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(54) **Dishwashing machine with washing liquid collecting sump**

Geschirrspüler mit Ablaufwanne

Machine à laver la vaisselle avec puisard

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(56) References cited:

|                        |                        |
|------------------------|------------------------|
| <b>DE-A- 2 543 822</b> | <b>DE-A- 3 229 731</b> |
| <b>DE-U- 8 500 663</b> | <b>FR-A- 2 505 642</b> |
| <b>US-A- 4 221 547</b> | <b>US-A- 5 118 254</b> |

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**EP 0 556 776 B1**

## Description

The present invention relates to a dish-washing machine comprising a washing liquid collection sump arranged at the bottom of a washing chamber, said sump being fixed to a mouth defined in said chamber bottom.

As is known dish-washing machines are supplied with a chamber, generally realised in stainless steel, at the bottom of which a sump for collecting the washing water is fixed.

In the earlier dish-washing machines the collection sump of the washing water was entirely realised in stainless steel, of a single piece with the base of the chamber; in practice the sump, generally of a rectangular section, was obtained by way of a deep drawing of the steel sheet and had two openings for the connection unions to the washing pump and to the drainage pump.

In modern day dish-washing machines the bottom of the washing chamber has on the contrary a slightly drawn form with an opening being generally circular, under which a separate sump is fixed; over said opening, and therefore in correspondence with the superior part of the collection sump, a filter is arranged that provides for detaining the impurities of the washing liquid; consequently the water sprayed by the rotating collectors, after having hit the dishes and removed the residues, falls to the bottom of the washing chamber and reaches the sump subjected to a filtering action; from the sump an appropriate pump then provides for re-conveying the water to the rotating collectors, and so on until termination of the washing phase.

In dish-washing machines currently commercialised, the collection sump of the washing liquid is realised in a plastic material, being of a single piece; the superior portion of the sump, i.e. that arranged immediately under the filter, has a substantially cylindrical form and has the main function of collecting the washing liquid; the lower part of the sump has however a complex structure and has the function of integrating several functional components (for instance the air trap) and the unions for the washing and drainage pumps.

According to the known technique the fixing of the collection sump of the water to the bottom of the washing chamber is realised by way of at least one external metallic strap or by way of a series of screws arranged along the circumference of the superior part of the sump, with appropriate water-tight seals.

Such known solutions do however have several drawbacks, above all in line with the possibility of automating the fixing operation of the sump to the base of the chamber and, in several cases, of the possibility of carrying out such fixing if functional components are already preassembled to the sump, such as the washing and drainage pumps.

According to the first two known techniques cited, i.e. that using one or more straps or metallic collars, in the part being slightly drawn on the base of the chamber a lip is realised that defines an engagement seat for fix-

ing the superior portion of the collection sump.

In practice the sump is fitted from below to the drawn part, so as that the base of the chamber and superior portion of the sump are fixed; to the exterior of the joint of the two pieces an appropriate water-tight seal is arranged and a metallic strap is closed around the such seal, so as to form an ensemble between the seal, the drawn bottom of the chamber and the cylindrical wall of the sump.

Such type of fixing has the drawback of requiring a complex manual action, at least for the fixing and closing of the metallic strap.

The automation of such operation, even though possible, would evidently require very complex machines, manipulator or robot systems, that would be subject to frequent controls.

In the case of the second known technique cited for fixing the sump, consequently that using screws, the opening present in the part being slightly drawn on the base of the chamber has a substantially L shaped edge, while the superior cylindrical portion of the sump has a series of holes arranged along the circumference for housing the fixing screws.

In this case the sump is mounted by inserting it from above in the opening of the base of the chamber, until the superior portion of the sump rests on the L shaped edge of the base with a seal being interposed.

To the exterior of the sump brackets are therefore arranged that, by way of the screws tightened from the exterior side of the sump in the seats realised along the circumference of the superior portion of the sump allow for obtaining the fixing between the pump and the bottom of the chamber; in this way an ensemble is formed between the steel sheet of the base of the chamber, seal, superior portion of the sump and the external holding brackets.

