

⑩



Europäisches Patentamt
European Patent Office
Office européen des brevets

⑪ Publication number:

**0 094 409
B1**

⑫

EUROPEAN PATENT SPECIFICATION

⑬ Date of publication of patent specification: **11.12.85**

⑭ Int. Cl.⁴: **A 47 L 15/14, A 47 L 15/42,
A 47 L 15/50**

⑮ Application number: **82903489.1**

⑯ Date of filing: **18.11.82**

⑰ International application number:
PCT/SE82/00389

⑱ International publication number:
WO 83/01892 09.06.83 Gazette 83/14

① A CONNECTING DEVICE.

② Priority: **24.11.81 SE 8106996**

③ Date of publication of application:
23.11.83 Bulletin 83/47

④ Publication of the grant of the patent:
11.12.85 Bulletin 85/50

⑤ Designated Contracting States:
AT BE CH DE FR GB LI NL

⑥ References cited:
**DE-A-2 355 271
DE-A-2 732 540
DE-A-2 732 665
SE-A-80 018 831
SE-B- 352 720**

⑦ Proprietor: **AKTIEBOLAGET ELECTROLUX
Luxbacken 1
S-105 45 Stockholm (SE)**

⑧ Inventor: **BERGLUND, Bo-Anders Ragnar
Hakarpsvägen 83
S-561 39 Huskvarna (SE)**

⑨ Representative: **Hagelbäck, Evert Isidor et al
c/o AB Electrolux Patentavdelningen
S-105 45 Stockholm (SE)**

Note: Within nine months from the publication of the mention of the grant of the European patent, any person may give notice to the European Patent Office of opposition to the European patent granted. Notice of opposition shall be filed in a written reasoned statement. It shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European patent convention).

Courier Press, Leamington Spa, England.

EP 0 094 409 B1

Description

The present invention relates to a connecting device for a dish-washing machine as defined in the preamble of Claim 1.

A connecting device of the kind referred to is disclosed in DE—A—2,355,271. In this device the conduit to the spraying arm has funnel-shaped connecting parts which cooperate with correspondingly shaped connecting protrusions arranged on the feed tube. The respective connecting parts and protrusions are loosely interconnected and to make possible the positioning of the rack at two different levels three protrusions are provided in a vertical row with the middle one being open and the two others being permanently closed. The conduit has two funnel-shaped parts and at each level one funnel-shaped part cooperates with the open protrusions whereas the other cooperates with one of the closed protrusions.

The object of the invention is to simplify the connecting device by eliminating the protrusions and the funnel-shaped parts and to provide a tight connection between the conduit and the feed tube, thus eliminating any loss of liquid pressure that might appear in the prior art device referred to above.

The object will be achieved in a device having the features stated in the characterizing part of Claim 1. A preferred embodiment is disclosed in Claim 2.

An embodiment of a device according to the invention will be described by way of example in the following with reference to the accompanying drawings which show in

Fig. 1 a dish-washing machine cabinet in a vertical cross-section and

Fig. 2 the same cabinet having a rack in another position.

In the dish-washing machine according to Fig. 1 there is a circulation circuit for a fluid which is pumped in a feed tube 10 which is branched into two spraying arms 11, 12 located in a washing cabinet 13 having an upper and a lower dish rack 14, 15 which can be pulled out through an opening in the front side of the machine provided with a door 16. The underside of the upper rack 14 is provided with a bearing 17 of the spraying arm 11 which bearing has a passage for a conduit 18 extended backwards along the underside of the rack. The conduit thus communicates with the spraying arm through the bearing so that the arm can rotate freely while the conduit stands still. The feed tube has a connecting surface 19 turned to the centre of the cabinet in which surface there is a port 20 through which the fluid can pass. The rear end of the conduit 18 forms a connecting house 21 extended in the vertical direction and terminated backwards by a couple of bellows 22, 23 which communicate with the conduit by holes 24, 25 in the wall. When the upper rack is pushed against the rear wall of the cabinet one of the bellows (in Fig. 1 the bellows 22) encircles the port 20 and tightens against the connecting

