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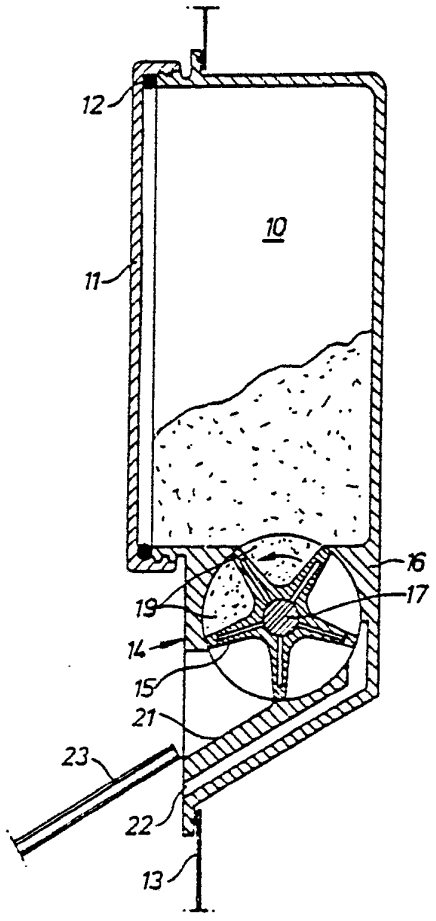
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(54) **Title:** AN AUTOMATIC DISPENSER

(57) **Abstract**

The device is essentially composed of a feeding roller (15) with compartments (19) in a house (16) and a supply of detergent. Since the detergent is highly hygroscopic it is important to prevent moisture from penetrating into the supply. The roller is therefore made of an elastic material and separates a filling opening (20) and an emptying opening (21) in the house. The roller is rotated in portioning intervals by a motor (18) controlled by a program control device.



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An automatic dispenser

The present invention is related to an automatic dispenser for a laundry or dish washing machine adapted for a granular or fluid detergent.

Detergents are very hygroscopic and have the property of forming clumps when being moist. Big clumps of detergent can cause a stoppage in the dispensing arrangement of the machine. The best way of avoiding clumps is to keep the detergent dry, and if this may be done it is possible to dispense it by means of an automatic device enclosing a small supply of detergent so that it is possible to repeat a program a plurality of times without filling of detergent manually every time. In the dispensing device the supply shall be kept well separated from the wet cabinet of the machine. The present invention presents a solution of the problem of filling and emptying a feeding member completely and simultaneously use it as a barrier against moisture trying to penetrate into the supply. Such a property can be achieved according to the invention when the dispensing device is designed as prescribed in the characterizing clause of Claim 1.

An embodiment of the dispensing device will be described in the following with reference to the accompanying drawing, in which

Fig. 1 shows a vertical cross section through the dispensing device and

Fig. 2 is a cross section perpendicular to the one of Fig. 1.

The dispensing device is positioned in the wet cabinet of a machine of the aforesaid kind, preferably in the door of the machine, which makes filling of the device easy, when the door is opened. A supply of washing powder for laundry or dishes is enclosed in a box 10 with a lid 11 which can be unscrewed and has a gasket 12 which tightens against moisture. The box is sunk into the inside of the door, and only the lid is visible. The latter is preferably made of a transparent material so that the amount of the powder in the supply can be seen. Thus it is easy to unscrew the lid and fill the box, when necessary. At the bottom of the device is a feeding member 14 adapted to transfer a portion of the powder from the supply to the wet cabinet. It comprises a roller 15 of star-shaped cross section which is journalled in a house 16 by means of a shaft 17 and is rotated in the house by a motor 18. In the roller there are a plurality of compartments 19 which in a regular order during rotation are filled with powder from the supply when anyone thereof is in a filling station constituted of a hole 20 in a wall of the box. The roller is driven by the motor 18 which is controlled by a program control device (not shown) of the machine. The driving lasts at low speed of rotation for an angle equal to at least the width of a compartment. Every compartment passes once during a revolution an

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emptying station in the form of an opening 21 in the bottom of the house 16 so that the powder transferred by such a passing compartment is emptied through the opening into the wet cabinet. The roller 15 runs against the inside of the house and thus keeps the supply separated from the wet cabinet. This feature of the roller is improved by making the roller of an elastic material. To further ensure the sealing a compartment filled with powder is always kept between the filling station and the emptying station. This powder absorbs possible moisture passing past the compartment wall from the emptying station.

In order to prevent water from being enclosed in a compartment and transferred to the supply the compartment next to the filling station is drained through a channel 22 through the bottom of the house.

