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(54) **MULTI-PRODUCT DISTRIBUTOR**

(57) Multi-product distributor applicable in distributing machines of liquid or paste-like products comprising, at least: one inlet duct (2) of a first product or of a second product to be distributed, a dispensing nozzle (3) provided with a first dispensing duct (31) of a first product and at least one second dispensing duct (32) of a second product; respectively connected to the inlet duct (2) through a first passage (11) provided with a first opening and closing valve (13), and a second passage (12) provided with a second opening and closing valve (14); such that the outlet of the first product through the first dispensing duct (31), and the outlet of the second through the second dispensing duct (32) is controlled respectively by means of the selective closing of the second valve (14) and of the first valve (13).

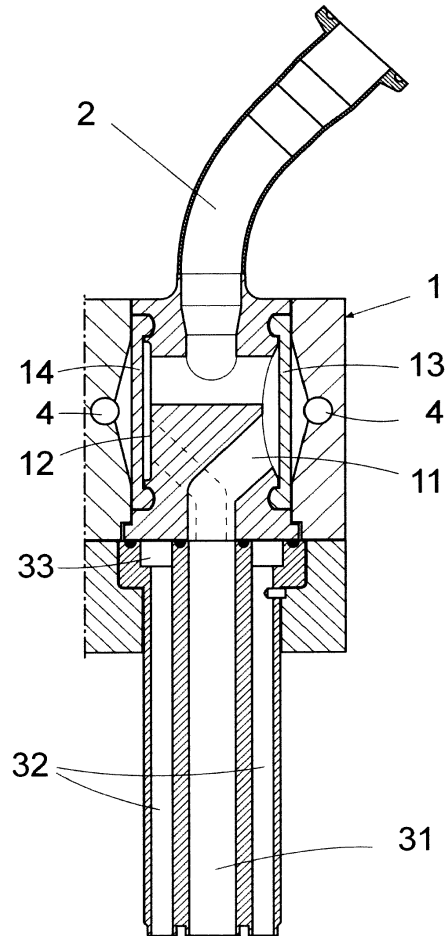


Fig. 2

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## Description

### Object of the invention

[0001] The object of the present invention is a multi-product distributor applicable in distributing machines of liquid or paste-like products, of different consistencies or densities.

### Field of application of the invention

[0002] This invention is mainly applicable in the field of alternated distribution of liquid or paste-like food products of different consistencies or densities.

### State of the art

[0003] Currently, distribution machines for liquid or paste-like products, of different consistencies or densities, have standard distributors provided with interchangeable nozzles suitable for the distribution of products with different typologies, for example firm yogurt and creamy yogurt.

[0004] In these distributors, when the type of product to be distributed is changed, it is necessary to change the nozzles thus wasting time. Depending on the viscosity of the distributed product, an operator may take an hour to change the nozzles of the machine. Additionally, afterwards the nozzles must be cleaned, which can imply two more hours of work and the use of a large amount of water.

[0005] The applicant of the invention does not know of the existence of multi-product distributors having characteristics that are similar to the distributor of the product advocated in the present invention and that allow for satisfactorily resolving the previously explained problem.

### Description of the invention

[0006] In order to solve the aforementioned problems, the multi-product distributor object of the present invention has been developed as a solution, having at least: an inlet duct of the product to be distributed in each case, a dispensing nozzle provided with a first dispensing duct of a first product and of at least a second dispensing duct of a second product.

[0007] The first dispensing duct is connected to the inlet duct through a first passage provided with a first opening and closing valve; and the second dispensing duct is connected to the same inlet duct through a second passage provided with a second opening and closing valve; such that when a first product is fed through the inlet duct, it is only necessary to open the first valve and close the second valve so that said product comes out through the first duct or dispenser; when a second product is fed through the inlet duct it is only necessary to change the opening and closing positions of the first valve and of the second valve in order to close the outlet to-

wards the first duct and that said second product comes out through the second duct.

[0008] In one embodiment of the invention, each dispensing nozzle comprises a first centrally arranged dispensing duct and several second dispensing ducts distributed around said first duct and that depart from a ring-shaped channel that establishes the connection of said second ducts with the second passage in charge of supplying the second product to them.