surface 19. The other bellows 23 abuts the surface at the side of the port. When the fluid is caused to circulate in the machine a pressure arises which presses the outer ends of the bellows 22 harder to the connecting surface and the upper rack in direction to the door 16. The pressure of the fluid will then by itself provide a good tightening between the bellows 22 and the connecting surface 19. One or the other of the bellows 22, 23 can be used to establish the connection, in Fig. 2 the bellows 23 are used, and the rack 14 is then in an upper working position in the washing cabinet. In use of the upper bellows (Fig. 1) the rack is in a lower working position. These positions are selectable and the selection is made with regard to the size of the dish goods. At each side of the rack there are guides 26, 27 in the wall, a lower one and an upper one. When the rack is pushed in on one of these pairs of guides, the corresponding bellows meet the port 20 so that connection to the feed tube is established. During the washing procedure fluid passes through the feed tube 10 and the conduit 18 to the spraying arm 11. The bellows connected to the port are safely kept in position by a force directed to the feed tube and created by the closing of the door 16 by means of a shoulder 28 on the outer end of the rack, which shoulder is pushed by the door in the direction of the rack which transfers the force to the conduit 18 and the bellows. When the door is opened and the rack pulled out the feed tube and the bellow are disconnected.

The advantages of a connecting device of this kind are principally its insensibility to deviations in the measures of the cabinet, the door, the racks, the feed tube etc. The flexible bellows (which also can be in the form of a sleeve, a collar or the like) will themselves adjust their outer tightening end to the connecting surface and thereby eliminate the risk of leakage.

Claims

1. A connecting device for a spraying system in a dish-washing machine provided with a feed tube (10) and a conduit (18) to a spraying arm (11) connected by means of a bearing (17) to a dish rack (14) in the machine, the feed tube (10) being provided with a connecting surface (19) facing said conduit and provided with a port (20), the conduit being connectable to the port via at least one pair of vertically spaced apertures (24, 25) in the end of the conduit (18), thus allowing differing vertical positions of the dish rack with respect to the feed tube, characterized in that flexible bellows, sleeves or collars (22) extend from the apertures (24, 25) in the conduit (18) in the longitudinal direction thereof and that the open outer end of one bellows, sleeve or collar (22) of the pair encircles said port (20) on pushing the conduit (18) against the tube (10), the open outer end of the other bellows, sleeve or collar (22) of the pair abuts the surface (19) at the side of the port (20) and is thereby sealed.

2. A connecting device according to Claim 1,

characterized in that a tightening force on the bellows, sleeve or collar (22) is exerted by a locking device in the door (16) of the machine which device on closing of the door by means of the rack (14) and the conduit (18) pushes the bellows sleeve or collar against the connecting surface (19).

Revendications

1. Dispositif de raccordement pour un dispositif de projection dans une machine à laver de la vaisselle équipée d'un tube d'alimentation (10) et d'un conduit (18) aboutissant à un bras de projection (11), lequel est relié au moyen d'un palier (17) à un panier à vaisselle (14) de la machine, le tube d'alimentation (10) étant muni d'une surface de raccordement (19) qui fait face audit conduit et qui est munie d'un orifice (20), le conduit pouvant être raccordé à l'orifice par au moins une paire d'ouvertures (24, 25) espacées verticalement ménagées dans l'extrémité du conduit (18), en permettant ainsi de donner au panier à vaisselle plusieurs positions en hauteur différentes par rapport au tube d'alimentation, caractérisé en ce que des soufflets, manchons ou bagues flexibles (22) font saillie à partir des ouvertures (24, 25) ménagées dans le conduit (18), dans la direction longitudinale de ce conduit et en ce que l'extrémité extérieure ouverte d'un soufflet, manchon ou bague (22) de la paire encercle ledit orifice (20) lorsqu'on pousse le conduit (18) contre le tube (10), l'extrémité extérieure ouverte de l'autre soufflet, manchon ou bague (22) de la paire butant contre la surface (19) située à côté de l'orifice (20) et étant ainsi fermée à joint étanche.

2. Dispositif de raccordement selon la revendication 1, caractérisée en ce qu'une force de fermeture à joint étanche est exercée sur le soufflet, le manchon ou la bague (22) par un dispositif de verrouillage prévu dans la porte (16)

de la machine, lequel dispositif presse le soufflet, le manchon ou la bague contre la surface de raccordement (19) au moyen du panier (14) et du conduit (18) lorsqu'on ferme la porte.