To ensure emptying of the compartment at the emptying station a pipe 23 is disposed in the opening 21 and connected to the circulation system of the machine so that water spurts into the compartment and flushes it clean. The box 10 can be cleansed in a similar manner when required. This is easily done by unscrewing the lid 11 so that the box becomes open to the wet cabinet while the machine is allowed to work for a while.

The electric motor 18 is started by a signal from the program control device which keeps the motor working until a switch 25 controlled by a cam disc 24 disconnects the power to the motor. The object of the cam disc is to control the switch to make it disconnect when a compartment coincides with the opening 21 whereby the most effective emptying is achieved.

The embodiment now described is an example showing in what way the invention can be practised. Dividing of the roller into compartments is arbitrary, e.g. the roller can have only one compartment. The rotation of the roller can be effected by other means, e.g. by water pressure. The roller can be mounted on a vertical shaft and the compartments be filled and emptied at one or the other end of the roller, respectively.

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Claims

1. An automatic dispenser device for detergents in a laundry or dish washing machine provided with a supply of the detergent and a feeding member for transferring a portion of the detergent from the supply to the wet cabinet of the machine, characterized in that the feeding member (14) is in the form of a roller (15) provided with at least one portioning compartment (19) and rotatably journalled in a house with a filling opening (20) to the said compartment and an emptying opening (21) to the wet cabinet and rotated in portioning intervals by a driving member (18).

2. A device according to Claim 1, characterized in that the supply comprises a box (10) with a lid (11) positioned in a wall or a door to the wet cabinet of the machine.

3. A device according to Claim 1, characterized in that a pipe (23) is disposed in the emptying opening for supplying a liquid to the portioning compartment at this opening.

4. A device according to Claim 1, characterized in that the roller is positioned between the filling opening and the emptying opening and thus keeps these openings separated.

5. A device according to Claim 4, characterized in that the portioning compartment between the portioning intervals is positioned between the filling opening and the emptying opening.

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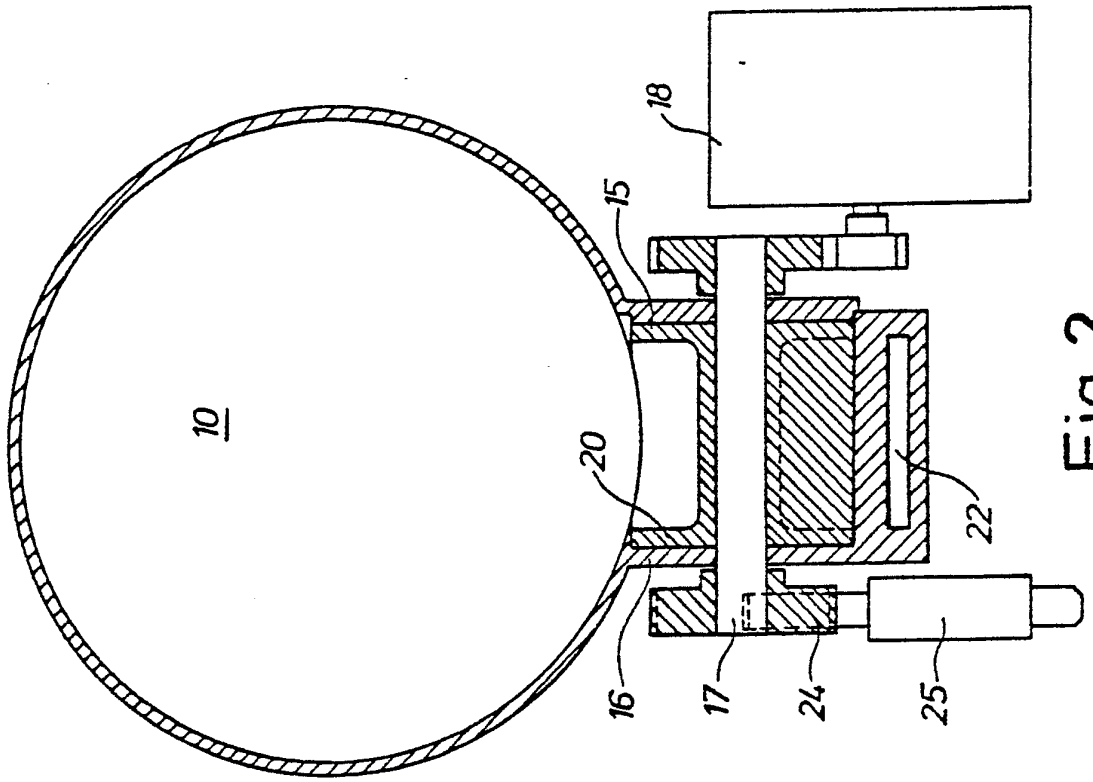


