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

(11) Publication number : **0 577 568 A1**

(12) EUROPEAN PATENT APPLICATION

(21) Application number : **93830271.8**

(22) Date of filing : **25.06.93**

(51) Int. Cl.[5] : **B08B 9/32,** // B08B101/08

(30) Priority : **30.06.92 IT PD920118**

(43) Date of publication of application :
05.01.94 Bulletin 94/01

(84) Designated Contracting States :
AT BE CH DE DK ES FR GB GR IE LI LU MC NL PT SE

(71) Applicant : **OFFICINE AVE S.p.A.**
Via Selvanese, 2
I-30030 Maerne, Venezia (IT)

(72) Inventor : **Pusineri, Luca**
Via Indri, 33 D/11
I-30030 Favaro Veneto (IT)

(74) Representative : **Sarpi, Maurizio**
Studio FERRARIO Via Collina, 36
I-00187 Roma (IT)

(54) A rotary rinsing machine provided with a device for controlling and dispensing substances for the treatment of bottles, vases or the like.

(57) The present patent of invention refers to a rinsing machine and preferably to a carrousel rinsing machine for treating bottles, vases or the like, which machine is provided with a control device the specific function of which is to determine the point of start for the opening of valves which are arranged along the carrousel machine as well as to determine the point of closing for such valves, there being the possibility of varying the width for the various phases of intervention.

In general, the control device of the present machine comprises a series of slider valves (4) which are arranged along the pipes of nozzles (2) and are interested by an opening gear which consists of a roll (14) which is arranged on a piston (11), controlled by a photocell (15), and by an opening gear which consists of a roll (13) which is arranged on a bracket (12) or on a further control piston.

Brackets (10) and (12) may be adjusted with a support (9) angularly around the axis of a central shaft on which such brackets are mounted so that both brackets may be positioned in the wished control point.

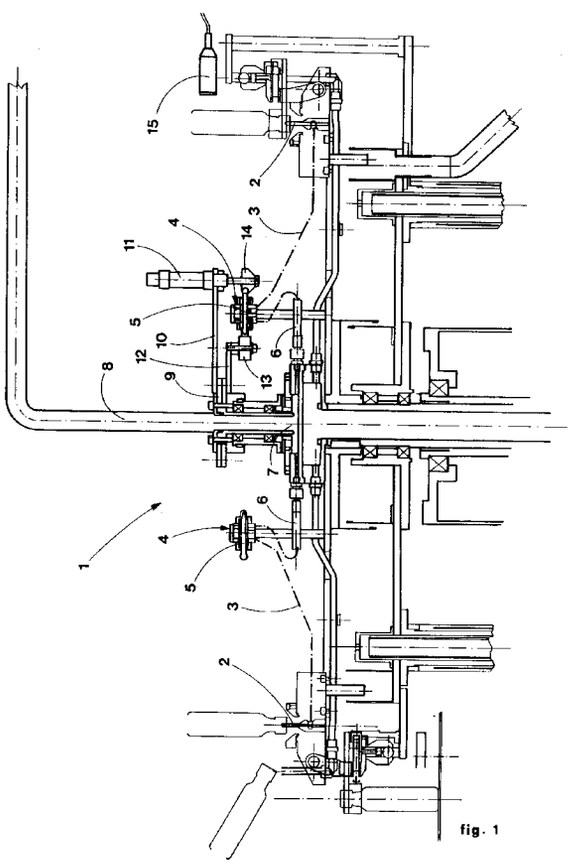

fig. 1

EP 0 577 568 A1

The present patent of invention relates to a rotary rinsing machine, provided with means which permit the control and distribution of liquid or aeriform substances for treating bottles, vases or other similar containers.

As it is known, before filling the above-mentioned containers with liquid foodstuffs, it is necessary to treat them with one or more operations of washing, blowing, rinsing and/or sterilizing in order to make the inner parts of such containers clean and aseptic.

At the present time there are some rinsing machines that are able to automatically carry out the aforesaid operations.

