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(54) **ANTI-DRYING DEVICE AND METHOD**

VERTROCKNUNGSSCHUTZGERÄT UND VERFAHREN

DISPOSITIF ET PROCEDE ANTI SÉCHAGE

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Description

FIELD OF THE INVENTION

[0001] The present invention concerns an anti-drying device to prevent the drying of fluid and semi-fluid products, pastes, gels, creams such as for example coloring products, pigments or paints, residues on delivery needles of a machine or device at least for the delivery and possibly for the automatic preparation, mixing and distribution of fluid coloring products, for example coloring liquids, paint bases, varnishes, enamels, inks or other fluid coloring substances.

BACKGROUND OF THE INVENTION

[0002] Devices or machines to dispense or deliver fluid and semi-fluid products, pastes, gels, creams such as coloring products, pigments or paints are known, and are able to introduce a measured quantity of a product into a receptacle, containing, for example, a paint base to obtain the coloring product desired. Such devices or delivery machines normally comprise a delivery unit, or dispensing head, by means of which a desired quantity of one or more fluid products is delivered into a receptacle, normally containing a paint base. The delivery unit is typically mobile between an idle position and an operating position in which it cooperates with the container and traditionally comprises a plurality of delivery needles by means of which the lid of the container containing the paint base is perforated, and the fluid product is delivered inside it. A known delivery unit is described in the European patent application EP-A-2.040.830 in the name of the Applicant. The residual fluid product on the tip of the delivery needles, in contact with the air, tends to dry, usually in the period of time between one delivery step and the next, with negative effects on the performance of the delivery device or machine. To overcome this disadvantage it is necessary to keep the delivery needles damp and to this end the Applicant proposed, in the past, a conditioning device described in the European patent EP-B-1.494.959, or an anti-drying device described in the aforementioned European patent EP-2.040.830.

[0003] Document US-A-2008/210774 describes an anti-drying device in accordance with the preamble of claim 1 to dampen the delivery nozzles of colorants which comprises a housing which defines a first chamber to house a reserve tank for the water and an open tray to hold a certain volume of water and in which a heating element is provided to vaporize the water. The vapor passes into a second open chamber of the tray, where the nozzles, when they are idle, are exposed to the vapor.

[0004] Purpose of the present invention is to achieve an anti-drying device which has even greater performance and efficiency than known anti-drying devices, which is economical, rapid, functional, without negatively influencing the functioning of other components of the associated dispensing machine.

[0005] The Applicant has devised, tested and embodied the present invention to overcome the shortcomings of the state of the art and to obtain these and other purposes and advantages. ,

SUMMARY OF THE INVENTION

[0006] The present invention is an anti-drying device in accordance with claim 1, while the dependent claims describe other characteristics of the invention or variants to the main inventive idea.

[0007] In accordance with the above purpose, an anti-drying device according to the present invention can be used to humidify the delivery means of fluid and semi-fluid products, pastes, gels, creams such as for example coloring products, pigments or paints, of a machine at least for the delivery and possibly for the automatic preparation, mixing and distribution of at least a fluid product into a closed receptacle, for example for the delivery of a fluid coloring product into a receptacle which contains a paint base.

[0008] The anti-drying device of the present invention comprises a container or receptacle hermetically closed by means of a closing lid and which has an inner volume inside which there is a fluid, liquid and/or vapor, suitable to humidify possible residues of fluid product on the delivery means.

[0009] The closing lid is configured both to confine the liquid and/or the vapor inside the container and also to introduce and house, through at least one of its portions, at least the ends of the delivery means inside the closed container, so that they are in contact with the liquid and/or vapor so as to prevent the drying thereof.

[0010] When the delivery machine of the fluid product is idle, it will be possible to insert the delivery means into the container in which the liquid and/or vapor is present, preventing the drying of possible residues of fluid product present thereon. With the anti-drying device of the present invention, therefore, the delivery means, for example the tips of the needles which deliver the coloring substances, are prevented from drying during periods of idleness.

[0011] The use of a liquid, typically water, which is partly vaporized or heated, or exploiting the natural tension of vapor at ambient temperature, creating an atmosphere saturated with vapor inside the container in which the delivery means are at least partly immersed, allows a more efficient humidifying action with respect to known anti-drying devices.

[0012] Moreover, with the present invention, as the container is hermetically closed by the closing lid, the vaporization times are more rapid and, if necessary, there will be less heat energy needed. Moreover, the vapor generated by heating, or in a natural way by exploiting the vapor tension of the liquid at ambient temperature, remains confined in the container, and this, as well as eliminating the creation of undesired humidity on the components of the dispensing machine and outside it,

makes the integration of liquid unnecessary.

[0013] In some forms of embodiment, the container is provided with a closing lid which has a portion made, at least partly, with a membrane of an elastic material able to dilate, when the delivery means are inserted through it in order to be kept damp, during the performance of the anti-drying action, and to re-compact, when the delivery means are removed from the container, thus preventing the fluid and vapor contained therein from leaking out.

[0014] The use of the membrane which acts as a closing element is advantageous because it allows an optimal control of the humidity inside the container.

[0015] Moreover, the presence of the membrane on the container has the advantage that, when the delivery means are removed through it, there is an effect of scraping the residues of fluid product possibly present, contributing to increase the cleanliness of the delivery means, obtaining a considerable improvement in the delivery.

[0016] In some forms of embodiment, the anti-drying device of the present invention comprises a mechanical arm, pivoted on a vertical pin which bears a support plate of the fluid container at one end, the mechanical arm being rotatable between a first operating position in which the container is in cooperation with the delivery means for the anti-drying action, and a second operating position, rotated with respect to the first, where it is disengaged.

[0017] The present invention also concerns a method to humidify delivery means in accordance with claim 12 for fluid and semi-fluid products, pastes, gels, creams such as for example coloring products, pigments or paints, of a machine at least for the automatic delivery of at least a fluid product into a closed container. The method comprises a step of introducing into a container or receptacle, hermetically closed by means of a closing lid and which has an internal volume in which there is a fluid, liquid and/or vapor, at least the ends of the delivery means through a portion of the closing lid, confining the liquid and/or vapor inside the container so that at least the ends of the delivery means are in contact with the liquid and/or vapor, so as to prevent them from drying out.

BRIEF DESCRIPTION OF THE DRAWINGS

[0018] These and other characteristics of the present invention will become apparent from the following description of a preferential form of embodiment, given as a non-restrictive example with reference to the attached drawings wherein:

- fig. 1 schematically shows a machine according to the present invention for the automatic distribution of fluid coloring products contained in receptacles;
- fig. 2 is a view from above, schematized, of the machine in fig. 1;
- fig. 3 is a partial plane view, enlarged and partly sec-

tioned, of the machine in fig. 1;

- fig. 4 is a right lateral view, enlarged and partly sectioned, of the machine in fig. 1 in a first operating condition;
- fig. 5 is a right lateral view, similar to the one in fig. 4, of the machine in fig. 1 in a second operating condition;
- fig. 6 is a rear view, enlarged and partly sectioned, of the machine in fig. 1 in the second operating condition of fig. 5;
- fig. 7 is a variant of a part of the machine in fig. 1;
- fig. 8 is another variant of the part in fig. 7.