According to an alternative screw fixing technique, the sump is fixed from below to the slightly drawn part of the base of the chamber; the sump has in its superior edge a series of seats, along its circumference, for screws that are tightened from the external side of the base of the chamber; between the steel sheet of the base of the chamber and the superior edge of the sump a water-tight seal is naturally provided; in this case, however, the screws create an ensemble between the edge of the sump, the seal and the base of the chamber.

The two cited solutions of fixing the sump by way of screws also have several drawbacks.

The fixing must in fact be manually realised, for tightening the various screws arranged along the circumference, even the automation of this kind of fixing, although possible, would be very complex, due to the requirements of precision necessary.

Moreover, especially in the first case (which is the most common and reliable solution) if components have already been assembled to the sump, the manual fixing is rendered difficult, in that the technician has to carry out particular movements of the sump, for instance inclining it, so as to make the lower part, to which the

components have been preassembled, pass the opening of the base of the chamber.

It is clear that this necessity would further complicate the realisation of an eventual fixing by way of a robot and automatic manipulators.

From DE-U- 85 00 663 a system is also known for fixing a sump to a mouth defined at the bottom of a washing chamber, where the usual screws for fixing the sump to the mouth are replaced by a plurality of distinct fixing elements, which have to be inserted between appropriate seats, obtained in the mouth, and holes provided in the sump.

The aim of the present invention is that of solving the mentioned drawbacks and in particular to indicate a dish-washing machine in which the fixing of the collection sump to the bottom of the washing chamber can be realised in a simple and rapid manner and that, even in the presence of preassembled functional components on said sump, it can be completely and easily automated.

A further aim of the invention is that of indicating a dish-washing machine in which the washing liquid collection sump be in part incorporated in the base of the chamber of stainless steel and in part realised in plastic.

Such aims are reached according to the invention by way of a dish-washing machine comprising a washing liquid collection sump having the characterizing features of the annexed claim 1, and by a method for fixing a washing liquid collection sump providing the steps of the annexed claim 10.

Further aims and advantages of the present invention will result in being clear from the following description and annexed drawings, supplied as a purely explanatory and non-limiting example, wherein, figure 1 alone represents a partial and schematic section of the lower part of a dish-washing machine according to the invention.

With reference to figure 1, the reference numbers 1 and 2 respectively indicate the skirt (i.e. the lateral and rear walls) and the bottom of the washing chamber in stainless steel of the dish-washing machine according to the invention.

The base 2 of the chamber has a peripheral zone 3 being slightly drawn and a central zone being deeply drawn, i.e. shaped in a way to form a substantially cylindrical portion, indicated with 4; on the bottom of said cylindrical portion a circular opening is obtained, having a lip or edge of the stainless sheet being slightly curved towards the interior of the opening, so as to form a mouth also being cylindrical; such mouth is indicated with reference number 5.

Over the cylindrical portion 4, the base of the chamber 2 further defines a seat for a filter of the washing liquid 6, schematically represented and in part with a dotted line.

Reference number 7 indicates a piece of plastic material being resistant to high temperatures, for example moulded polypropylene, that is fixed, as will be described in the following, to the mouth 5 defined by the

opening of portion 4.

In practice the piece 7 constitutes only the lower section of a sump of the known type, i.e. the part that incorporates the functional elements, such as the air trap and the attachments for the pumps and the water mains; in the case illustrated in figure 1 the superior part of the sump is in fact constituted by the cylindrical portion 4 of the base of the chamber 2, that accomplishes therefore the collecting of the washing liquid.

The terminal part 8 of the piece 7, destined to be fixed to the mouth 5 of the base of the chamber 2, has a substantially cylindrical form; in the superior edge of the terminal part 8 a seat for the seal watertight is obtained, indicated with 9.

With reference number 10 prominent teeth obtained during the moulding operation of piece 7 are indicated (one of which being indicated with a dotted line); such prominent teeth 10, that can be for example four, are arranged along the circumference of the internal wall of piece 7, at a lower level respect the seat of seal 9.

With reference number 11 a ring is indicated, also being realised in a plastic material resistant to high temperatures.

Such ring 11 is circular, and has a diameter and a form that allows it to be inserted from above in the cylindrical portion 4 of the base of the chamber 2, up to the mouth 5 realised in the lower part of the chamber.

The ring 11 comprises hooks 12 on its lateral external surface, being of a number corresponding to the teeth 10, in which seats 13 are defined destined to be coupled with teeth 10.