Patentansprüche

1. Verbindungsvorrichtung für ein Sprühsystem in einer Geschirrspülmaschine, versehen mit einem Zuflußrohr (10) und einer Leitung (18) zu einem Sprüharm (11), welcher mit Hilfe einer Stütze (17) und einem Geschirrkorb (14) in der Maschine verbunden ist, wobei das Zuflußrohr (10) mit einer Kontaktfläche (19) die besagte Leitung verkleidet und mit einer Öffnung (20) versehen ist, welche Leitung über mindestens ein Paar im Ende der Leitung, vertikal im Zwischenraum angeordneten Öffnungen (24, 25) mit der Tür verbindbar ist, sodaß unterschiedliche vertikale Stellungen des Geschirrkorb bezüglic der Zuflußleitung möglich sind, dadurch gekennzeichnet, daß die biegsamen Balgen, Hülzen oder Krägen (22) sich von den Öffnungen (24, 25) in der Leitung (18) in Längsrichtung zu dieser erstrecken, und daß das offene Außende eines Balgens, einer Hülse oder eines Kragens (22) des Paares die Öffnung (20) umschließt, wobei die Leitung (18) gegen das Rohr (10) gedrückt wird, daß das offene äußere Ende des anderen Balgens, der Hülse oder des Kragens des Paares mit der Fläche (19) an der Seite der Öffnung (20) zusammenstößt und auf diese Weise Verschlossen ist.

2. Verbindungsvorrichtung nach Anspruch 1, dadurch gekennzeichnet, daß eine Abdichtkraft auf die Balgen, Hülzen oder Krägen wirkt, welche mittels einer Verschlussvorrichtung in der Tür (16) der Maschine, welche Abdichtkraft beim Schließen der Tür unter Zuhilfenahme des Korbes (14) und der Leitung (18) erbracht wird, die Balgen, Hülzen oder Krägen gegen eine Kontaktfläche drückt.

