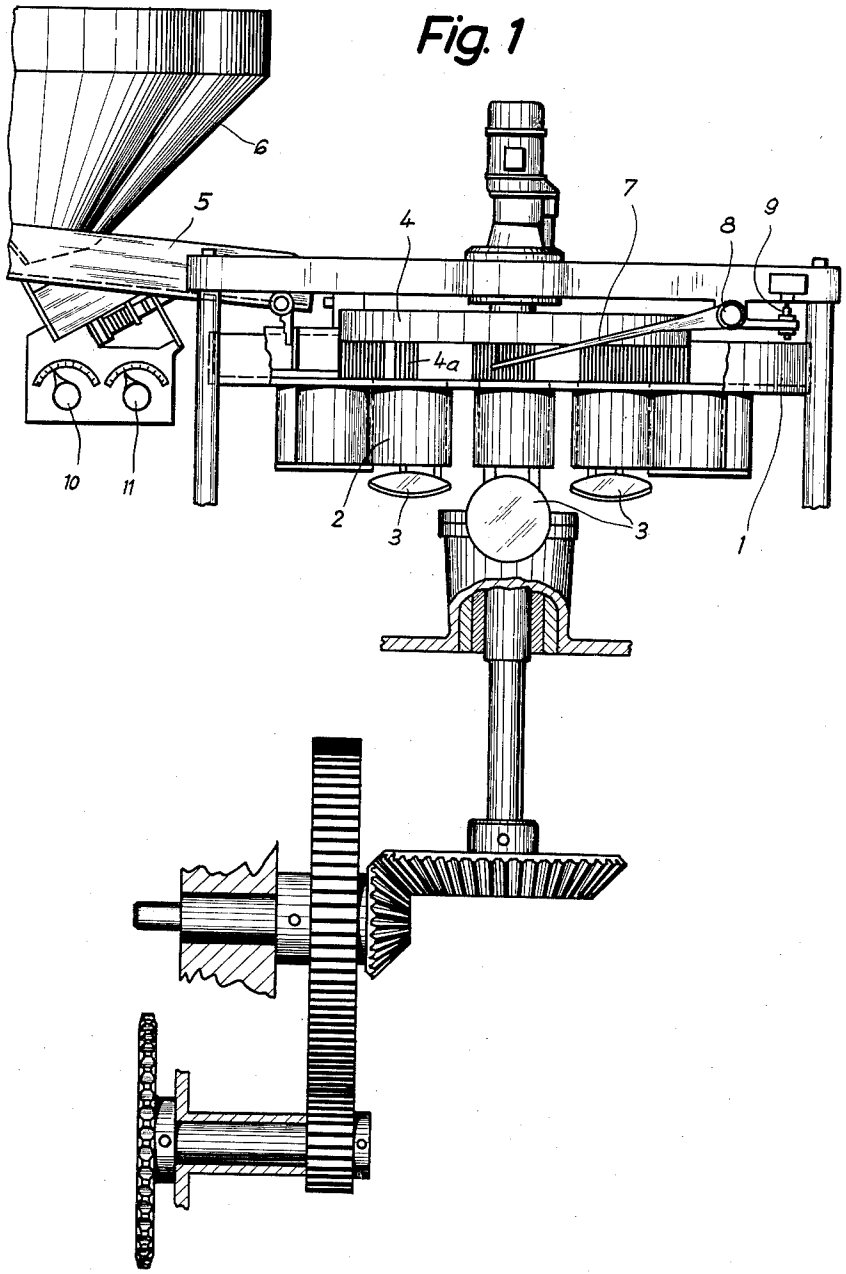
July 3, 1962 H. THÜRLINGS 3,042,260

METERING DEVICE FOR PACKING MACHINES

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Fig. 1



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Fig. 2

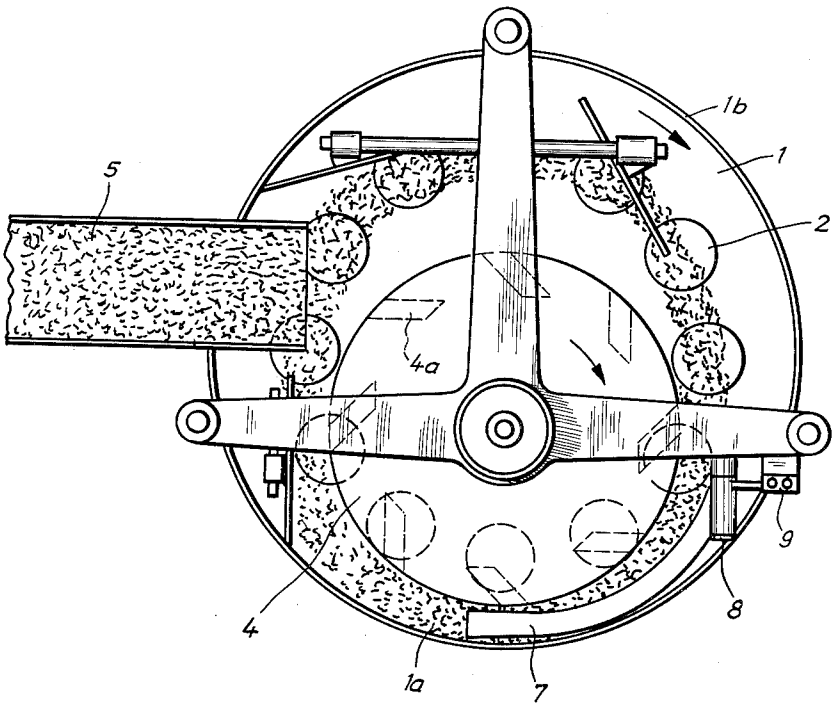
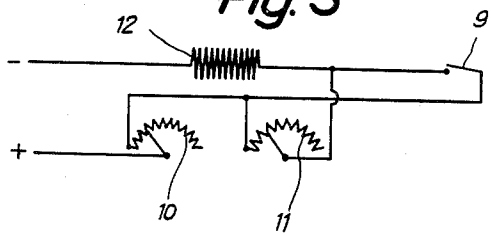


