when recycling, delivering, and the washing fluid.

Claims

1. Automatic dispenser of liquid products, in particular milk coming from dairy farms, **characterized by** the fact that it comprises at least one, two, three or more individual, containers (11) for the product, of a limited capacity, transportable and replaceable manually, at least one dispenser (12) with a dispenser nozzle (12') in communication with each container and designed to dispense a controlled amount of the product, and a recycle line (16) of the product by means of said nozzle during each interval between the successive deliveries.

2. Dispenser according to claim 1, further **characterized by** an automatic washing system (19-21) of said dispenser nozzle (12') after each delivery of product.

3. Dispenser according to claims 1 or 2, in which each container (11) is connected to the input of a delivery manifold (13) by means of a pump (14), and in which the output of said delivery manifold is connected to the dispenser nozzle (12').

4. Dispenser according to claims 1 or 2 and 3, in which the dispenser nozzle (12') is prepared to take up a first position, for the delivery of the product on activation of the distributor, and a second position for the recycle of the product and for the washing of the nozzle between the successive delivery phases.

5. Dispenser according to any of the previous claims, in which the recycle line (16) of the product extends between the dispenser nozzle (12') and the input of a return manifold (17) connected in output to each container (11), the recycle of the product activating automatically when the nozzle is in said second position.

6. Dispenser according to any of the previous claims, in which the washing system comprises, in connection with the delivery nozzle, a tank for a washing fluid and a collection tank of the washing, the washing system activating automatically when the nozzle is in said second position.

7. Dispenser according to any of the previous claims, in which each container has a capacity to receive a quantity of product that can be transported by hand.

8. Automatic dispenser according any one of the previous claims, in which the distributor (12) with dispenser nozzle (12') is equipped with means for a physical separation between the dispensed and recycled product and the washing fluid.