5

10

15

20

25

30

35

40

45

50

55

60

65

3

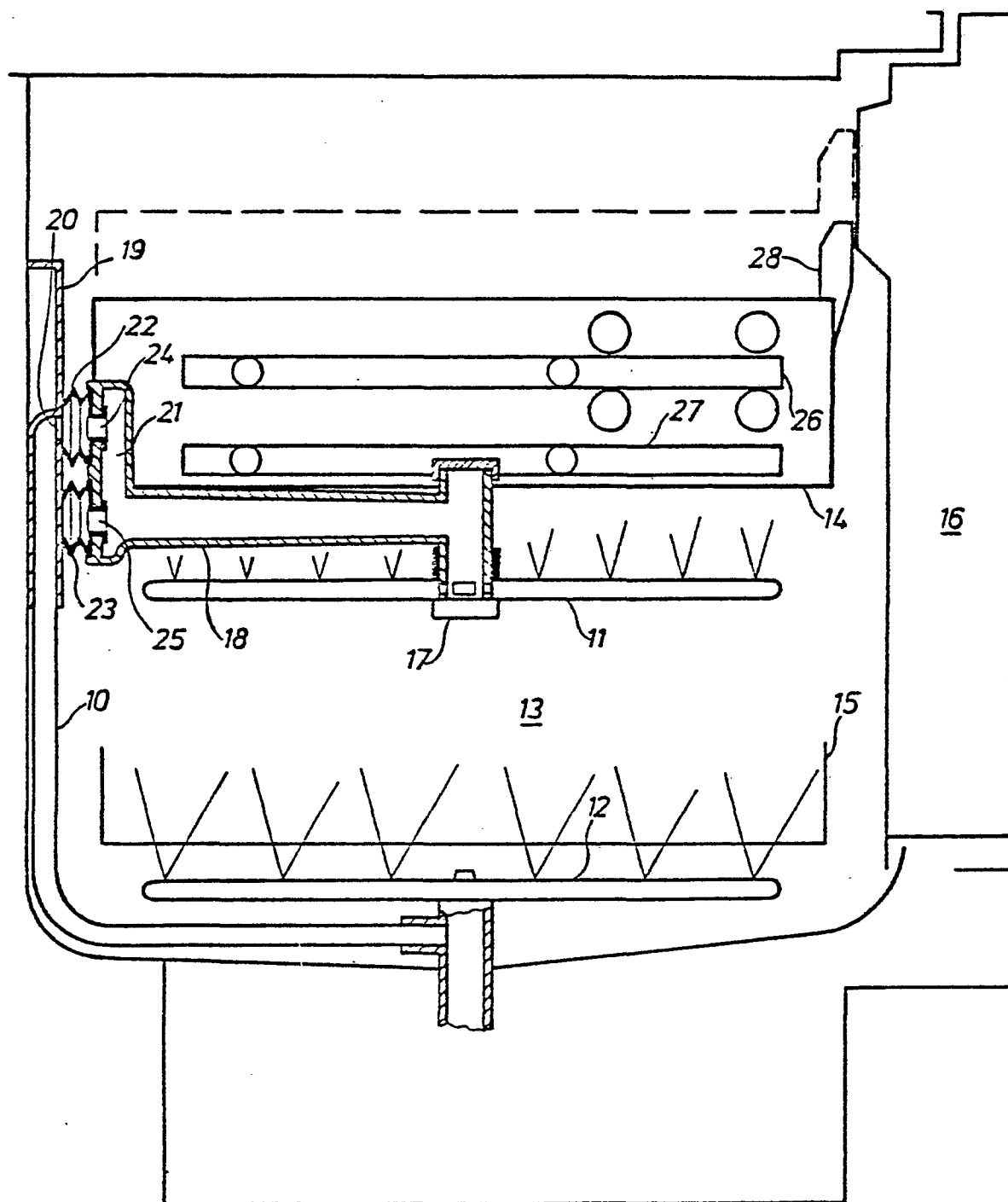


Fig. 1

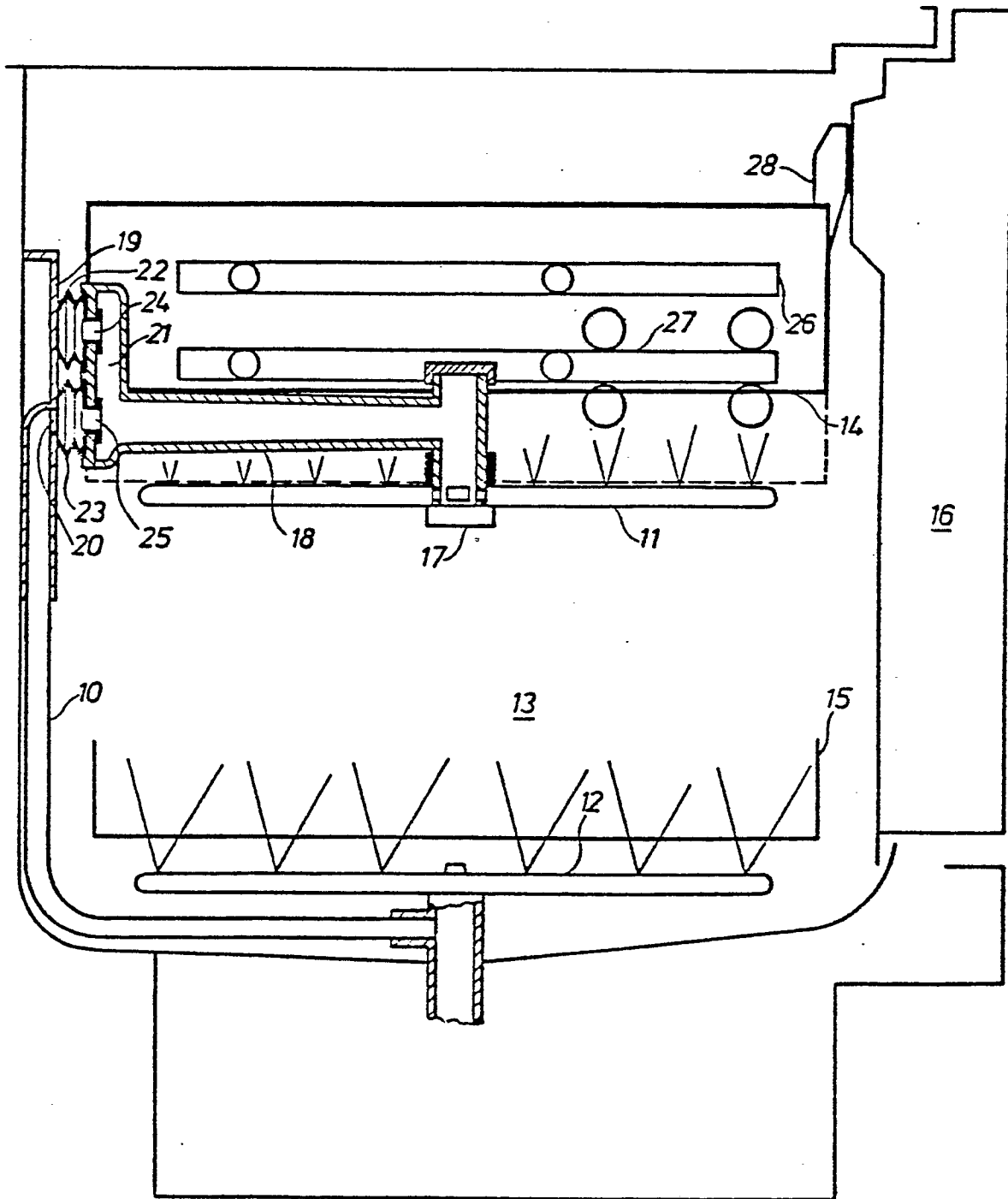


Fig. 2