In general, such machines are provided with bottle gripping devices and the bottles are fed to a carrousel course or the like so as to be positioned near jets which deliver the treating substances.

Each of the aforesaid jets must be connected with a feeding line which is opened and closed alternately according to the position of the bottles and according to the treating times to which the bottles are subjected.

At present, the devices for controlling and actuating such treating phases show some inconveniences which are due, above all, to the difficulty of adjusting and synchronizing the openi ng and closing times for the several ducts of the carrousel machine.

In fact, the known control devices are usually provided with a distributor which is arranged in the middle of the carrousel machine and comprises a disc showing a slot. The slot is placed along a circular sector of the edge of the disc itself.

The opening of the various ducts is, in fact, controlled by the position of the slot in respect of the control devices. It is evident that when it is necessary to vary the time of intervention or the number of jets that act simultaneously, the control disc must be amended and adjusted. However, the adjustment of the disc is accomplished only with empiric and inaccurate operations.

The main object of the present invention is to overcome the above-mentioned inconveniences, which are due to the difficulty of controlling the known distributing devices, by carrying out a new system which permits to facilitate and control the opening phases of the valves and above all the width of the operating sectors.

The aforesaid system is provided with adjustable members the specific function of which is the determination of the point of start of the opening of the valves which are arranged along the carrousel machine as well as the determination of the closing point for such valves, there being the possibility of varying the width of the various operating phases and keeping all the valves open, for instance when it is necessary to accomplish an automatic sanifying process.

The above described objects and functions are reached by the present invention which refers to a rinsing machine or the like, and preferably to a rotary rinsing machine which is provided with a series of feeding lines that reach delivery nozzles and a control device which dispenses substances for the treatment of bottles, vases or the like, characterized mainly in that opening and closing valves are arranged along the feeding lines and are connected with a liquid central feeder which is mounted in the middle of the present machine; the valves are connected either with a contrast device such as a feeler or the like which causes the opening of the valves and with a further device, opposite to the former, which causes the closing of the valves; the position of the above-mentioned control devices may be angularly adjusted around a distributing central point; the aforesaid feelers, which are parts of the opening devices, may consist of a pin to be arranged on the end of a piston which is controlled by a photocell or other similar sensor which senses the presence of the object to be treated; after a fixed or variable period, subsequent to the opening of the valves, the valves are intercepted by the said closing device which consists of a rubbing mechanic system or an automatic piston system.

The invention may be better understood from the following description which is set out as an example, not limiting the invention itself, with particular reference to the accompanying drawings wherein:

Figure 1 shows a schematic side view of the distribution control device as a whole according to the invention;

Figure 2 shows a schematic plan view of the same.

With reference to the accompanying drawings, number 1 indicates in general a distribution plant which is mounted on a rinsing, blowing or sterilizing machine, and preferably on a rotary carrousel machine, for treating bottles, vases or any containers in glass, ceramic, plastic material or other material.

These machines are provided with bottle gripping assemblies and with a series of injection nozzles 2. Both the bottle gripping assemblies and the nozzles are already known and in this specific case, they are mounted along a circular carrousel or roundabout machine.

Each nozzle 2 is connected with a valve 4 through a pipeline 3.

Each valve 4 is provided with a horizontal slider 5 for opening or closing the valve itself.

Each valve is also connected with a liquid central feeder 7 through a pipeline 6.

The liquid central feeder 7 is mounted in the middle of the machine.

A support 9 is fixed to a central shaft 8 of the machine and comprises a first bracket 10 bearing a piston 11 and a second bracket 12 bearing a roll 13. Both the piston 11 and the roll 13 have a vertical axis.

According to a possible variant, the bracket 12 may be substituted with a second piston for the auto-

matic control.

Both the brackets 10 and 12 may be adjusted angularly around the axis of the shaft 8 with the support 9 so that both brackets may be positioned in the wished point of control.