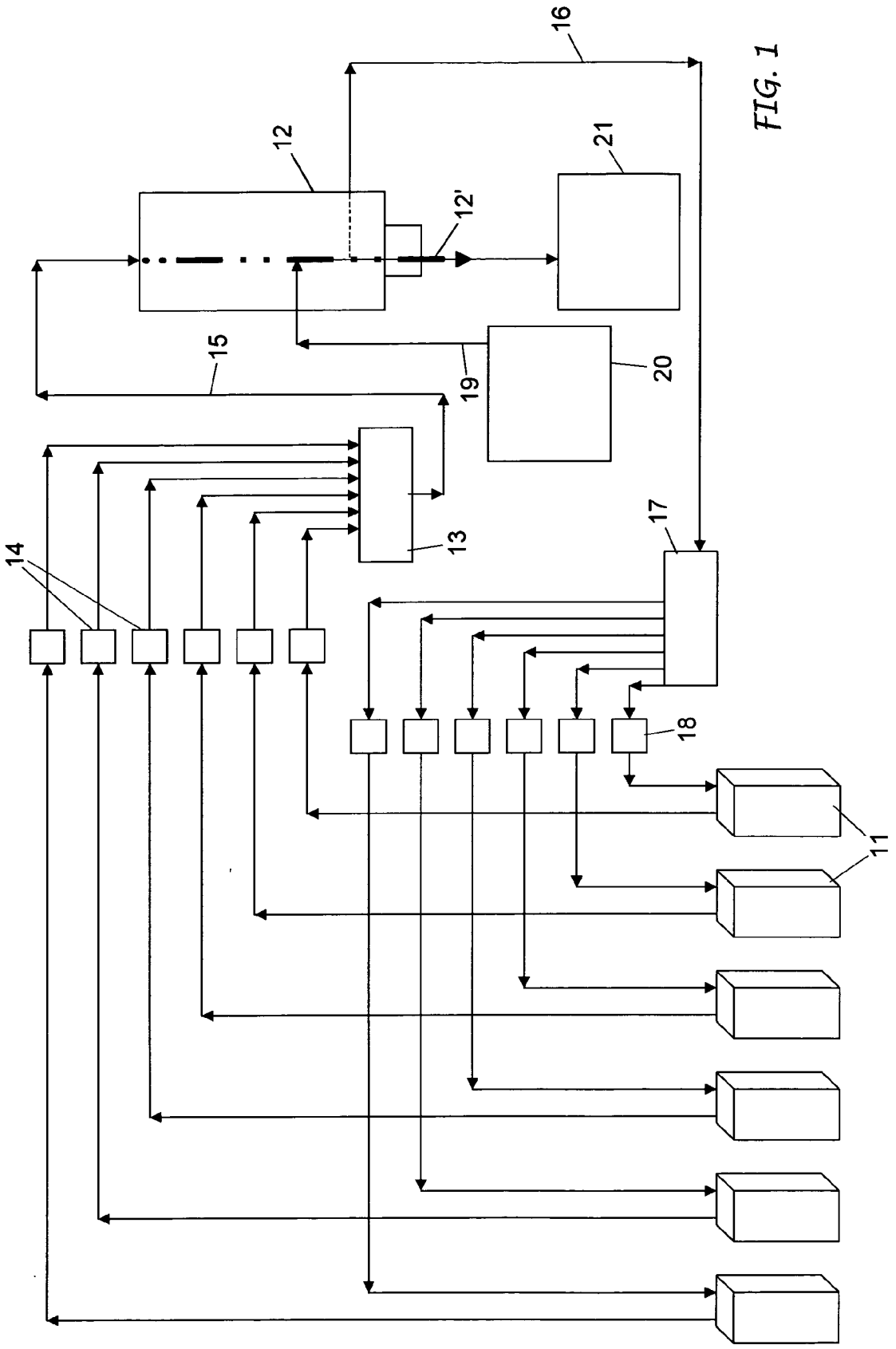

FIG. 1

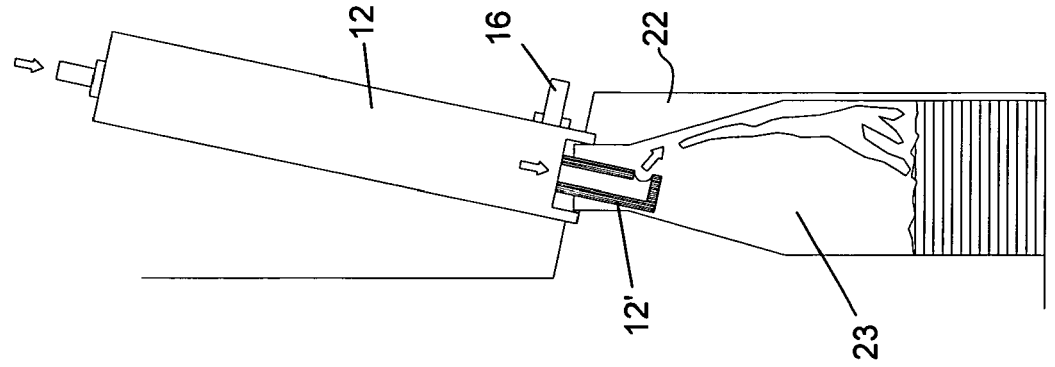

FIG. 4

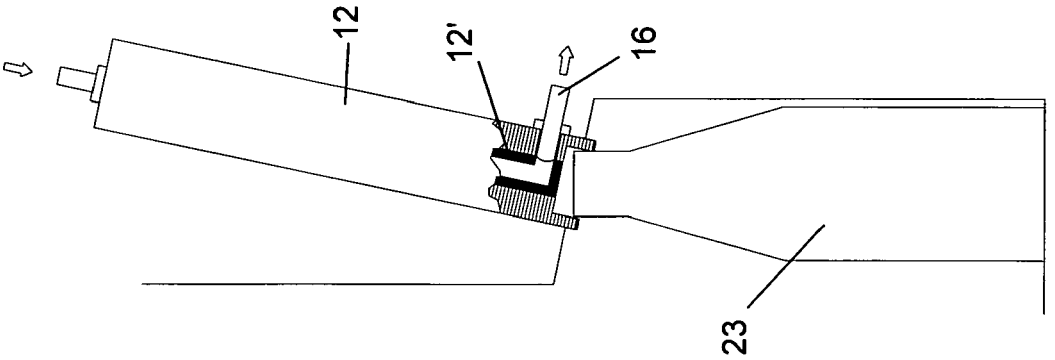

FIG. 3

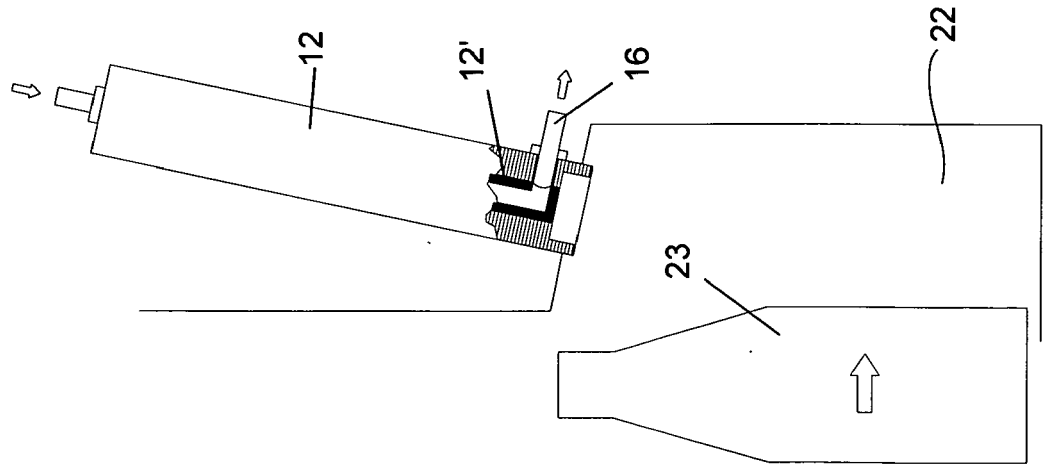

FIG. 2