Fig. 3



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METERING DEVICE FOR PACKING MACHINES

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The present invention relates to a metering device for use in connection with packing machines. Metering devices in connection with packing machines are known, according to which a rotating plate or turntable carries cups which receive the required material to be dispensed. In order to assure that the cups will not contain too much of the material to be dispensed, it is known to arrange brush rollers above the rotating cups which rollers brush off the excessive material. These rollers have a horizontal axis and have the drawback that the material brushed back, even with the brushes inclined, will remain for a long period of time in the gap between brush and turntable and will become damaged. Furthermore, it is rather difficult automatically to maintain the proper metering out of the material to be dispensed to the turntable.

It is, therefore, an object of the present invention to provide a metering arrangement which will overcome the above mentioned drawbacks.

It is another object of this invention to provide a metering arrangement for use in connection with packing machines, which will assure a careful brushing off of the surface of the cups containing the required material to be dispensed.

A further object of this invention consists in a metering device of the type set forth in the preceding paragraphs, which will make sure that the excessive material is moved to the marginal portion of a turntable and is passed by the rotatable brush brushing off the excessive material from the cups.

It is a still further object of this invention to provide a metering device for use in connection with packing machines, which will be simple in construction and operation and will allow a very reliable control of the material to be dispensed.

These and other objects and advantages of the invention will appear more clearly from the following specification in connection with the accompanying drawing, in which:

FIG. 1 is a side view of a dispensing device according to the present invention.

FIG. 2 is a top view of the device shown in FIG. 1.

FIG. 3 is a control wiring diagram for controlling the feeding means.

The arrangement according to the present invention is characterized primarily in that above the horizontally arranged and rotatable turntable carrying the dispensing cups there is arranged a rotatable brush which rotates at a higher speed than said turntable. The arrangement is such that a gap remains between the brush and the marginal portion of the turntable. Such an arrangement is very simple in construction and also assures a careful brushing of the surface of the cups. By correspondingly eccentrically arranging the brush with regard to the turntable and the cups, the excessive material will be moved to the marginal portion of the turntable by said brush. In this way, the filling material will by said brush be moved toward the side only once and very carefully because the brush rotating about a vertical axis will not form with said turntable a pointed inward pulling angle which angle is the primary reason for the damage done to the material when the brush passes about a horizontal axis.

According to a further feature of the invention, a feeler

is provided in the gap between the brush and the marginal portion or marginal flange of the turntable. This feeler is operatively connected to a feeding device for feeding the material to the cups. Such feeding device may consist for instance of a shaker trough provided with a switch which is controlled by said feeler.

Referring now to the drawing in detail, the device shown therein comprises a rotatable plate or turntable **1** having mounted thereon in a manner known per se a plurality of cups **2** the lids **3** of which are adapted to be opened downwardly for emptying the respective cup. Above the turntable **1** there is mounted a brush **4** which is rotatable about a vertical axis, said brush having its marginal portion provided with groups **4***a* of bristles. This brush rotates at a somewhat higher linear speed than the turntable **1**, thereby bringing about a brushing off of the excessive material in the cups **2**. The brushed-off excessive material is moved toward the marginal portion of the turntable **1** which marginal portion has an upwardly extending flange **1***b*. The material to be dispensed is charged into a funnel **6** from which it drops upon a shaking trough **5**, the lower end of which extends over the circle along which the cups **2** are arranged.

As will be evident from FIG. 2, the brush **4** is eccentrically arranged with regard to the turntable **1** and the cups **2** which are arranged along a line substantially coaxial with the turntable **1**.