[0009] Preferably, the first and second opening and closing valves consist of pneumatically actuated membrane valves.

[0010] With the aforementioned characteristics, this multi-product distributor enables dispensing in an alternating manner products with different typologies using one same product inlet and opening the suitable valve in each case depending on the product to be dispensed.

[0011] Therefore, this multi-product distributor enables dispensing one or another product through the corresponding dispensing duct without needing to change the nozzle or clean the nozzle in each change, which constitutes important savings both in the time currently used to carry out these operations as well as in the water used in the cleaning.

[0012] These and other characteristics of the invention will be more readily understood in view of the exemplary embodiment shown in the attached figures that are described below.

### Description of the Figures

[0013] As a complement to the description being made, and for the purpose of helping to make the characteristics of the invention more readily understandable, this specification is accompanied by a set of drawings which, by way of illustration and not limitation, represent the following.

- Figure 1 shows a perspective view of a distributing group of the product, provided with several multi-product distributors according to the invention, provided with the corresponding inlet ducts and dispensing nozzles.
- Figure 2 shows a lateral view of a multi-product distributor according to the invention in a vertical cross section, and in which the valves in charge of carrying out the opening and closing of the passages that connect the inlet duct with the first and second dispensing ducts of the nozzle can be seen.
- Figure 3 shows an upper perspective view of one of the nozzles in which the central arrangement of the first duct and the arrangement of the second dispensing ducts around said first duct can be seen, as well as the ring-shaped channel from which said second dispensing ducts depart.

- Figure 4 shows a lateral perspective view of a double multi-product distributor, wherein the dispensing nozzles and the first valves have been eliminated.
- Figure 5 shows a perspective view of a double multi-product distributor from the previous Figure, seen from the opposite side, and wherein the dispensing nozzles and the second valves have been disassembled.

### Preferred embodiment of the invention

[0014] The exemplary embodiment shown in Figure 1 represents a distributing group of the product, which in this case incorporates twelve multi-function distributors (1) grouped in pairs.

[0015] Each multi-function distributor (1) comprises an inlet duct (2) of the product to be distributed in each case and a dispensing nozzle (3) provided with a first dispensing duct (31) of a first product, centrally arranged, and of several second dispensing ducts (32) of a second product, distributed around said first dispensing duct.

[0016] The first dispensing duct (31) is connected to the inlet duct (2) through a first passage (11) provided with a first opening and closing valve (13); and the second dispensing ducts (32) are connected to the same inlet duct (2) through a second passage (12) provided with a second opening and closing valve (14).

[0017] In the exemplary embodiment shown in Figures 2 and 3, the second dispensing ducts (32) depart from a ring-shaped channel (33) that establishes connection thereof with the second passage (12) in charge of supplying the second product.

[0018] As can be seen in Figure 5, this second passage 2 has two branches that depart from the second valve (14) and open at two diametrically opposite points from the ring-shaped channel (33) which achieves: on the one hand, that the ring-shaped channel (33) can regularly distribute a second product towards the different second dispensing ducts (32) and, on the other hand, that said second passage (12) does not intercept the trajectory of the first passage (11).

[0019] In the shown embodiment, both the first valve (13) and the second valve (14) are membrane valves actuated by means of a control circuit, through circulation ducts (4) of a pressurized fluid.

[0020] When a first product, for example firm yogurt, is fed through the inlet duct (2) it is only necessary to close the second valve (14) so that said first product can pass through the first passage (11) and come out through the first dispensing duct (31) of the nozzle (3).

[0021] When a second product, for example creamy yogurt, is fed through the inlet duct (2) it is only necessary to close the first valve (13) so that said second product can pass through the second passage (12) and come out through the second dispensing ducts (32) of the nozzle.

[0022] Having sufficiently described the nature of the

invention, in addition to an example of preferred embodiment, it is hereby stated for the relevant purposes that the materials, shape, size and layout of the described elements may be modified, provided that it does not imply altering the essential characteristics of the invention claimed below.