[0019] To facilitate comprehension, the same reference numbers have been used, where possible, to identify identical common elements in the drawings.

DETAILED DESCRIPTION OF SOME FORMS OF EMBODIMENT

[0020] With reference to the attached drawings, an anti-drying device 10 according to the present invention can be used to prevent the drying of residues of fluid products in delivery needles 74 of a delivery device 21 of a machine 75 to automatically deliver fluid coloring products in closed receptacles 11. The anti-drying device 10 comprises a container or receptacle 79, hermetically closed by means of a closing lid 82 and substantially similar to the recipients 11, inside which a fluid or liquid is present, such as water and/or aqueous vapor, and a support plate 78 on which the container 79 is disposed, comprising heating means 81, in this case an electric resistance integrated into it, by means of which to heat-regulate the support plate 78 in order to generate and maintain a desired quantity of liquid and vapor inside the container 79. The heating means 81 can be set to a desired temperature, to obtain the desired balance between liquid and vapor inside the container 79. The closing lid 82 is configured both to confine the liquid and/or vapor inside the container 79 and also to allow the introduction, through at least one of its portions, of the delivery needles 74 of the delivery device 21 inside the closed container 79 so that they are in contact with the liquid and/or vapor, so as to prevent them from drying out.

[0021] Advantageously, in the present invention the same closed container 79 which contains the liquid by means of which the anti-drying vapor is generated also comprises the heating means 81, achieving a more compact device.

[0022] Moreover, since the container 79 is hermetically closed by the closing lid 82, the liquid which generates the vapor is not wasted, but remains confined inside the volume of the container 79, without needing topping up or integrations and also without dispersing inside or outside the machine 75. Moreover, as the container 79 is closed, even the heat energy required for evaporation will be less, with obvious saving in terms of time and costs.

[0023] The container 79 is attached in a selectively removable way to the support plate 78. In some forms of embodiment, the container 79 is provided with releasable attachment means 72 (fig. 6), of the bayonet type for example, able to cooperate with mating counter attachment means provided on the support plate 78, for an easy attachment to the support plate 78.

[0024] In this way, the container 79 can be easily removed from the support plate 78 to guarantee easy access and cleaning by the specialized operator, seeing that, normally, after a certain number of hours of functioning, the liquid contained will have to be removed and substituted. The cleaning operation will be indicated by the operating system which manages the functioning of the device 10 by means of a suitable message.

[0025] The sizes of the container 79, which can, for example, be a cylindrical shaped can, are configured to house inside it at least the part or end of the needles 74 on which, normally, there can be residue of fluid product which is delivered. As the container 79 is closed, with a liquid, for example water, inside it, and during normal functioning, an atmosphere saturated with vapor, drying phenomena in contact with air do not occur, which normally happens with residues of fluid products on the needles 74.

[0026] In the form of embodiment shown, the closing lid 82 with which the container 79 is provided has a portion made, at least partly, with a membrane 83 of an elastic material able to dilate, when the delivery needles 74 are inserted through it in order to be kept damp, during the performance of the anti-drying action, and to re-compact, when the needles 74 are removed, preventing the liquid contained therein from leaking out.

[0027] A membrane of this type is described in the cited application EP-A-2.040.830.

[0028] The membrane portion 83 of the closing lid 82 of the container 79 is sized in a manner coordinated with the overall plane bulk of the plurality of needles 74, so as to guarantee that each of them is inserted inside the container 79 for the anti-drying action.

[0029] In the attached drawings, as an example of an application that does not restrict the scope of protection of the present invention, the anti-drying device is shown used in a machine 75 for the automatic preparation and distribution of fluid coloring products, contained in closed receptacles 11, which in this case comprises a support structure 12, divided into substantially three modular compartments 13, 14 and 15, integrated with each other, as described in the copending patent application in Italy of the Applicant n. UD2010A000126 with the same priority date and entitled "MACHINE FOR THE AUTOMATIC PREPARATION AND DISTRIBUTION OF FLUID COLORING PRODUCTS CONTAINED IN CLOSED RECEPTACLES".

[0030] The receptacles 11 (fig. 5) can be either metal, such as steel, or plastic material and can be a cylindrical shape or any other shape, such as for example a parallelepiped, with a square or rectangular base. Each of

them can contain a fluid paint base, which can be for example transparent or white, to which a colorant is then added, substantially consisting of pigments. Each receptacle 11 can be closed by a lid provided at the center with a membrane, of a known type, which has the characteristic of being holed by one or more needles and closing automatically when each needle is removed, as is the case of the membrane 83 of the container 79.

[0031] In the first compartment 13, which is the one on the extreme left in figs. 1 and 2, a plurality of tanks 20 are disposed (fig. 1), which can be of any known type, for example as described in the European patent EP-B-1.744.826, in the name of the present Applicant, in each of which a different coloring substance is contained.

[0032] In the second compartment 14, that is, the central one, a delivery device 21 is disposed, which can be of any known type, for example as described in the Italian patent IT-B-1.370.076, in the name of the present Applicant. The delivery device 21 is connected to the tanks 20 by means of pipes 23 (figs. 4 and 5) of any known type.

[0033] In the third compartment 15 (fig. 1), which is the one on the extreme right, a mixing device 22 is disposed in this case, which can be of any known type, for example of the type described in the European patent EP-B-1.417.024 granted on 21.09.2005 to the Applicant. In the front part or front-piece of the central compartment 14 a loading station 25 (figs. 1 and 3) is disposed, which comprises a plate 26, of a circular shape for example, which acts as a support element and centering member for one receptacle 11 at a time. The loading station 25 has a first vertical axis Z1 (figs. 3 - 5).

[0034] Around the plate 26 and coaxial to the axis Z1 an access door 29 is disposed, of a semi-circular shape and comprising, in some forms of embodiment, two panels 29a and 29b, each of which has an angular development of 90° to act as a rotating bushing.

[0035] In this case, transfer means 30 (figs. 1, 3, 4 and 5) are able to selectively and automatically transfer the receptacle 11, together with the plate 26, both from the loading station 25 to the delivery device 21, along a first horizontal axis X, and from the delivery device 21 to the mixing device 22, along a second horizontal axis Y, perpendicular to the axis X, and vice versa, to return them to the loading station 25.

[0036] On the front part of the right-hand compartment 15 (fig. 2) data input means 50 are disposed, connected to a central control unit 59 (fig. 1) and able to be actuated by the user in order to choose the sizes and the capacity of the receptacle 11, the type of paint base and/or the color of the fluid coloring product to be obtained.

[0037] The delivery device 21 (figs. 4 and 5) comprises a plate 73 on which the needles 74 are mounted, disposed parallel and concentric to the vertical axis Z2 and each connected to a corresponding pipe 23. The plate 73 is mobile vertically along the vertical axis Z2 by means of an electric motor, of a known type and not shown in the drawings, which is also controlled by the central control unit 59.