Both the teeth 10 and the seats 13 of the hooks 12 have a raisers, so as to favour the mutual coupling (note the centre of the figure); furthermore, in the illustrated case, the lower surface of the teeth 10, i.e. that which comes into contact with the seats 13, is at least in part inclined, so as that the more the ring 11 is rotated the more the clamping and the assembly force of the group is increased.

For fixing the piece 7 to the base of the chamber 2, the terminal part 8, in which the seal 9 is preassembled, is fitted from below on the mouth 5 realised in the extreme part of the portion 4 of the base of the chamber 2; the ring 11 is however inserted from above in such portion 4.

The actual fixing is obtained by imparting a rotation (in the specific case anti-clockwise) of the ring 11, so as that the teeth 10 become engaged in the seats 13 defined by the hooks 12, realising therefore a coupling of the bayonet joint type, of a progressive closing force.

It is clear that during the rotating movement the teeth 10 become fixed in the hooks 12 with an increasing friction, due to the inclined surface of the teeth 10 respect the seats 13 of the hooks 12, and thus creating a traversal clamping force for the whole mouth 5, ring 11, terminal part 8.

As can be noted from the figure, the seal 9 results in being interposed and pressed between the terminal

part 8 and the sheet of the mouth 5; the sheet of the mouth 5 is in turn pressed towards the exterior of the ring 11.

The fixing operation therefore results in being very simple, even from the possible automation point of view.

With such aim it is in fact sufficient to provide a manipulator arm that fits the piece 7 to the base of the chamber, even in the presence of preassembled components, and another arm, equipped with similar imple-

ments, that inserts the ring 11 from the opposite side and carries out the necessary rotation.

It is also to be noted that in the case of the dish-

washing machine described with reference to figure 1,

the cylindrical portion 4 of the base of the chamber 2

can advantageously be utilised for housing a heating

resistance of the washing liquid, for instance of two cir-

cular turns, arranged under the filter 6.

Such resistance, the section of which being indicated in the figure with reference number 14, thus results in being out of view and does not have any risks

of over heating, being always immersed in the washing

liquid and however distanced from the part realised in

plastic of the sump, i.e. from piece 7.

From the given description the characteristics of the dish-washing machine subject of the present invention result in being clear; as do its advantages, mainly represented in that the water-tight fixing of the sump to the base of the chamber can be achieved in a very simple and rapid manner, even in the presence of preassembled components to the sump; the singular fixing operations are actually elementary and reduce to a minimum the possibility of errors; the assembly of the sump can therefore be completely and easily automated.

Moreover the particular realisation of the sump described, a substantial part of which is directly incorporated in the base of the chamber, allows for a reduction in costs of valuable materials (the plastic necessary for the realisation of sumps that resist high temperatures), and allows for housing the heating resistance directly in the sump, below the filter, with an improved aesthetic and functional appearance.

It is however to be considered that the type of fixing of the sump of the described dish-washing machine subject of the present invention can without any problems be employed also for the fixing of sumps of the known type, i.e. realised in a single piece of plastic material; for such aims it is in fact sufficient that the bottom of the washing chamber defines a mouth (as is normally the case in all actual dish-washing machines): to the exterior of said mouth the sump will be fixed from below, equipped with appropriate prominent teeth, while to the interior of the same mouth the fixing ring equipped with coupling seats for said teeth shall be inserted.

It is clear that numerous variants can be supplied to the dish-washing machine subject of the invention, without however departing from the novelty principles inherent in the inventive idea, as it is clear that in the practical actuation of the invention the materials and the forms of

the illustrated details could be different, and could be substituted with elements being technically equivalent.