### Claims

1. A multi-product distributor applicable in distributing machines of liquid or paste-like products; **characterized in that** it comprises, at least: one inlet duct (2) of a first product or of a second product to be distributed, a dispensing nozzle (3) provided with a first dispensing duct (31) of a first product and at least one second dispensing duct (32) of a second product; wherein said first dispensing duct (31) is connected to the inlet duct (2) through a first passage (11) provided with a first opening and closing valve (13); and said second dispensing duct (32) is connected to the same inlet duct (2) through a second passage (12) provided with a second opening and closing valve (14); such that the outlet of the first product through the first dispensing duct (31), and the outlet of the second through the second dispensing duct (32) is controlled respectively by means of the selective closing of the second valve (14) and of the first valve (13).
2. The multi-product distributor according to claim 1, **characterized in that** each dispensing nozzle (3) comprises a first centrally arranged dispensing duct (31) and several second dispensing ducts (32) distributed around said first duct departing from a ring-shaped channel (33) of connection of said second dispensing ducts with the second passage (12).
3. The multi-product distributor according to claim 1, **characterized in that** the second passage (12) has two branches that depart from the second valve (14) and open at two diametrically opposite points from the ring-shaped channel (33).
4. The multi-product distributor according to claim 1, **characterized in that** the first valve (13) and the second valve (14) consist of membrane valves actuated through a control circuit by means of a pressurized fluid.