[0038] In some forms of embodiment, the anti-drying device 10 (figs. 3-6) used in the machine 75 comprises a mechanical arm 76, pivoted on a vertical pin 77 which bears the support plate 78 at one end, which can be heat-regulated with the electric resistance 81 integrated in it, on which the container 79 is removably disposed. The mechanical arm 76 is rotatable by means of an electric motor 80, controlled by the central control unit 59, between a first operating position in which it is aligned with the horizontal axis Y (figs. 3 and 4) and a second operating position, rotated by 90° with respect to the first, that is, parallel to the horizontal axis X (figs. 5 and 6 and shown by dashes in fig. 3).

[0039] In the first operating condition (figs. 3 and 4) the container 79 is coaxial to the second vertical axis Z2 and the plate 73 is lowered against the container 79 (fig. 4), so that the tips of the needles 74 are inside the latter, remaining damp thanks to the liquid and/or vapor contained therein. In the second operating position (figs. 3, 5 and 6) the container 79 is coaxial to a fourth vertical axis Z4, outside the bulk of the plate 26 and of the plate 73.

[0040] The method with which the anti-drying device 10 as described heretofore is used functions in the machine 75 as follows.

[0041] First of all, there is a step in which the user, by means of the data input means 50, chooses and selects the characteristics of the specific fluid product that he intends to purchase. The user takes the type of receptacle 11 from a store or shelf which contains the type of paint base for example and which has the capacity he has chosen, and positions it in the loading station 25 (fig. 1), centering it on the plate 26. The access door 29 (figs. 2 and 3) is closed so that the two panels 29a and 29b are disposed in front of the receptacle 11 (position shown by dashes in figs. 2 and 3) and therefore so that nobody can access the loading station 25, until the end of the operating cycle.

[0042] The central control unit 59 can automatically carry out a step to verify that the receptacle 11 is the type chosen by the user, and also that it is centered on the plate 26, possibly inviting the user to correct the positioning or substitute the receptacle 11.

[0043] The central control unit 59, moreover, sets and activates the functioning of the heating means 81, in order to have the desired atmosphere saturated with vapor inside the container 79. Normally, at the beginning, the needles 74 of the delivery device 21 are inserted in the container 79, to prevent drying.

[0044] If the verification step is positive, the central control unit 59 automatically carries out a step of preparing the delivery device 21, lifting first the plate 73 (fig. 5) and then rotating the mechanical arm 76 by 90° in a clockwise direction (fig. 3), by means of the electric motor 80, to bring it together with the container 10 into the second operating position, aligned with the vertical axis Z4.

[0045] A positioning step is then carried out, under the control of the central control unit 59, by means of the transfer means 30, to position the receptacle 11 aligned

to the vertical axis Z2, instead of the container 79, and to deliver coloring substances inside the receptacle 11. The plate 73 of the delivery device 21 is lowered until the needles 74 have their tips inside the receptacle 11 (position shown by dashes in fig. 5). The pipes 23 then convey into the receptacle 11, by means of volumetric pumps of a known type and not shown in the drawings, the necessary quantity of coloring substance contained in the tanks 20, so as to achieve the shade of color chosen by the user. When delivery is complete, the plate 73 is raised.

[0046] The central control unit 59 automatically carries out a second step of transferring the receptacle 11 (figs. 10 and 11) from the delivery device 21 (vertical axis Z2) to the mixing device 22 (vertical axis Z3), by means of the transfer means 30. The central control unit 59 then carries out a step of mixing the product contained inside the receptacle 11 (paint base plus coloring substances), commanding, in a known way, the mixing device 22, which stirs the receptacle 11 for a predetermined time. When the mixing step is finished, the central control unit 59 commands the inverse operations, until the receptacle 11 is returned to the loading station 25. In particular, the electric motor 80 returns the container 79 to the first operating position, aligned with the vertical axis Z2, and the plate 73 of the delivery device 21 is lowered to return the tips of the needles 74 inside the container 79 and thus prevent the possible residues from drying out, such as coloring pigments. The panels 29a and 29b (figs 2 and 3) can then be returned (manually or automatically) to their initial condition behind the plate 26. At this point the user can remove the receptacle 11 containing inside it the coloring product he requested.

[0047] It is clear that modifications and/or additions of parts may be made to the anti-drying device 10 as described heretofore, without departing from the scope of the claims.

[0048] According to a variant, the hermetically sealed container 79 can be the disposable type, and comprise inside it a liquid that has its own vapor tension, advantageously water or a suitable aqueous mixture, so as to generate a desired quantity of vapor which, thanks to the closing lid 82, stays confined inside the volume of the container 79, where the needles can be introduced for damping (figs. 7 and 8). In this solution, it might not be necessary to supply additional heat energy for vaporization, and therefore the heating means 81 might not be provided, as in fig. 8, or they could be included, integrated in the support plate 78, to function as an auxiliary for the vaporization as in fig. 7. In this variant, the disposable container 79 is housed in a fixed external container 85 which advantageously has attachment means, for example bayonet type, for releasable attachment to the support plate 78 (fig. 8).

[0049] Advantageously, sensor means 87 can be provided, able to recognize the presence or absence of the container 79, so as to transmit a correlated warning signal by means of the central control unit 59 of the machine

75, so that it provides for the correct positioning of the container 79: this may be advantageous in the case of a disposable container 79 as described above. In the solution shown in fig. 7 the sensor means 87 are for example embedded on the internal upper edge of the external fixed container 85.

[0050] Furthermore, in some variants, in order to improve the cleaning of the needles, a sponge element 84 is provided (fig. 8), preferably of the disposable type, associated above the container 79, for example interposed between the closing lid 82 with the membrane 83 and the container itself, the function of which is to collect any possible drops of colorant or dirt that remain on the surface of the needles 74 after the membrane 83 has been scraped.

[0051] It is also clear that, although the present invention has been described with reference to examples, a person of skill in the art will be able to achieve other equivalent forms of anti-drying device, having the characteristics as set forth in the claims and hence all coming within the field of protection defined thereby.