The lower end of the rod of the piston 11 bears a roll 14. When the rod has been lowered, the roll 14 intercepts and thrusts the horizontal slider 5 of the valve 4 towards the inner part according to a movement which causes the opening of the valve so as to permit the delivery of the treating substance from the respective nozzle 2.

A photocell 15 provokes the intervention of the piston 11 when the photocell senses the presence of the object to be treated.

When the photocell senses the presence of a bottle, the photocell sends a pulse of consent to the piston 11 which lowers the roll 14 and provokes the opening of the valve.

A roll 13 is mounted at a certain angular distance from the opening device of the piston 11 and downwards in respect of the direction of feed of the roundabout. The roll 13 acts on a side of the slider 5, which side is turned towards the inner part of the valve 4.

Contrary to the opening device, the roll 13 provokes the thrust and the displacement of the slider 5 towards the outer part so that the valve is brought back to the closing position after a work cycle which is determined by the angular distance which separates the roll 14 from the roll 13.

The opening action of the piston 11 and the closing action of the roll 13 are continuous till the photocell senses the presence of a bottle during the rotation of the carrousel or roundabout.

In fact, all the valves 4 are arranged concentrically in respect of the nozzles 2 and therefore their radius of action is equal in respect of the centre of the roundabout. As a consequence of this, the roll 14 and the roll 13 meet the sliders 5 of the valves progressively in order to open or close the valves.

The angular adjustement of the brackets 10 and 12 permits to change the opening period of the valves and the relative period of intervention.

As previously mentioned, the bracket 12 may be replaced by a further piston (not shown) which may exclude the roll 13 in order to keep all the valves in the open position.

This is particularly advantageously when it is necessary to accomplish an automatic sanifying process during which a suitable cleaning liquid must pass through all the nozzles. Now, the cleaning process is carried out when the piston is lowered and is kept in this lowered position so that the roll 14 provokes the opening of all the valves 4 of the roundabout, and the liquid coming from the liquid central feeder 7 gets out from all the nozzles 2 of the roundabout.

The end of the sanifying process is provoked by the return of the roll 13 to the starting position which provokes the moving backward of the sliders 5 for closing the valves 4.

Claims

1) A rinsing machine or the like, and preferably a rotary rinsing machine, provided with a series of feeding pipelines (3) (6) feeding delivery nozzles (2) and a control and distribution plant (1) for dispensing substances for the treatment of bottles, vases or the like, characterized mainly in that opening and closing valves (4) are placed along the feeding pipelines (3) (6) and are connected with a liquid central feeder (7) which is arranged in the middle of the machine in question; the valves (4) are connected with a consent device such as a feeler or the like which is mounted on a control piston (11) which determines the opening of the valves (4) which are also connected with a roll (13), opposite to the consent device, for provoking the closing of the valves (4).

2) A rinsing machine or the like as claimed in the claim 1, characterized in that the position of the consent device or roll (14) and the closing device or roll (13) may be adjusted angularly around a liquid central feeder (7).

3) A rinsing machine or the like as claimed in the foregoing claims, characterized in that the feelers which are part of the opening elements may consist of a roll (14) which is arranged on the end of a piston (11) which is controlled by a photocell (15) or other similar sensor which senses the presence or the absence of the object to be treated.

4) A rinsing machine or the like as claimed in the foregoing claims, characterized in that after a fixed or variable period, subsequent to the opening of the valves, the valves (4) are intercepted by the closing device or roll (13) which consists of a rubbing mechanic system or an automatic piston system.