Fig.2

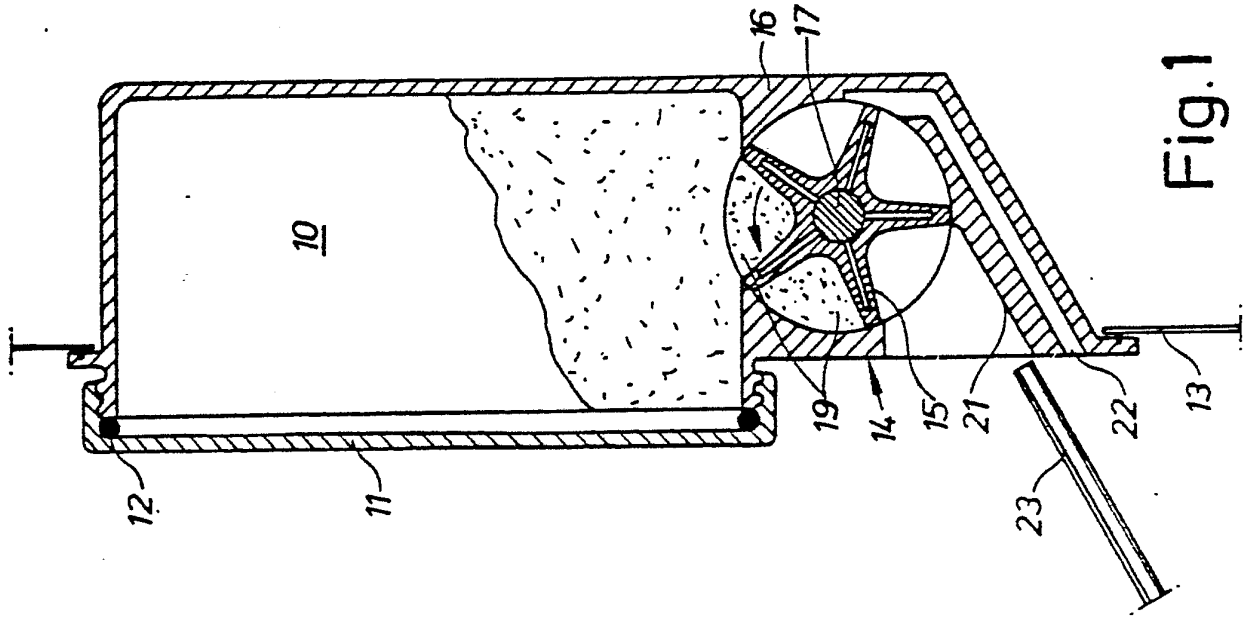


Fig.1

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INTERNATIONAL SEARCH REPORT

International Application No PCT/SE81/00226

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) [3]

According to International Patent Classification (IPC) or to both National Classification and IPC 3

D 06 F 39/02, A 47 L 15/44

II. FIELDS SEARCHED

Minimum Documentation Searched [4]

Classification System	Classification Symbols
IPC 3	D 06 F 39/02, A 47 L 15/44, G 01 F 11/10,11/12,11/20-11/24
National Cl	8d:9/70
US Cl	68/17; 134/93; 73/217-218; 137/268; 222/181,192,360,367-369

Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched [5]

SE, NO, DK, FI classes as above

III. DOCUMENTS CONSIDERED TO BE RELEVANT [14]

Category *	Citation of Document, [16] with indication, where appropriate, of the relevant passages [17]	Relevant to Claim No. [18]
X	DE, A, 1 585 592 (W J C M BAZELMANS) 15 April 1971 (15.04.71)	1, 4-5
X	US, A, 1 466 192 (A C SCHMELZER) 28 August 1923 (28.08.23) see page 4, lines 60-75 and figures 1, 6-7	1, 4-5
Y	FR, A, 1 519 399 (GENERAL MOTORS, FRANCE) 29 March 1968 (29.03.68)	2
Y	FR, A7, 2 386 966 (LICENTIA PATENT-VERWALTUNGS-G.M.B.H) 3 November 1978 (03.11.78) see figures 1-2, detail 10 and figure 4, detail 18	3

* Special categories of cited documents: [16]

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IV. CERTIFICATION

Date of the Actual Completion of the International Search [2]	Date of Mailing of this International Search Report [2]
1981-11-24	1981 -11- 25
International Searching Authority [1]	**Signature of Authorized Officer [20]**
Swedish Patent Office	Folke Svensson