Claims

1. Anti-drying device to humidify delivery means (21) for fluid and semi-fluid products, pastes, gels, creams such as for example coloring products, pigments or paints, of a machine (75) at least for the automatic delivery of at least a fluid product in a closed container (11), comprising:
 - a container or receptacle (79) hermetically closed by means of a closing lid (82) and which has an inner volume inside which there is a fluid, liquid and/or vapor, said closing lid (82) being configured both to confine the liquid and/or vapor inside said container (79) and also to introduce, at least through one of its portions, at least the ends of said delivery means (21) inside said closed container (79), so that they are in contact with said liquid and/or vapor so as to prevent them from drying up **characterized in that** it comprises:
 - a support plate (78) configured for supporting the container (79), wherein said container (79) comprises releasable attachment means (72) for attachment to said support plate (78).
2. Anti-drying device as in claim 1, **characterized in that** said portion of the closing lid (82) is made, at least partly, with a membrane (83) of an elastic material able to dilate, when said delivery means (21) are inserted through it in order to be kept damp, during the performance of the anti-drying action, and to re-compact, when said delivery means (21) are extracted, preventing the liquid contained therein from coming out.
3. Anti-drying device as in claim 1 or 2, **characterized in that** it comprises a mechanical arm (76), pivoted on a vertical pin (77) which bears said support plate (78) at one end, said mechanical arm (76) being rotatable between a first operating position in which said container (79) is in cooperation with said delivery means (21) for the anti-drying action, and a second operating position, rotated with respect to the first, where it is disengaged.
4. Anti-drying device as in any claim hereinbefore, **characterized in that** it comprises heating means (81) by means of which to generate and maintain a desired quantity of liquid and/or vapor inside said container (79).
5. Anti-drying device as in claim 4, **characterized in that** said heating means (81) consist of an electric resistance integrated in said support plate (78).
6. Anti-drying device as in any claim hereinbefore, **characterized in that** it comprises a sponge cleaning element (84) associated above said closing lid (82).
7. Anti-drying device as in any claim hereinbefore, **characterized in that** it comprises sensor means (87) able to signal the presence or absence of the container (79).
8. Anti-drying device as in any claim hereinbefore, **characterized in that** said container (79) is of the disposable type and is located in a fixed external container (85).
9. Anti-drying device as in any claim hereinbefore, **characterized in that** releasable attachment means (72) are of the bayonet type.
10. Anti-drying device as in any claim hereinbefore, **characterized in that** said container (79) is housed in a fixed external container (85) which is provided with attachment means for releasable attachment to the support plate (78).
11. Machine at least for the automatic delivery of at least a fluid product in a closed container (11), comprising an anti-drying device as in any claim hereinbefore.
12. Method to humidify delivery means (21) for fluid and semi-fluid products, pastes, gels, creams such as for example coloring products, pigments or paints, of a machine (75) at least for the automatic delivery of at least a fluid product in a closed container (11), the method comprising:
 - supporting on a support plate (78) a container or receptacle (79) hermetically closed by means

of a closing lid (82) and which has an internal volume in which there is a fluid, liquid and/or vapor, wherein container or receptacle (79) is attached to said support plate (78) by releasable attachment means (72),

- introducing at least the ends of said delivery means (21) into said container or receptacle (79) through a portion of said closing lid (82),
- confining the liquid and/or vapor inside said container (79) so that at least the ends of said delivery means (21) are in contact with said liquid and/or vapor, so as to prevent them from drying out.

Patentansprüche

1. Austrocknungsschutzvorrichtung zum Befeuchten von Zuführungsmitteln (21) für fluide und halbfluide Produkte, Pasten, Gele, Cremes, wie beispielsweise Färbeprodukte, Pigmente oder Farben, bei einer Maschine (75) für wenigstens die automatische Zuführung von wenigstens einem Fluidprodukt in einen geschlossenen Behälter (11), die

- über einen Behälter oder Aufnahmebehälter (79) verfügt, der mittels eines Verschlussdeckels (82) hermetisch verschlossen ist und der ein Innenvolumen aufweist, in dem ein Fluid, eine Flüssigkeit und/oder Dampf vorhanden ist, wobei der Verschlussdeckel (82) sowohl dazu eingerichtet ist, die Flüssigkeit und/oder den Dampf in dem Behälter (79) einzuschließen als auch durch wenigstens einen seiner Abschnitte wenigstens die Enden der Zuführungsmittel (21) in den geschlossenen Behälter (79) einzuführen, so dass sie in Kontakt mit der Flüssigkeit und/oder dem Dampf stehen, um zu verhindern, dass sie austrocknen, **dadurch gekennzeichnet, dass** sie
- eine Trägerplatte (78) aufweist, die dazu eingerichtet ist, den Behälter (79) zu tragen, wobei der Behälter (79) über lösbare Befestigungsmittel (72) zum Befestigen an der Trägerplatte (78) verfügt.

2. Austrocknungsschutzvorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** der Abschnitt des Verschlussdeckels (82) wenigstens teilweise aus einer Membran (83) aus einem elastischen Material hergestellt ist, das dehnbar ist, wenn die Zuführungsmittel (21) durch ihn hindurch eingefügt sind, um während der Durchführung der Austrocknungsschutzmaßnahme feucht gehalten zu sein, und das sich wieder zusammenzieht, wenn die Zuführungsmittel (21) herausgezogen sind, wodurch verhindert ist, dass die darin enthaltene Flüssigkeit wieder austritt.

3. Austrocknungsschutzvorrichtung nach Anspruch 1 oder Anspruch 2, **dadurch gekennzeichnet, dass** sie einen mechanischen Arm (76) aufweist, der schwenkbar an einem senkrechten Stift (77) angeordnet ist, der die Trägerplatte (78) an einem Ende trägt, wobei der mechanische Arm (76) zwischen einer ersten Betriebsstellung, in der der Behälter (79) mit den Zuführungsmitteln (21) für die Austrocknungsschutzmaßnahme zusammenwirkt, und einer in Bezug auf die erste Betriebsstellung gedrehten zweiten Betriebsstellung drehbar ist, in der er gelöst ist.
4. Austrocknungsschutzvorrichtung nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet, dass** sie Erwärmungsmittel (81) aufweist, durch die eine gewünschte Menge von Flüssigkeit und/oder Dampf in dem Behälter (79) erzeugbar und haltbar ist.
5. Austrocknungsschutzvorrichtung nach Anspruch 4, **dadurch gekennzeichnet, dass** die Erwärmungsmittel (81) aus einem elektrischen Widerstand bestehen, der in die Trägerplatte (78) eingebaut ist.
6. Austrocknungsschutzvorrichtung nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet, dass** sie ein Schwammreinigungselement (84) aufweist, das mit dem Verschlussdeckel (82) verbunden ist.
7. Austrocknungsschutzvorrichtung nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet, dass** sie Sensormittel (87) aufweist, die dazu eingerichtet sind, die Anwesenheit oder Abwesenheit des Behälters (79) zu signalisieren.
8. Austrocknungsschutzvorrichtung nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet, dass** der Behälter (79) von einem wegwerfbaren Typ und in einem befestigten externen Behälter (85) angeordnet ist.
9. Austrocknungsschutzvorrichtung nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet, dass** die lösbaren Befestigungsmittel (72) bajonettartig sind.
10. Austrocknungsschutzvorrichtung nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet, dass** der Behälter (79) in einem befestigten externen Behälter (85) aufgenommen ist, der mit Befestigungsmitteln zum lösbaren Befestigen an der Trägerplatte (78) versehen ist.
11. Maschine für wenigstens die automatische Zuführung von wenigstens einem Fluidprodukt in einen geschlossenen Behälter (11), die eine Austrocknungsschutzvorrichtung nach einem der vorange-

henden Ansprüche aufweist.

12. Verfahren zum Befeuchten von Zuführungsmitteln (21) für fluide und halbfluide Produkte, Pasten, Gele, Cremes, wie beispielsweise Färbeprodukte, Pigmente oder Farben, bei einer Maschine (75) für wenigstens die automatische Zuführung von wenigstens einem Fluidprodukt in einen geschlossenen Behälter (11), wobei das Verfahren aufweist:

- Stützen eines Behälters oder Aufnahmebehälters (79) auf einer Trägerplatte (78), der mittels eines Verschlussdeckels (82) hermetisch verschlossen ist und der ein Innenvolumen aufweist, in dem sich ein Fluid, eine Flüssigkeit und/oder Dampf befindet, wobei der Behälter oder Aufnahmebehälter (79) mittels lösbarer Befestigungsmittel (72) an der Trägerplatte (78) befestigt ist,
- Einführen wenigstens der Enden der Zuführungsmittel (21) in den Behälter oder Aufnahmebehälter (79) durch einen Abschnitt des Verschlussdeckels (82),
- Einschließen der Flüssigkeit und/oder des Dampfes in dem Behälter (79), so dass wenigstens die Enden der Zuführungsmittel (21) mit der Flüssigkeit und/oder dem Dampf in Kontakt stehen, um zu verhindern, dass sie austrocknen.

