Nov. 19, 1929. J. H. MEIJER 1,736,124

MACHINE FOR SPREADING GRANULAR MATERIAL

Filed Dec. 16, 1927

FIG:1.

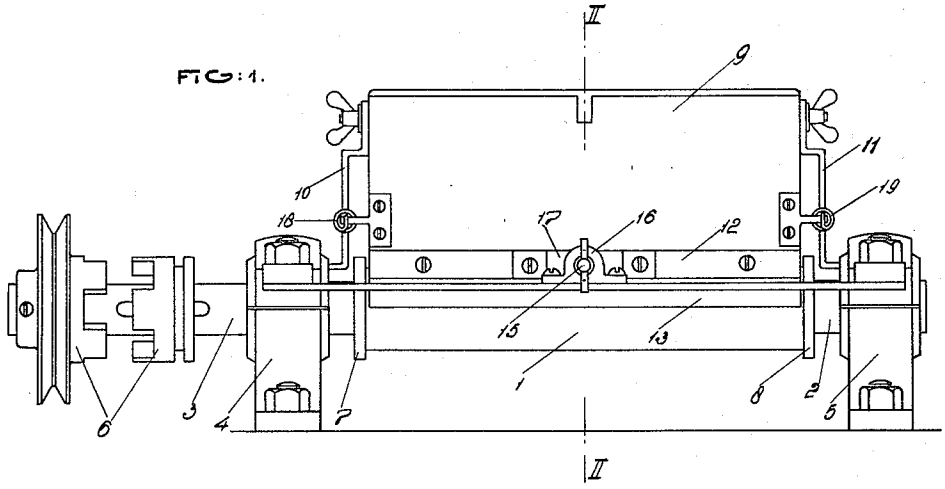


FIG:2.

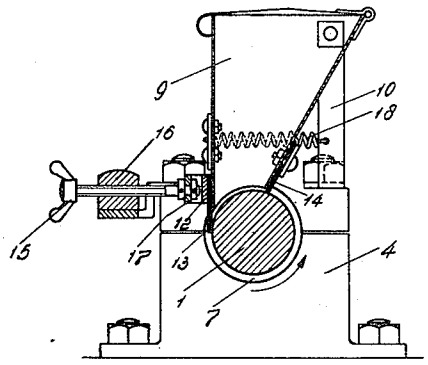
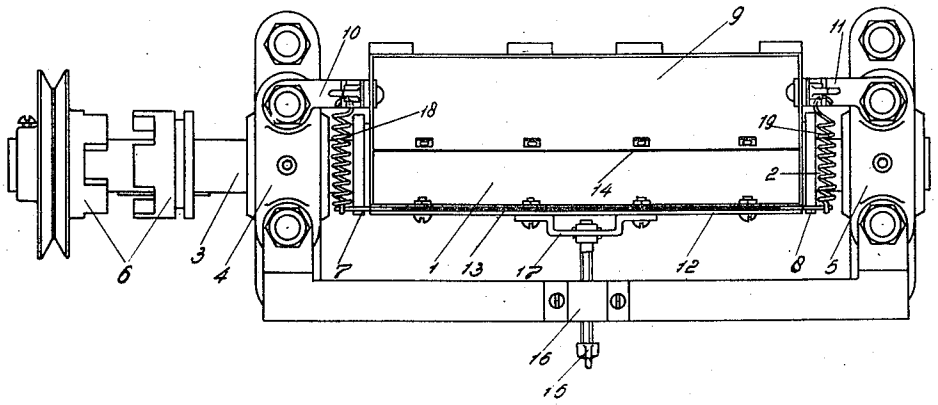


FIG:3.



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UNITED STATES PATENT OFFICE

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MACHINE FOR SPREADING GRANULAR MATERIAL

Application filed December 16, 1927, Serial No. 240,419, and in the Netherlands October 15, 1927.

This invention concerns a machine for spreading, strewing or dredging granular, pulverulent or like material, such as sugar, powdered sugar, dredging chocolate, flour and the like. The machine is primarily intended for use in chocolate, sweetmeat and biscuit factories but is applicable with equal success to all cases in which any granular or pulverulent substance is to be spread or strewn, for instance to the strewing of sand, gravel or broken stone.

The hitherto known strewing devices which work with shaking grids have the disadvantage that a considerable amount of waste is formed because a material proportion of the substance to be spread, particularly in the case of granular material, such as castor sugar, is ground up and falls through the grids in the form of dust.

Furthermore for various kinds of materials it is necessary to change the grids, an operation which is attended by loss of time and labour.

The machine with which the present invention is concerned is altogether different from any spreading or strewing device proposed heretofore and is suitable for material of any degree of fineness encountered in practice. While crushing or grinding of granular material is impossible, a very uniform distribution is ensured.

According to this invention the machine consists of a rotatable roll and a strip or the like of felt or other flexible or yielding material maintained at an adjustable distance from said roll. Preferably the strip of felt or the like is disposed approximately in a plane tangential to the roll.

