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POURING HEAD FOR PRESSURELESS POURING OF LIQUIDS

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Fig. 1

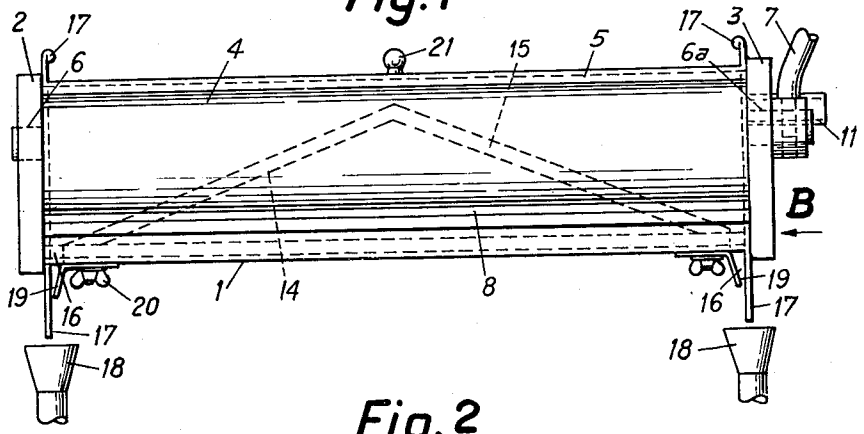
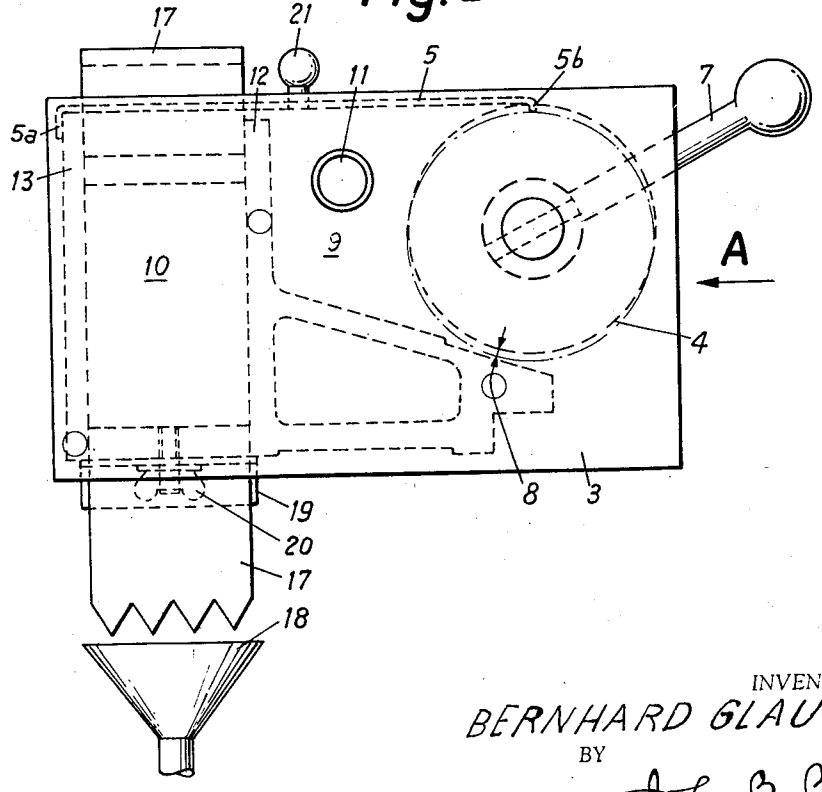


Fig. 2



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POURING HEAD FOR PRESSURELESS POURING OF LIQUIDS

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The present invention relates to a pouring head with a slot through which liquid flows without pressure, such as the varnish of a varnish pouring machine which flows on to a workpiece.

With such a pouring head it is necessary for the level of the liquid in the said head to remain constant irrespective of whether more or less liquid is supplied than flows from the pouring slot so that the amount of liquid flowing therefrom is under the same pressure and therefore remains constant.

To this end, more liquid is supplied to the pouring head than can flow through its pouring slot, the excess being capable of returning to the liquid container by way of an overflow passage.

The present invention is characterized by the fact that the pouring head is provided with two chambers of which one is equipped with a supply duct, an adjustable outlet and an overflow passage leading into the second chamber which is separated from the first chamber by an overflow wall and possesses at least one inclined outlet channel with an outlet slot.

An embodiment of the invention is represented in the attached drawing in which:

FIG. 1 is a view of the pouring head in the direction of the arrow A in FIG. 2, and

FIG. 2 is an enlarged side view in the direction of the arrow B in FIG. 1.

Referring to the drawings, the pouring head is formed as a cast longitudinal body or container **1**, having end walls **2** and **3**. Extending through body **1** is a shaft journaled in bearings **6** and **6***a* in said end walls. The portion of the shaft projecting beyond end wall **3** carries a hand lever **7** designed to rotate the shaft. A generally cylindrical body **4** is eccentrically mounted on said shaft inside the container walls and forms a pouring slot **8** which can be adjusted to various widths by rotating the shaft and eccentrical body. The space within the container is divided by means of a partition wall **12** into two chambers **9** and **10**. A liquid delivery tube **11** opens into chamber **9** so as to connect the latter with a supply pump (not shown). The partition wall **12** of the body **1** is lower than the end wall **13** of the chamber **10** so that the partition wall **12** forms an overflow from the chamber **9** to the chamber **10**. The chamber **10** is provided with two roof-type floors **14** and **15** located in inclined relationship with the horizontal plane, with end about ⅜ in. from the end walls **2** and **3** so as to leave an outlet slot **16**. Inserted in these slots are drip plates **17** along which the excess of varnish flows into a return funnel **18**. In order to ensure that the varnish will drip from the plates **17** also if the quantity discharged is small, inclined sheets **19** are provided to reduce the width of the pouring slots **16**. The sheets **19** are provided with slots so that they can be adjustably attached by means of bolts or screws **20**. These sheets **19** are inclined obliquely towards the drip plates **17** and conduct the varnish to the latter.