## Claims

1. Dish-washing machine, comprising a washing liquid collection sump (7) arranged at the bottom (2) of a washing chamber (1), whereby said sump is adapted to be fitted from below on a mouth (5) defined in said chamber bottom (2) and means (10-13) are provided for fixing said sump (7) to said mouth (5) defined in said chamber bottom (2), the fixing means comprising first coupling means (10) integral with said sump (7), characterized in that said fixing means further comprise a connection element (11) adapted to be inserted from above in said mouth (5) and defining second coupling means (12,13) engageable with said first coupling means (10) for securing said sump (7) to said mouth (5), whereby one of said sump (7) and said connection element (11) is rotatable relative to the other, for realizing the mutual coupling between said first coupling means (10) and said second coupling means (12,13) and consequently the fixing of said sump (7) to said mouth (5).
2. Dish-washing machine, according to claim 1, characterized in that said first coupling means comprises two or more teeth (10) being provided in the internal wall of said sump (7) and said second coupling means comprises a plurality of seats (12,13) being provided by said connection element (11), which are engageable with said teeth (10).
3. Dish-washing machine, according to claim 2, characterized in that said sump (7) is fixed to the bottom (2) of the washing chamber by rotating said connection element (11), so that said seats (12,13) and teeth (10) become mutually engaged.
4. Dish-washing machine, according to claim 2, characterized in that said mouth (5) has a substantially cylindrical form and said sump (7) has an attachment portion (8) of a substantially cylindrical form.
5. Dish-washing machine, according to claims 1 and 4, characterized in that said connection element has the shape of a ring (11), said second coupling means (12,13) being defined on the external side of said ring (11) and said first coupling means (10) being defined on the internal side of said attachment portion (8).
6. Dish-washing machine, according to claim 2, characterized in that a surface of said teeth (10) and/or said seats (12,13) is at least partly inclined.
7. Dish-washing machine, according to claim 1, characterized in that a seal (9) is provided between said

mouth (5) and said sump (7).

8. Dish-washing machine, according to claim 1, characterized in that said bottom (2) of the washing chamber is realized in metallic material and has a deep drawing (4), at the lowest part of which said mouth (5) is defined.

9. Dish-washing machine, according to claim 8, characterized in that in the upper part of said drawing (4) a seat is defined for a filter (6) of the washing liquid, whereby a heating resistance (14) is arranged within said drawing (4), under said filter (6).

10. Method for fixing a washing liquid collection sump (7) to a mouth (5) defined in the bottom (2) of the washing chamber (1) of a dish-washing machine, comprising the following steps:

- said sump (7), which defines first coupling means (10), is fitted from below on said mouth (5);
- a connection element (11), which defines second coupling means (12,13) engageable with said first coupling means (10), is inserted from above in said mouth (5);
- one of said sump (7) and said connection element (11) is rotated relative to the other, so as to realize the mutual coupling between said first coupling means (10) and said second coupling means (12,13) and consequently the fixing of said sump (7) to said mouth (5).

11. Method, according to claim 10, characterized in that said sump (7) is fitted on said mouth (5) by means of an automatic machine.

12. Method, according to claim 10, characterized in that said connection element (11) is inserted from above in said mouth (5).

#### Patentansprüche

1. Geschirrspülmaschine mit einer am Boden (2) einer Spülkammer (1) angeordnete Spülflüssigkeitssammelwanne (7), wobei die Wanne so ausgebildet ist, daß sie von unten auf eine Öffnung (5) aufsetzbar ist, welche im Boden (2) der Kammer vorgesehen ist und wobei eine Einrichtung (10-13) vorgesehen ist zum Befestigen der Wanne (7) an der Öffnung (5), welche im Kammerboden definiert ist, wobei die Befestigungseinrichtung eine erste, einstückig mit der Wanne (7) verbundene Kopplungseinrichtung (10) umfaßt, dadurch gekennzeichnet, daß die Befestigungseinrichtung weiterhin ein Verbindungselement (11) aufweist, welches so ausgebildet ist, daß es von oben in die Öffnung (5) einsetzbar ist und eine zweite Kopplungseinrichtung (12, 13) bildet, welche

in die erste Kopplungseinrichtung (10) eingreifen kann, um die Wanne (7) an der Öffnung (5) zu befestigen, wobei die Wanne (7) oder das Befestigungselement (11) relativ zu dem anderen drehbar ist, um die gegenseitige Kopplung zwischen der ersten Kopplungseinrichtung (10) und der zweiten Kopplungseinrichtung (12, 13) und damit die Befestigung der Wanne (7) an der Öffnung (5) zu verwirklichen.