Revendications

1. Dispositif anti-séchage pour humidifier des moyens de délivrance (21) pour des produits fluides et semi-fluides, des pâtes, des gels, des crèmes, tels que par exemple des produits colorants, des pigments ou des peintures, d'une machine (75) au moins pour la délivrance automatique d'au moins un produit fluide dans un conteneur fermé (11), comprenant :

- un conteneur ou récipient (79) hermétiquement fermé au moyen d'un couvercle de fermeture (82) et qui a un volume intérieur à l'intérieur duquel se trouve un fluide, liquide et/ou vapeur, ledit couvercle de fermeture (82) étant configuré à la fois pour confiner le liquide et/ou la vapeur à l'intérieur dudit conteneur (79) et également pour introduire, au moins à travers l'une de ses parties, les extrémités au moins desdits moyens de délivrance (21) à l'intérieur dudit conteneur fermé (79), de sorte qu'elles soient en contact avec ledit liquide et/ou ladite vapeur de manière à les empêcher de sécher, **caractérisé en ce qu'il comprend :**
- une plaque de support (78) configurée pour supporter le conteneur (79), ledit conteneur (79) comprenant des moyens de fixation amovible (72) pour une fixation à ladite plaque de support

(78).

2. Dispositif anti-séchage selon la revendication 1, **caractérisé en ce que** ladite partie du couvercle de fermeture (82) est réalisée, au moins partiellement, avec une membrane (83) en un matériau élastique capable de se dilater lorsque lesdits moyens de délivrance (21) sont introduits à travers lui, afin d'être maintenu humide, durant le déroulement de l'action anti-séchage et pour se re-contracter, lorsque lesdits moyens de délivrance (21) sont extraits, en empêchant le liquide contenu à l'intérieur de sortir.
3. Dispositif anti-séchage selon la revendication 1 ou 2, **caractérisé en ce qu'il** comprend un bras mécanique (76), pivotant sur une tige verticale (77) qui porte ladite plaque de support (78) à une extrémité, ledit bras mécanique (76) étant rotatif entre une première position fonctionnelle dans laquelle ledit conteneur (79) est en coopération avec lesdits moyens de délivrance (21) pour l'action anti-séchage, et une seconde position fonctionnelle, ayant effectué une rotation par rapport à la première, dans laquelle il est délogé.
4. Dispositif anti-séchage selon l'une ou l'autre des revendications précédentes, **caractérisé en ce qu'il** comprend des moyens de chauffage (8) au moyen desquels il est produit et maintenu une quantité souhaitée de liquide et/ou vapeur à l'intérieur dudit conteneur (79).
5. Dispositif anti-séchage selon la revendication 4, dans lequel lesdits moyens de chauffage (81) consistent en une résistance électrique intégrée dans ladite plaque de support (78).
6. Dispositif anti-séchage selon l'une ou l'autre des revendications précédentes, **caractérisé en ce qu'il** comprend un élément de nettoyage spongieux (84) associé au-dessus dudit couvercle de fermeture (82).
7. Dispositif anti-séchage selon l'une ou l'autre des revendications précédentes, **caractérisé en ce qu'il** comprend des moyens de détection (87) capables de signaler la présence ou l'absence du conteneur (79).
8. Dispositif anti-séchage selon l'une ou l'autre des revendications précédentes, **caractérisé en ce que** ledit conteneur (79) est du type jetable et est situé dans un conteneur externe fixe (85).
9. Dispositif anti-séchage selon l'une ou l'autre des revendications précédentes, **caractérisé en ce que** les moyens de fixation amovibles (72) sont du type à bayonnette.

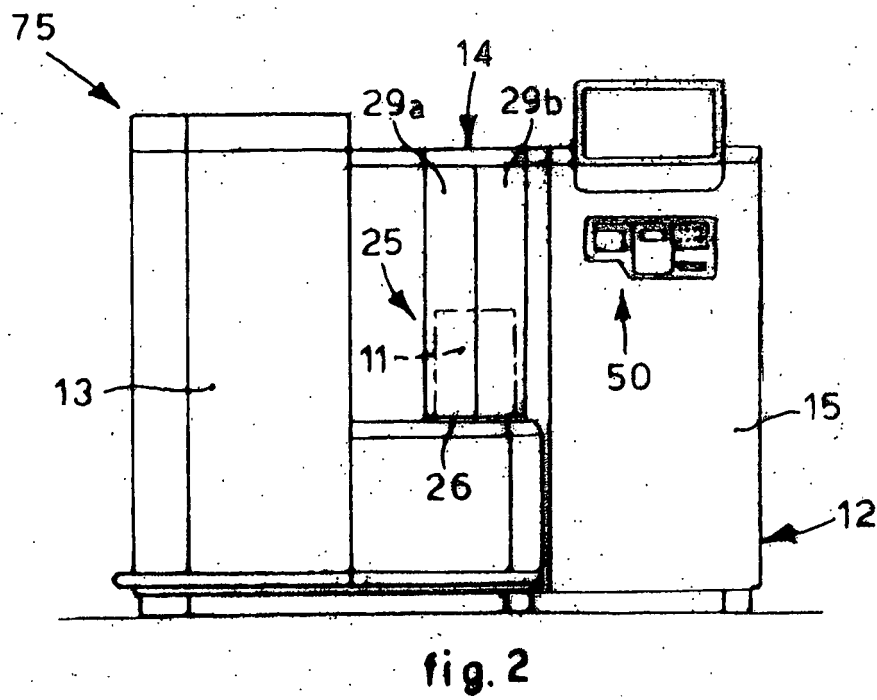
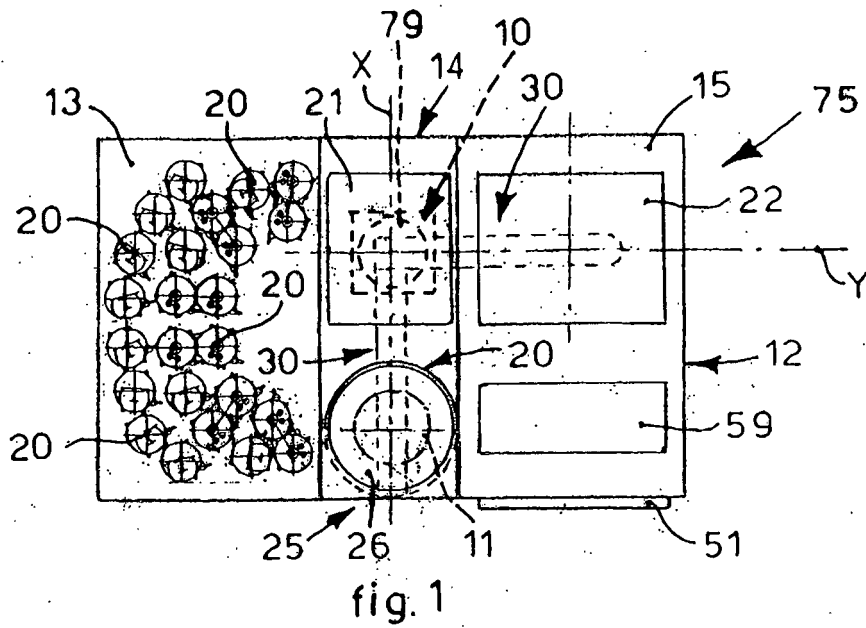
10. Dispositif anti-séchage selon l'une ou l'autre des revendications précédentes, **caractérisé en ce que** ledit conteneur (79) est logé dans un conteneur externe fixe (85) qui est muni de moyens de fixation pour une fixation amovible sur la plaque de support (78). 5
11. Machine au moins pour la délivrance automatique d'au moins un produit fluide dans un conteneur fermé (11), comprenant un dispositif anti-séchage selon l'une ou l'autre des revendications précédentes. 10
12. Procédé d'humidification de moyens de délivrance (21) pour des produits fluides et semi-fluides, des pâtes, des gels, des crèmes, tels que par exemple des produits colorants, des pigments ou des peintures, d'une machine (75) au moins pour la délivrance automatique d'au moins un produit fluide dans un conteneur fermé (11), ce procédé comprenant les étapes consistant à : 15
- supporter sur une plaque de support (78) un conteneur ou récipient (79) hermétiquement fermé au moyen d'un couvercle de fermeture (82) et qui a un volume interne dans lequel se trouve un fluide, liquide et/ou vapeur, dans lequel le conteneur ou récipient (79) est fixé sur ladite plaque de support (78) par des moyens de fixation amovibles (72), 20
 - introduire au moins les extrémités desdits moyens de délivrance (21) dans ledit conteneur ou récipient (79) à travers une partie dudit couvercle de fermeture (82), 25
 - confiner le liquide et/ou la vapeur à l'intérieur dudit conteneur (79) de sorte qu'au moins les extrémités desdits moyens de délivrance (21) soient en contact avec ledit liquide et/ou ladite vapeur, afin de les empêcher de sécher. 30