The chambers **9** and **10** are covered by the common cover plate **5** which is equipped with a handle **21**. The cover plate **5** is bent along its longitudinal edges **5***a* and **5***b* and rests on the end wall **13** on the one hand, and on the eccentric shaft **4** on the other.

The operation of the pouring head is as follows: liquid varnish is introduced from a primary supply source into chamber **9** by means of supply tube **11**. As chamber **9** fills the varnish will flow out through pouring slot **8** at a rate depending on the size of the slot as controlled by the rotation of lever **7**. As more varnish is supplied to chamber **9** the level thereof will rise and ultimately overflow the upper edge of wall **12** and into chamber **10**. This excess liquid in chamber **10** flows down the sloping floors **14** and **15** of the chamber to outlets **16** where the efflux is guided by drip plates and by inclined sheets **19** into funnels **18** for return to the primary supply source. Since the inflow of varnish from supply tube **11** into chamber **9** exceeds the rate of outflow through adjustable slot **8** a constant level of liquid determined by height of wall **12** will be maintained within chamber **9**. The liquid pressure in chamber **9** is thus maintained at a very low and constant value, the rate of delivery of liquid varnish from pouring slot **8** to the workpiece, being dependent upon the size of the slot according to the degree of rotation of eccentric body **4**.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:

1. A pouring head for pouring liquids at constant pressure; comprising an open container having end and side walls defining a compartment, substantially vertical partition means located in said compartment to form a first chamber and a second chamber, the upper edge of said partition means being lower than the upper edges of said container to establish communication between said first chamber and said second chamber, whereby a liquid poured into said first chamber in sufficient quantity will be able to overflow said upper edge of said partition wall into said second chamber so that a constant pressure head during pouring of said liquid is maintained in said first chamber, supply means for feeding a supply of liquid to said first chamber, means providing an adjustable pouring slot arranged in said first chamber for controlling delivery of said liquid therefrom, said means providing an adjustable pouring slot including an eccentrically mounted cylindrical body member supported for rotation by said container, said cylindrical body member extending substantially across the width of said first chamber, and a sloping floor portion disposed in said second chamber and spaced from said end walls of said container to define an outlet overflow slot.

2. A pouring head for pouring liquids at constant pressure according to claim 1, wherein a shaft member rotatably supports said cylindrical body member, said first chamber including a bottom portion cooperating with said cylindrical body member to define said adjustable pouring slot, and means for rotating said shaft member to displace said cylindrical body member relative to said bottom portion to vary the size of said adjustable pouring slot.

3. A pouring head for pouring liquids at constant pressure according to claim 2, wherein said bottom portion of said first chamber is defined by an integral lateral extension of said partition means.

4. A pouring head for pouring liquids at constant pressure; comprising an open container having end and side walls defining a compartment, a single substantially vertical partition wall member located in said compartment to form a first chamber and a second chamber, the upper edge of said partition wall member being lower than the upper edges of said container to establish communication between said first chamber and said second chamber, whereby a liquid poured into said first chamber in sufficient quantity will overflow said upper edge of said partition wall means into said second chamber so that a

constant pressure head during pouring of said liquid onto a workpiece is maintained in said first chamber, supply means for feeding a supply of liquid to said first chamber, means providing an adjustable pouring slot arranged in said first chamber for controlling delivery of said liquid therefrom, and a sloping floor portion disposed in said second chamber and spaced from said end walls of said container to define an outlet overflow slot, the said outlet overthrow slot of said second chamber being provided with a drip plate.

5. A pouring head for pouring liquids at constant pressure; comprising an open container having end and side walls defining a compartment, a single substantially vertical partition wall member located in said compartment to form a first chamber and a second chamber, the upper edge of said partition wall member being lower than the upper edges of said container to establish communication between said first chamber and said second chamber, whereby a liquid poured into said first chamber in sufficient quantity will overflow said upper edge of said partition wall means into said second chamber so that a constant pressure head during pouring of said liquid onto a workpiece is maintained in said first chamber, supply means for feeding a supply of liquid to said first chamber, means providing an adjustable pouring slot arranged in said first chamber for controlling delivery of said liquid therefrom, and a sloping floor portion disposed in said second chamber and spaced from said end walls of said container to define an outlet overflow slot, the said outlet overflow slot of said second chamber being provided with an adjustable sheet.

6. A pouring head for pouring liquids at constant pressure; comprising an open container having end and side walls defining a compartment, a single substantially vertical partition wall member located in said compartment to form a first chamber and a second chamber, the upper edge of said partition wall member being lower than the upper edges of said container to establish communication between said first chamber and said second chamber, whereby a liquid poured into said first chamber in sufficient quantity will overflow said upper edge of said partition wall means into said second chamber so that a constant pressure head during pouring of said liquid onto a workpiece is maintained in said first chamber, supply means for feeding a supply of liquid to said first chamber, means providing an adjustable pouring slot arranged in said first chamber for controlling delivery of said liquid therefrom, and a sloping floor portion disposed in said second chamber and spaced from said end walls of said container to define an outlet overflow slot, the said outlet overflow slot of said second chamber being provided with a drip plate and with an adjustable sheet arranged at an incline to said drip plate.

References Cited in the file of this patent

UNITED STATES PATENTS

1,472,238	Berkey	Oct. 30, 1923
1,492,937	Ross	May 6, 1924
2,018,538	Webb	Oct. 22, 1935
2,743,909	Lawlor	May 1, 1956