2. Geschirrspülmaschine nach Anspruch 1, dadurch gekennzeichnet, daß die erste Kopplungseinrichtung zwei oder mehr Zähne (10) umfaßt, welche an der Innenwand der Wanne (7) vorgesehen sind, und daß die zweite Kopplungseinrichtung mehrere Auflageflächen (12, 13) aufweist, welche von dem Verbindungselement (11) bereitgestellt werden und welche in die Zähne (10) eingreifen können.

3. Geschirrspülmaschine nach Anspruch 2, dadurch gekennzeichnet, daß die Wanne (7) am Boden (2) der Spülkammer durch Drehen des Verbindungselements (11) befestigt wird, so daß die Auflageflächen (12, 13) und die Zähne (10) gegenseitig in Eingriff gelangen.

4. Geschirrspülmaschine nach Anspruch 2, dadurch gekennzeichnet, daß die Öffnung (5) eine im wesentlichen zylindrische Form aufweist und die Wanne (7) einen Zusatz-Abschnitt (8) mit einer im wesentlichen zylindrischen Form aufweist.

5. Geschirrspülmaschine nach Anspruch 1 und 4, dadurch gekennzeichnet, daß das Verbindungselement die Form eines Ringes (11) aufweist, wobei die zweite Kopplungseinrichtung (12, 13) auf der äußeren Seite des Ringes (11) ausgebildet ist und die erste Kopplungseinrichtung (10) auf der inneren Seite des Zusatz-Abschnittes (8) ausgebildet ist.

6. Geschirrspülmaschine nach Anspruch 2, dadurch gekennzeichnet, daß eine Oberfläche der Zähne (10) und/oder der Auflageflächen (12, 13) zumindest teilweise geneigt ist.

7. Geschirrspülmaschine nach Anspruch 1, dadurch gekennzeichnet, daß zwischen der Öffnung (5) und der Wanne (7) eine Dichtung (9) vorgesehen ist.

8. Geschirrspülmaschine nach Anspruch 1, dadurch gekennzeichnet, daß der Boden (2) der Spülkammer aus metallischem Material besteht und einen tiefgezogenen Bereich (4) aufweist, an dessen unterstem Teil die Öffnung (5) ausgebildet ist.

9. Geschirrspülmaschine nach Anspruch 8, dadurch gekennzeichnet, daß im oberen Teil des

tiefgezogenen Bereiches (4) ein Sitz für einen Spülflüssigkeitsfilter (6) ausgebildet ist, wobei ein Heizwiderstand (14) innerhalb des tiefgezogenen Bereiches (4) unter dem Filter (6) angeordnet ist.

10. Verfahren zum Befestigen einer Spülflüssigkeits-sammelwanne (7) an einer Öffnung (5), die im Boden (2) einer Spülkammer (1) einer Geschirrspülmaschine vorgesehen ist, mit den folgenden Schritten:

- die Wanne (7), welche eine erste Kopplungseinrichtung (10) bildet, wird von unten auf die Öffnung (5) aufgesetzt;
- ein Verbindungselement (11), welches eine zweite Kopplungseinrichtung (12, 13) bildet, die in die erste Kopplungseinrichtung (10) eingreifen kann, wird von oben in die Öffnung (5) eingesetzt;
- die Wanne (7) oder das Verbindungselement (11) wird relativ zu dem anderen gedreht, um die gegenseitige Kopplung zwischen der ersten Kopplungseinrichtung (10) und der zweiten Kopplungseinrichtung (12, 13) zu verwirklichen und damit die Befestigung der Wanne (7) an der Öffnung (5) zu erreichen.

11. Verfahren nach Anspruch 10, dadurch gekennzeichnet, daß die Wanne (7) von einer automatischen Vorrichtung an die Öffnung (5) aufgesetzt wird.

12. Verfahren nach Anspruch 10, dadurch gekennzeichnet, daß das Verbindungselement (11) von oben in die Öffnung (5) eingesetzt wird.