The arrangement according to the present invention furthermore comprises a feeler **7** which is arranged between the flange **1***b* of the turntable **1** and the periphery of the brush **4**. This feeler **7** has connected thereto a switch **9** which will be opened when the feeler is lifted by too much material having accumulated in the gap **1***a* between flange **1***b* and the periphery of brush **4**. The said switch **9** controls the shaker trough **5** and thus the delivery thereof to the cup **2**. This control is effected in conformity with the circuit shown in FIG. 3. When the switch **9** is closed, it will be obvious that the current passes merely through a variable resistance **10**. However, when switch **9** is open as shown in FIG. 3, the current must in addition to passing through the resistance **10** also pass through resistance **11** whereby the stroke of the shaker trough **5** will be reduced so that the quantity of the delivered material will be reduced. The numeral **12** in FIG. 3 designates an electromagnetic device of any standard construction as customary in connection with shaking troughs and the like. The excess amount of material will continue to be influenced by the rotating turntable and will be carried around thereby and find its way into the containers. When the amount of material is sufficiently reduced, the feeler **7** will again move down and close the switch **9**.

It will be obvious that by varying the resistance **10**, the maximum delivery of the shaker trough **5** during the charging of the cups may be varied, whereas by varying the resistance **11**, the respective delivery of trough **5** per time unit during a temporary reduced delivery may be varied.

It will be evident from the preceding description, that an arrangement according to the invention furnishes a simple control for the delivery of the material to be dispensed so that an excessive filling of the turntable will be avoided.

It is, of course, to be understood that the present invention is, by no means, limited to the particular construction shown in the drawing but also comprises any modifications within the scope of the appended claims.

What I claim is:

1. In a metering device for use in connection with a packing machine: a turntable having an upper working surface in a substantially horizontal plane and being rotat-

able about its vertical axis, a plurality of metering cups for receiving the material to be dispensed, said cups being supported by said turntable and being rotatable therewith, a disc-like brush rotatable on a vertical axis and having its effective brushing surface arranged along a substantially horizontal plane and slidable over the cups for brushing excessive material from said cups, said brush and the marginal portion of said turntable defining a gap, and means for driving said brush in the same direction of rotation as said turntable but at a higher speed of rotation, and the axis of rotation of said brush being laterally offset from the axis of rotation of said turntable, said brush having a diameter several times that of said cups and the bristles of the brush being in the form of individual bristle groups arranged at the periphery of the brush.

2. In a metering device for use in connection with a packing machine: a turntable having an upper working surface in a substantially horizontal plane and being rotatable about its vertical axis, said turntable being provided with an upstanding peripheral flange, a plurality of metering cups for receiving the material to be dispensed, said cups being arranged along a circular line substantially coaxial with said turntable and being supported by the latter, feeding means for feeding material to be dispensed to said cups, control means associated with said feeding means for varying the delivery thereof, a disc-like brush rotatable on a vertical axis and having its effective brushing surface arranged along a substantially horizontal plane adjacent said upper surface of the turntable for brushing excessive material from said cups, said brush being eccentrically arranged with regard to said circular line while extending over a portion of the path of movement of said cups and slidable over the cups for brushing off excessive material from said cups, said brush defining with the flange of said turntable a crescent-shaped passage and means driving said brush in rotation in the same direction as said turntable but at a higher speed of rotation than said turntable, the said brush having an overall diameter several times that of one of said cups and the bristles of the brush being confined to the peripheral portion thereof and being in the form of spaced individual bristle groups, each bristle group extending inwardly from the periphery of the brush at an angle to a radius of the brush passing through the respective bristle group.

3. In a metering device for use in connection with a packing machine: a turntable having an upper working surface in a substantially horizontal plane and being rotatable about its vertical axis, said turntable being provided with an upstanding peripheral flange, a plurality of metering cups for receiving the material to be dispensed, said cups being arranged along a circular line substantially

coaxial with said turntable and being supported by the latter, feeding means for feeding material to be dispensed to said cups, control means connected with said feeding means and operable for varying the delivery thereof, a disc-like brush having its effective brushing surface arranged along a substantially horizontal plane for brushing excessive material from said cups, said brush being eccentrically arranged with regard to said circular line while extending over a portion of the path of movement of said cups for brushing off excessive material from said cups, said brush defining with the flange of said turntable a crescent-shaped passage, and feeler means extending into said crescent-shaped passage for feeling the quantity of material brushed off from said cups into said passage and operatively connected to said control means for adjusting the same in conformity with the condition of said feeler means to thereby vary the delivery of said feeding means accordingly.

4. In a metering device for use in connection with a packing machine: a turntable having an upper working surface in a substantially horizontal plane and being rotatable about its vertical axis, a plurality of metering cups for receiving the material to be dispensed, said cups being supported by said turntable and being rotatable therewith, a disc-like brush rotatable on a vertical axis and having its effective brushing surface arranged along a substantially horizontal plane adjacent said upper surface of the turntable for brushing excessive material from said cups, said brush and the marginal portion of said turntable defining a gap, and driving means for driving said turntable and said brush in the same direction of rotation while driving the latter at a higher speed of rotation than said turntable, the said brush having an overall diameter several times that of one of said cups and the bristles of the brush being confined to the peripheral portion thereof and being in the form of spaced individual bristle groups, each bristle group having a bar-like shape and extending inwardly from the periphery of the brush at such an angle as to form an angle with a tangent to the periphery of the brush at the center point of the respective bristle group which is acute when looking in the direction of rotation of the brush.

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