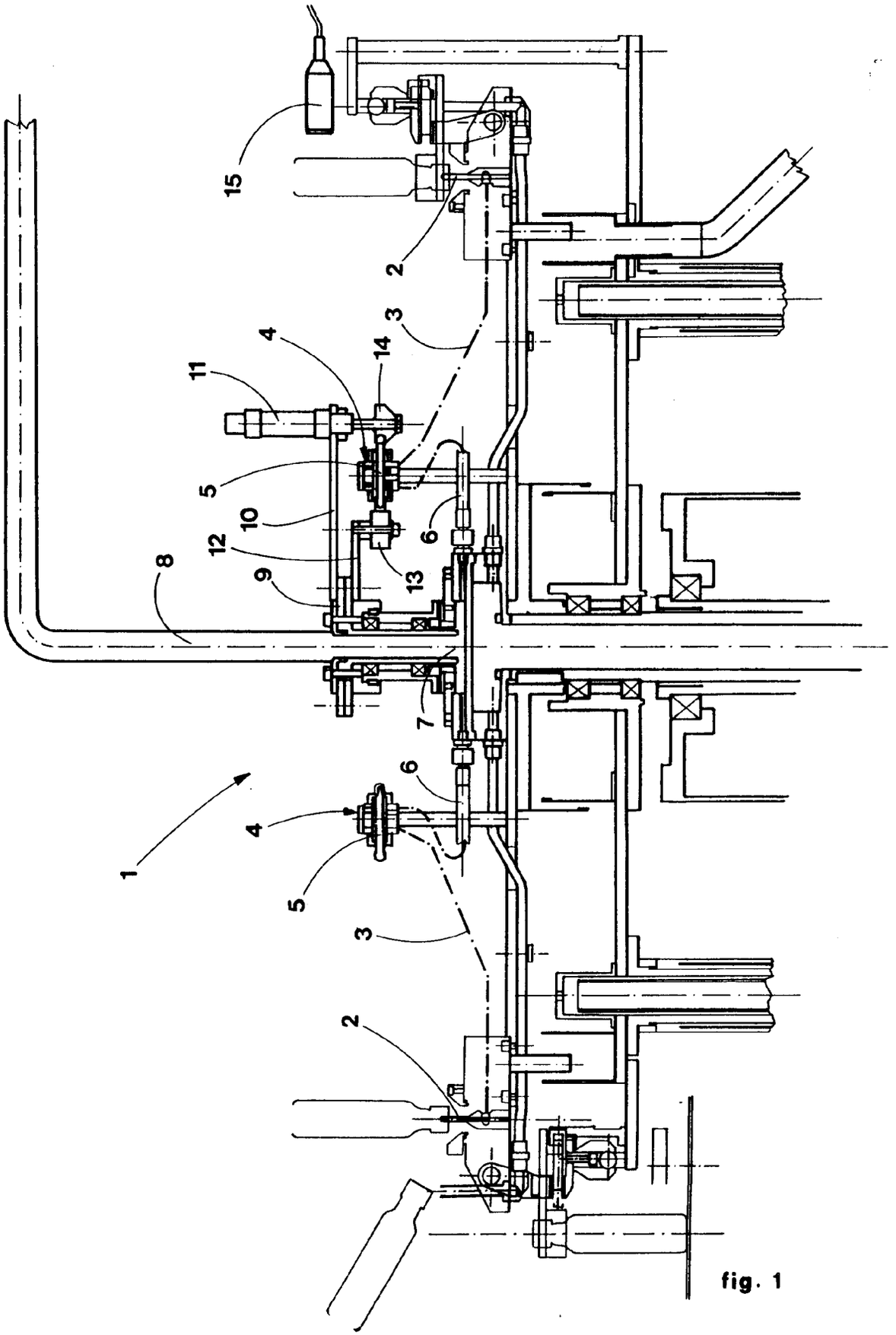

fig. 1

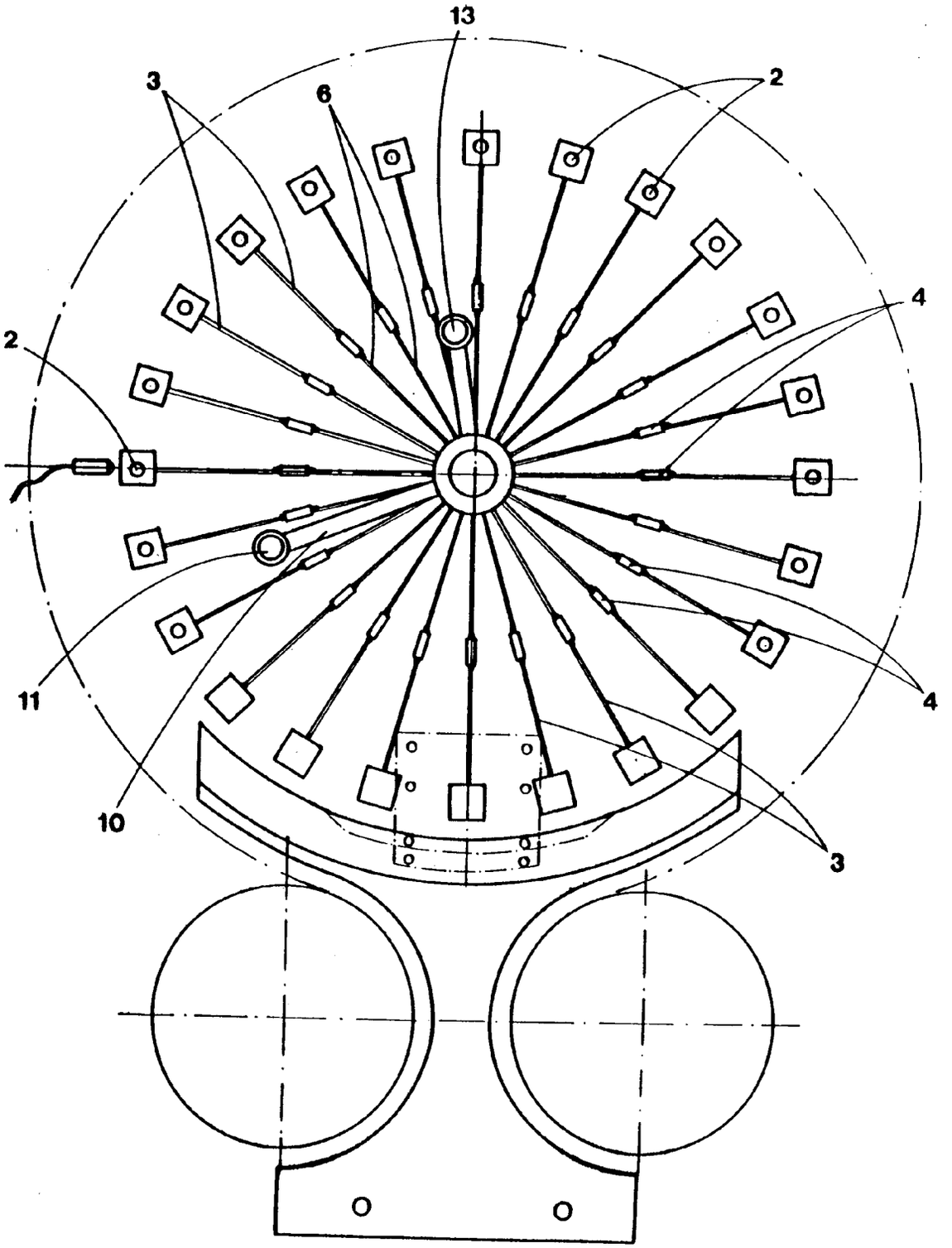

fig. 2

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 93 83 0271

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
A	WO-A-9 115 691 (PERRIER) * page 13, line 16 - page 14, line 2; figures 1-6 *	1	B08B9/32 //B08B101:08
A	GB-A-2 108 942 (ANDERSON BROS MIG CO) * abstract * * page 5, line 13 - line 32 *	3	
A	US-A-4 532 971 (MEISSNER) * abstract; figure 4 *	3	

TECHNICAL FIELDS SEARCHED (Int. Cl.5)

B08B
B67C
B65B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	04 OCTOBER 1993	RAMPELMANN J.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P0401)