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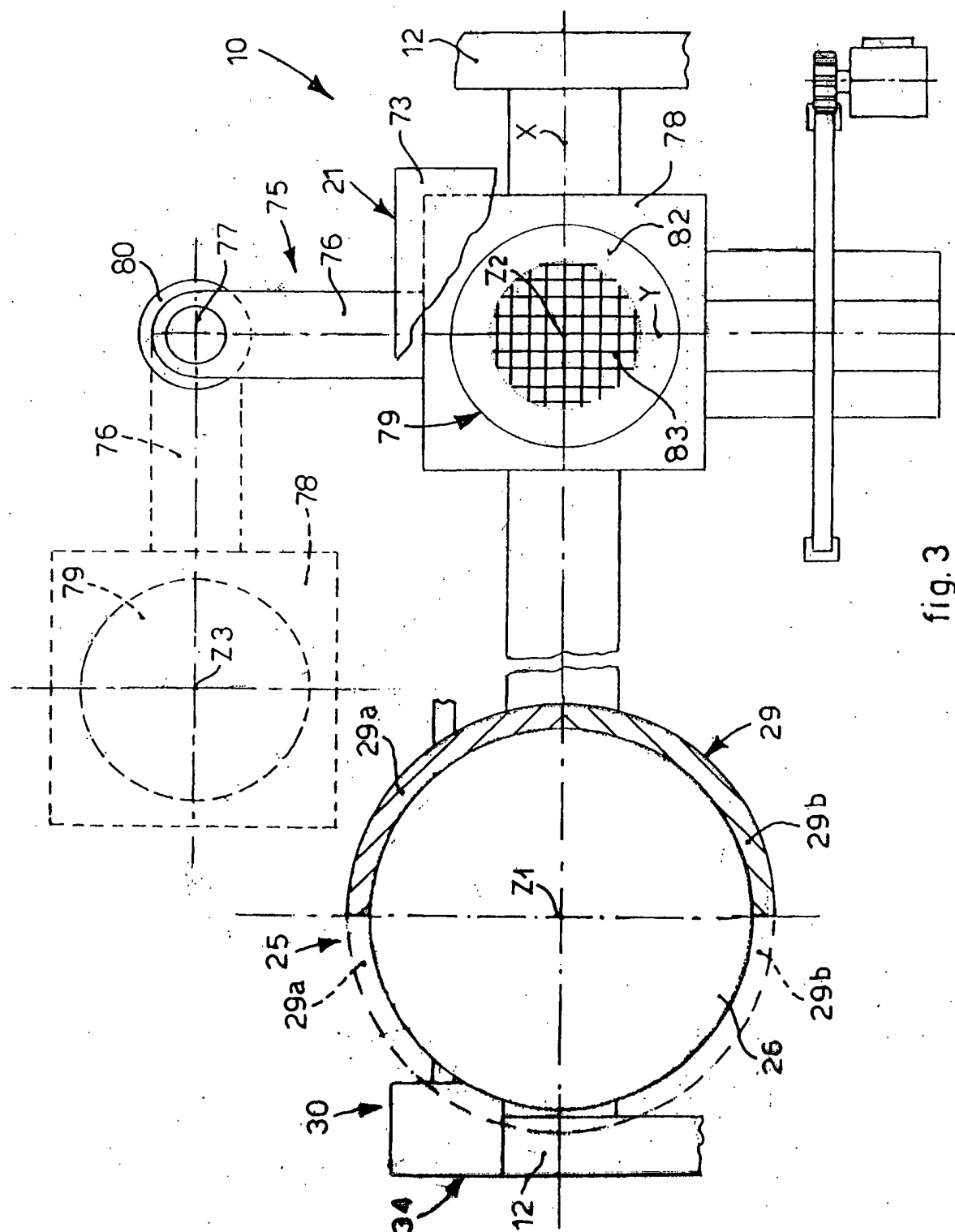