In one form of machine according to the invention the felt strip is secured to one lower edge of a charging vessel or hopper suspended pivotally above the roll. The hopper may, moreover, be furnished with an adjustment device whereby said hopper may be rotated about its point of suspension to vary the distance of the felt from the roll. If this adjustment device engages with the middle of the felt strip it is preferable, according to another feature of the invention, to provide springs which act upon the ends of the strip and keep said strip parallel to the roll.

Finally the hopper-edge opposite to that furnished with the felt strip and, if occasion demand, the lateral edges of the hopper may, according to this invention, be provided with a second felt strip whereby said edges are packed tightly against the roll.

One embodiment of the invention will now be explained by way of example by reference to the accompanying drawings in which:

Fig. 1 is a front elevation of a machine according to the invention.

Fig. 2 is a cross-section on the line II—II in Fig. 1 and

Fig. 3 is a plan view thereof.

As will be understood by reference to these figures the machine consists of a roll 1, preferably of wood, provided at each end with a metal journal 2, 3. These journals 2, 3 are carried in bearing frames 4, 5 while, when the machine is power-driven, a clutch 6 is provided on the journal 3 to enable the machine to be set in and out of operation without it being necessary to bring the driving means to a standstill. The journals 2, 3 have flanges 7, 8 which adjoin the ends of the wooden roll 1 and extend radially somewhat beyond the latter. If desired the journals 2, 3 may naturally be replaced by a continuous shaft passing through the roll.

A supply or charging hopper 9 for the material to be spread is arranged above the roll 1 and between the flanges 7, 8 already mentioned. Said hopper is pivotally suspended from arms 10, 11 which are secured at one end to the box-frames 4, 5 and are of the bent shape illustrated (Fig. 1). The hopper 9 has at the front a plane vertical wall along the lower edge of which a strip 13 of felt or other flexible material is secured by means of a bar 12. Said felt strip is disposed approximately in a plane tangential to the wooden roll and extends down to the horizontal centre plane through the roll. The inclined rear wall of the hopper 9 is provided along the bottom with a second strip 14 of felt or other material forming a tight closure against the roll 1.

In addition means are provided whereby the hopper 9 may be rotated about its point of

suspension for the purpose of adjusting the felt strip 13 in accordance with the degree of fineness of the material to be used or with the rate at which it is to be spread. The adjustment device consists essentially of an adjusting screw 15 which passes through a fixed nut 16 and engages with a yoke-shaped member 17 secured to the bar 12 whereby the felt strip 13 is attached to the front wall of the hopper. By turning the screw 15 the hopper 9 is rotated about its suspension point. When, as in the construction illustrated the adjustment device is connected to the bar 12 at the centre only, it is preferable for tension springs 18, 19 to be arranged to act on the ends of the bar, said springs being connected at the other ends to the arms 10, 11 so that the bar 12 and therewith the felt-strip 13 are kept parallel to the roll, even if at one particular point a larger granule should be passed through.

The machine operates as follows:—

The material to be spread or strewn is thrown into the hopper in which it falls or sinks on to the wooden roller 1 by the rotation of which it is carried, in the direction of the arrow in Fig. 2, towards the felt-strip 13 and is forced between the latter and the roll: in this manner it is uniformly distributed and falls in the form of a curtain on to the objects it is to be spread over, the latter being passed under the roll 1 by a wire conveyor apron.

If it is desired to change over to substantially coarser material, it is only necessary to vary the position of the hopper 9 by means of the adjusting screw 15 and thus to adjust the distance of the felt-strip 13 from the roll. Equally to enable a larger amount of the same material to be spread it is necessary to increase the distance between the felt and the roll. The device described has the advantage over the known arrangements that no further material is spread or dredged immediately the roll is brought to a standstill.

It is obvious that the machine may also be arranged to be manually operated for which purpose it is merely necessary to fit a crank handle on one of the roller journals in place of the pulley and clutch.

What I claim is:

1. A machine for spreading, strewing or dredging granular, pulverulent or like material, comprising a rotatable roll and a strip of flexible material maintained at an adjustable distance from said roll, a supply hopper pivotally suspended above said roll, and adjustment means for angularly displacing said hopper about its axis of suspension and relative to said roll, the leading wall of said hopper in the direction of rotation of the roll carrying the said strip of flexible material.

2. An apparatus of the character claimed in claim 1, in which the said adjustment means engage the strip of flexible material at its midportion, and including springs at the opposite ends of the strip to maintain the same parallel to the roll.

3. An apparatus of the character claimed in claim 1, in which the said adjustment means engage the strip of flexible material at its midportion, springs at opposite ends of the strip to maintain the same parallel to the roll, and a second strip of flexible material mounted on the edge of the hopper opposite to the first strip to form a tight fit between the lateral wall of the hopper and surface of said roll.

In testimony whereof, I affix my signature this sixteenth day of November, 1927.

JOHAN HENDRIK MEIJER.