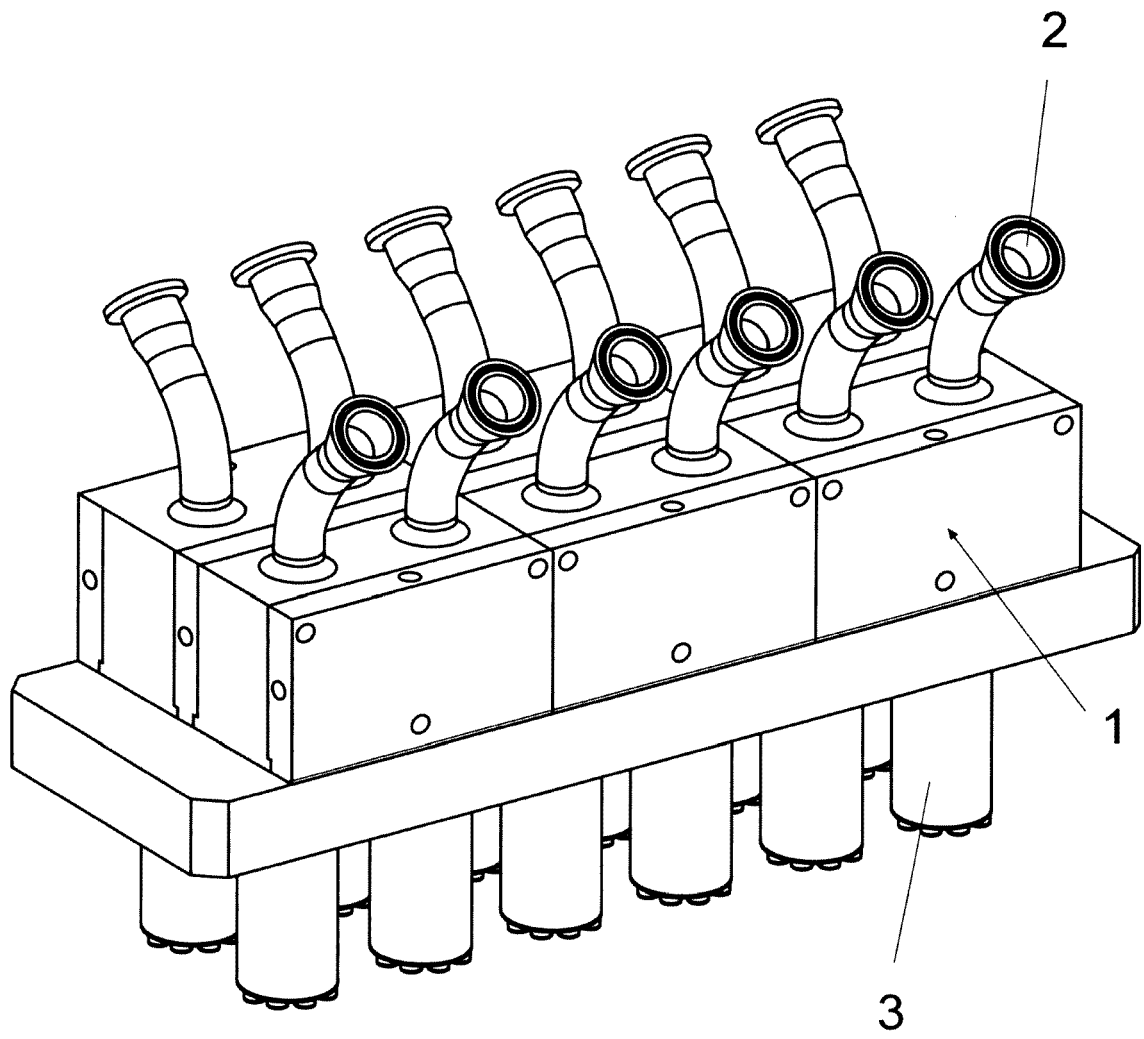


Fig. 1

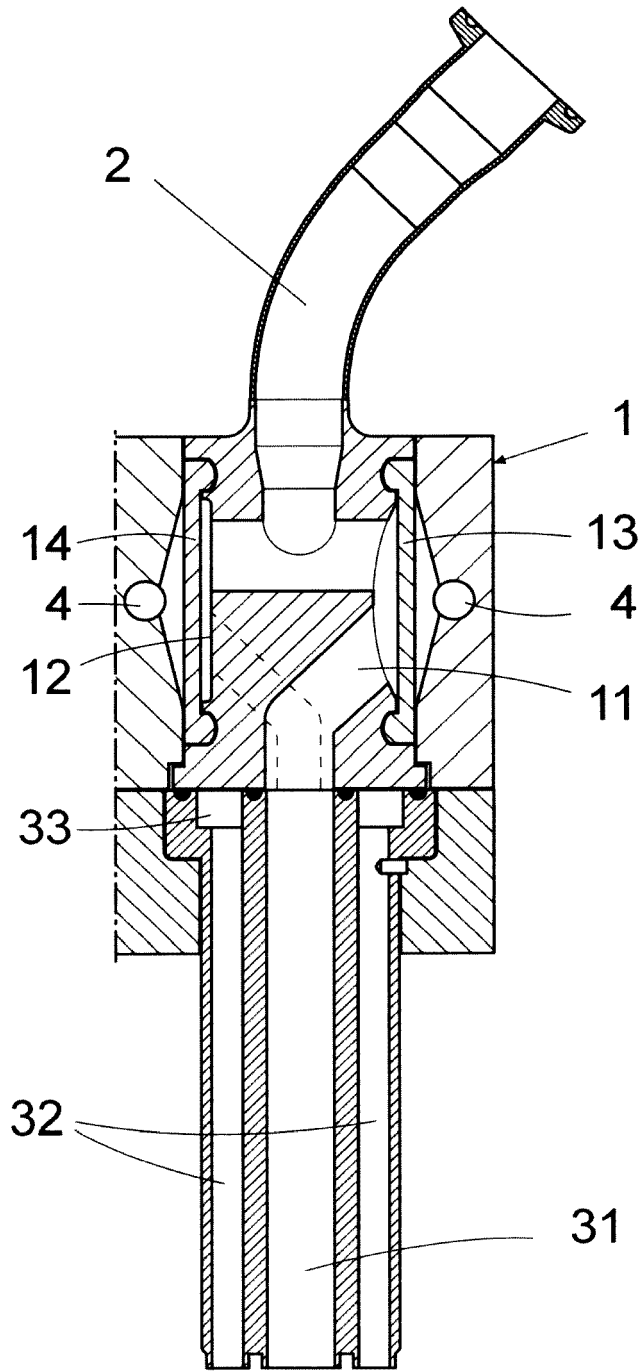


Fig. 2

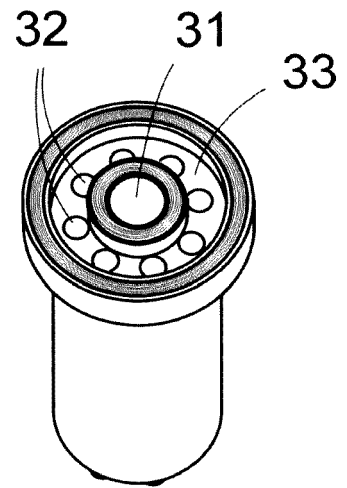
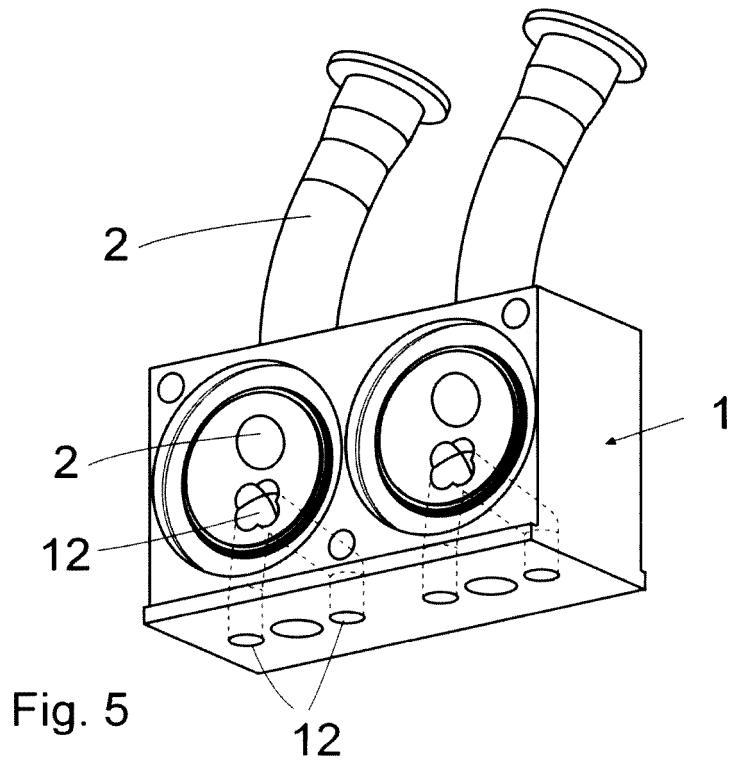