fig. 3

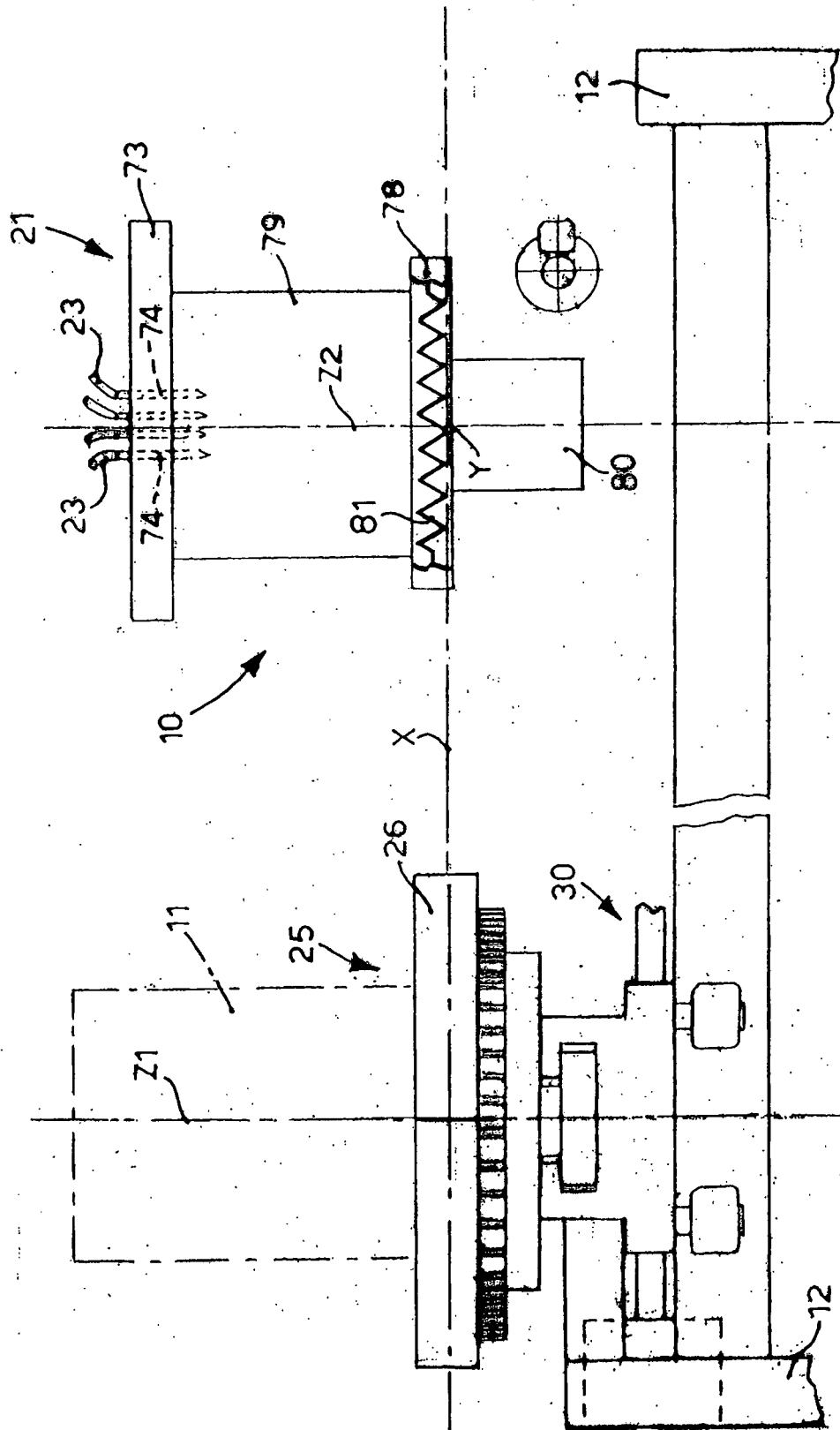


fig. 4

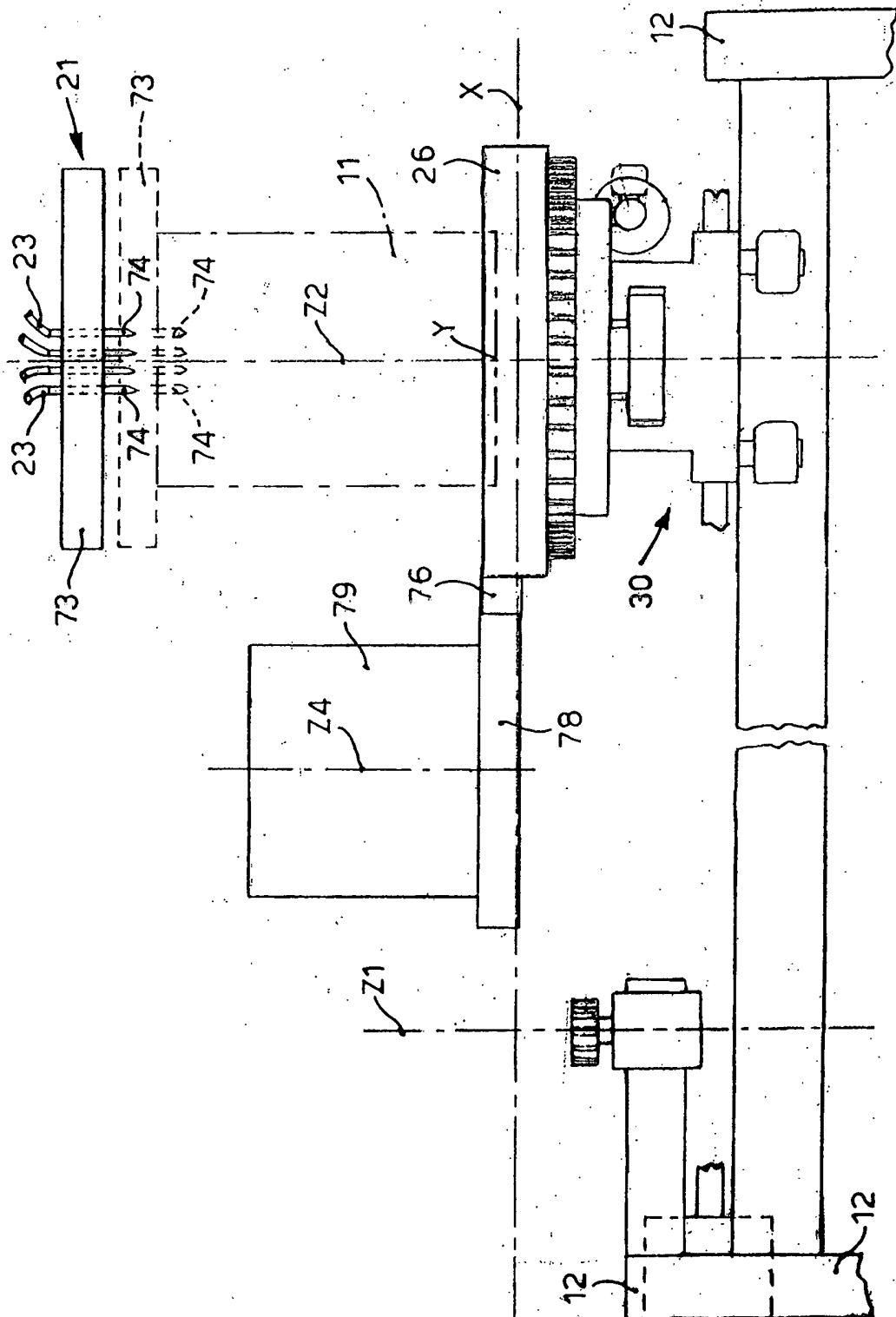


fig. 5

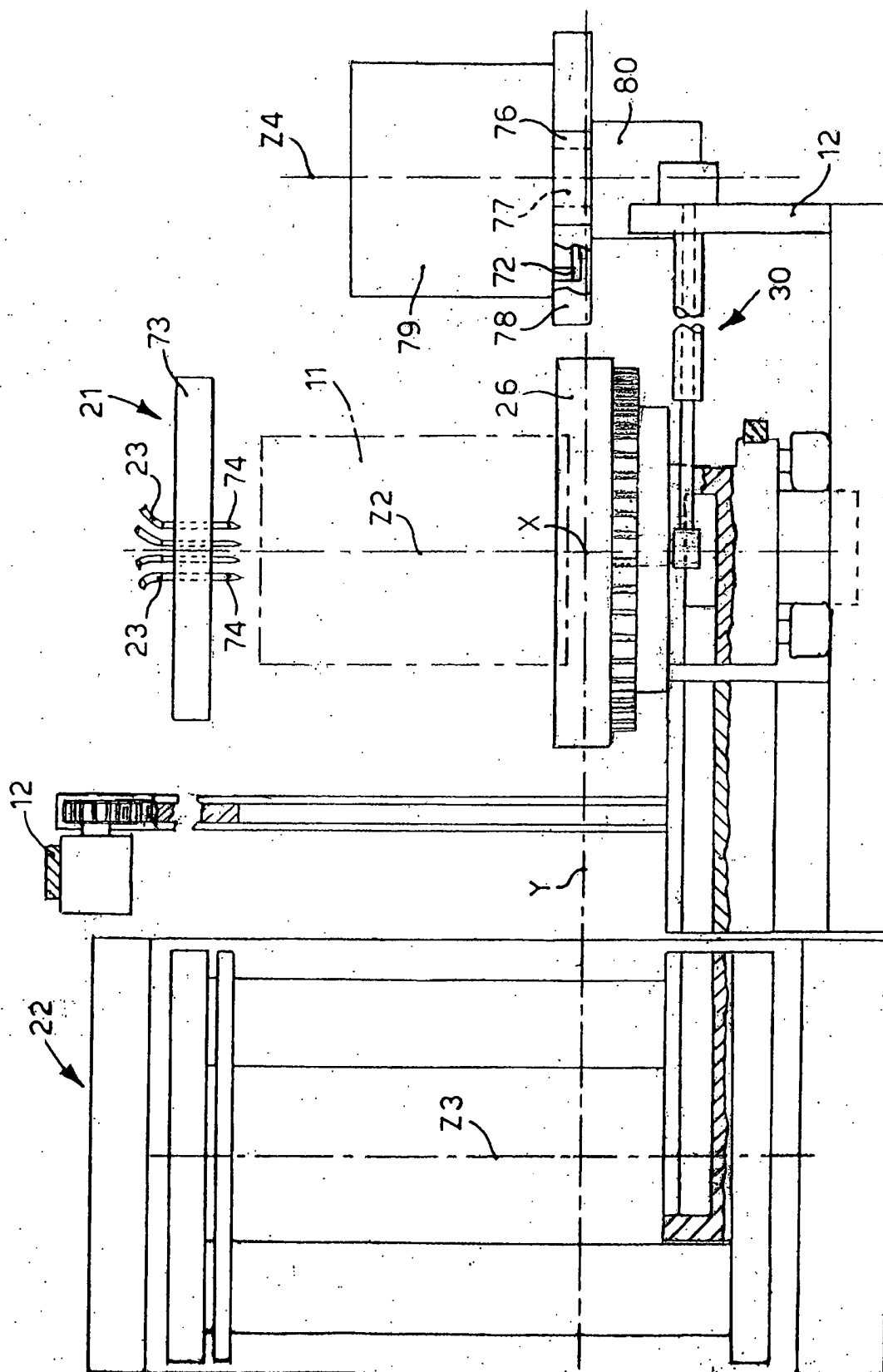


fig. 6