## Revendications

1. Machine à laver la vaisselle, comportant un bac (7) disposé au niveau du fond (2) d'une chambre de lavage (1), où ledit bac est prévu pour être monté par en dessous sur une embouchure (5) définie dans ledit fond de chambre (2) et des moyens sont prévus pour fixer ledit bac (7) sur ladite embouchure (5) définie dans ledit fond de chambre (2), les moyens de fixation comportant des premiers moyens d'accouplement (10) d'un seul tenant avec ledit bac (7), caractérisée en ce que lesdits moyens de fixation comportent en outre un élément de raccordement (11) prévu pour être inséré par en dessus dans ladite embouchure (5) et définissant des deuxièmes moyens d'accouplement (12, 13) pouvant être engagés avec lesdits premiers moyens d'accouplement (10) afin de fixer ledit bac (7) sur ladite embouchure (5), ledit bac (7) ou bien ledit élément de raccordement (11) pouvant être entraîné par rapport à l'autre, afin de réaliser l'accouplement mutuel entre lesdits premiers

moyens d'accouplement (10) et lesdits deuxièmes moyens d'accouplement (12, 13), et par conséquent la fixation dudit bac (7) sur ladite l'embouchure (5).

2. Machine à laver la vaisselle selon la revendication 1, caractérisée en ce que lesdits premiers moyens d'accouplement comportent deux ou plusieurs dents (10) qui sont prévues dans la paroi interne dudit bac (7) et lesdits deuxièmes moyens d'accouplement comportent plusieurs sièges (12, 13) qui sont procurés par ledit élément de raccordement (11), qui peuvent être engagés avec lesdites dents (10).

3. Machine à laver la vaisselle selon la revendication 2, caractérisée en ce que ledit bac (7) est fixé sur le fond (2) de la machine à laver en faisant tourner ledit élément de raccordement (11), de sorte que lesdits sièges (12, 13) et dents (10) sont engagés mutuellement.

4. Machine à laver la vaisselle selon la revendication 2, caractérisée en ce que ladite embouchure (5) a une forme sensiblement cylindrique et ledit bac (7) possède une partie de fixation (8) d'une forme sensiblement cylindrique.

5. Machine à laver selon les revendications 1 et 4, caractérisée en ce que ledit élément de raccordement a la forme d'une bague (11), lesdits deuxièmes moyens d'accouplement (12, 13) étant définis sur le côté externe de ladite bague (11) et lesdits premiers moyens d'accouplement (10) étant définis sur le côté interne de ladite partie terminale (8).

6. Machine à laver la vaisselle selon la revendication 2, caractérisée en ce qu'une surface desdites dents (10) et/ou desdits sièges (12, 13) est au moins partiellement inclinée.

7. Machine à laver la vaisselle selon la revendication 1, caractérisée en ce qu'un joint (9) est prévu entre ladite embouchure (5) et ledit bac (7).

8. Machine à laver la vaisselle selon la revendication 1, caractérisée en ce que ledit fond (2) de la machine à laver est réalisé en matière métallique et possède un emboutissage profond (4), au niveau de la partie inférieure duquel est définie ladite embouchure (5).

9. Machine à laver la vaisselle selon la revendication 8, caractérisée en ce que, dans la partie supérieure dudit emboutissage (4), un siège est défini pour un filtre (6) de la machine à laver, une résistance de chauffage (14) étant disposée dans ledit emboutissage (4), sous ledit filtre (6).

10. Procédé de fixation d'un bac de collecte de liquide de lavage (7) sur une embouchure (5) définie dans le fond (2) de la chambre de lavage (1) d'une machine à laver la vaisselle, comportant les étapes suivantes :

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ledit bac (7), qui définit des premiers moyens d'accouplement, est monté par en dessous sur ladite embouchure (5);

un élément de raccordement (11), qui définit des deuxièmes moyens d'accouplement (12, 13) pouvant être engagés avec lesdits premiers moyens d'accouplement (10), est inséré par en dessus dans ladite embouchure (5);

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ledit bac (7) ou bien ledit élément de raccordement (11) est entraînée en rotation par rapport à l'autre, de façon à réaliser l'accouplement mutuel entre lesdits premiers moyens d'accouplement (10) et lesdits deuxièmes moyens d'accouplement (12, 13) et par conséquent la fixation dudit bac (7) sur ladite embouchure (5).

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11. Procédé selon la revendication 10, caractérisé en ce que ledit bac (7) est monté sur ladite embouchure (5) au moyen d'une machine automatique.

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12. Procédé selon la revendication 10, caractérisé en ce que ledit élément de raccordement (11) est inséré par en dessus dans ladite embouchure (5).

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**FIG. 1**