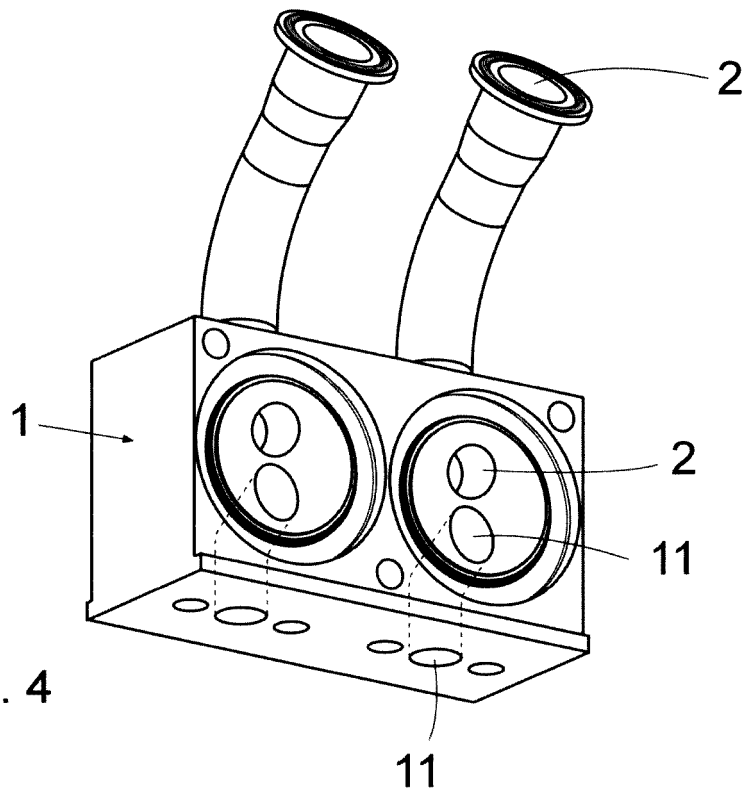


Fig. 3





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Application Number  
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