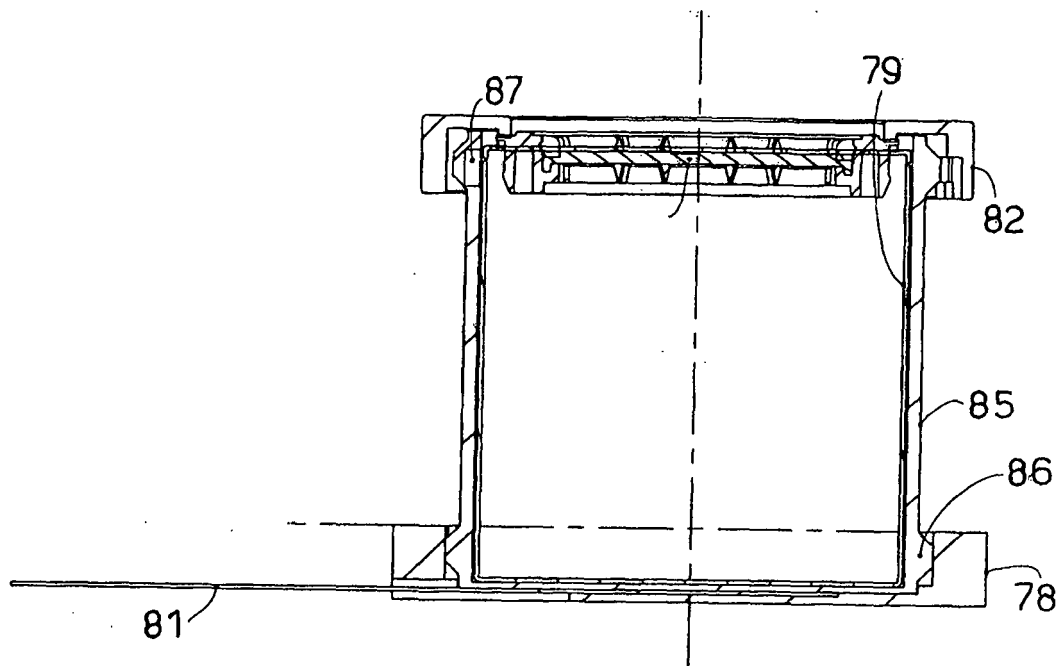


fig.7

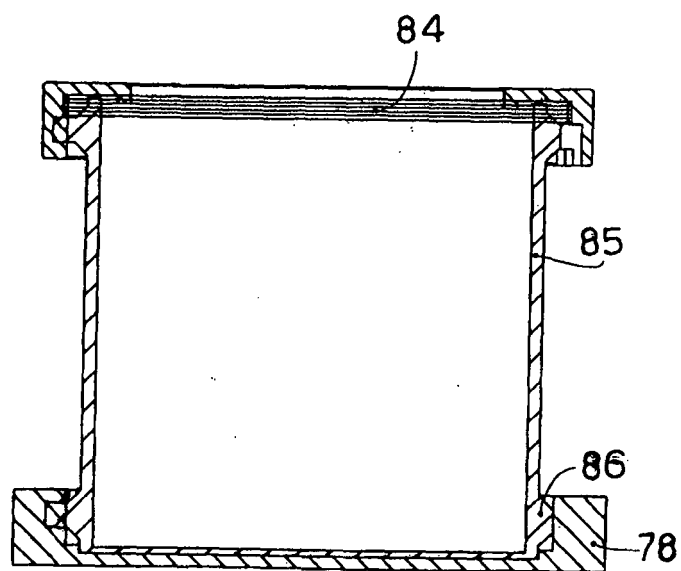


fig.8

REFERENCES CITED IN THE DESCRIPTION

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