

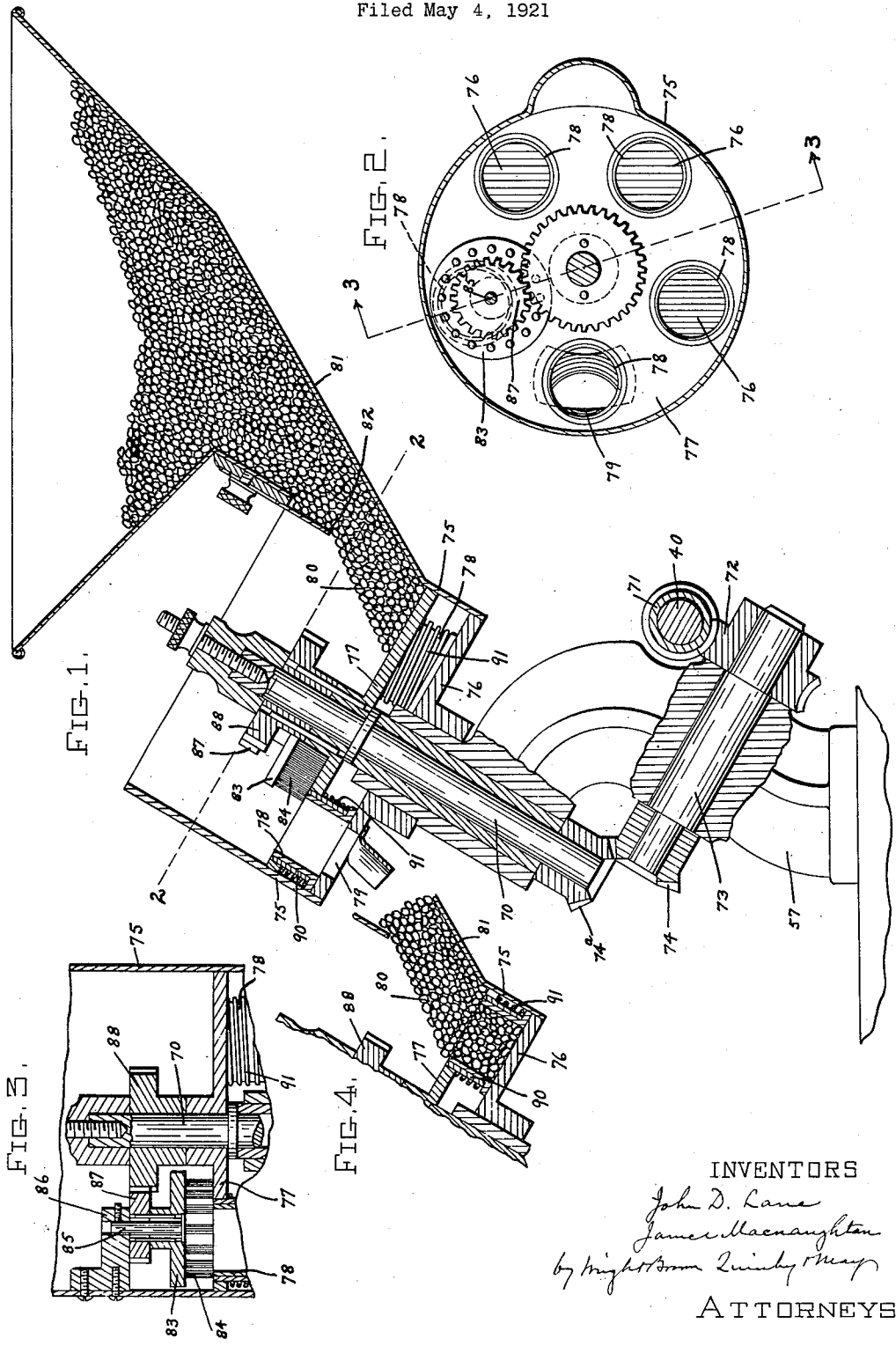
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J. D. LANE ET AL

MACHINE FOR MEASURING AND DELIVERING LOOSE MERCHANDISE

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UNITED STATES PATENT OFFICE.

JOHN D. LANE, OF BOSTON, AND JAMES MACNAUGHTAN, OF BROOKLINE, MASSACHUSETTS, ASSIGNORS, BY MESNE ASSIGNMENTS, TO GORDAN MACHINE COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

MACHINE FOR MEASURING AND DELIVERING LOOSE MERCHANDISE.

Application filed May 4, 1921. Serial No. 466,839.

To all whom it may concern:

Be it known that we, JOHN D. LANE and JAMES MACNAUGHTAN, citizens of the United States, residing at Boston and Brookline, in the counties of Suffolk and Norfolk, respectively, and State of Massachusetts, have invented new and useful Improvements in Machines for Measuring and Delivering Loose Merchandise, of which the following is a specification.

This invention relates to means for segregating from a mass of merchandise, composed of loosely assembled units, predetermined charges or detachments and delivering the charges one by one, at a predetermined point from which each charge may be conducted to a receptacle in a packaging machine, or otherwise disposed of, the merchandise being lumps or globules of candy or any other commodity adapted to be segregated from a loose mass with reasonable accuracy.

A particular object of the invention is to provide a machine adapted to segregate and measure charges composed of frangible globules or "drops" of candy, without liability of objectionably crushing or injuring the same.

The invention is embodied in the improvements hereinafter described and claimed.

Of the accompanying drawings forming a part of this specification,—

Figure 1 is a vertical section of a machine embodying the invention.

Figure 2 is a section on line 2—2 of Figure 1.

Figure 3 is a section on line 3—3 of Figure 2.

Figure 4 is a view similar to a portion of Figure 1, showing one of the hereinafter described receivers filled.

The same reference characters indicate the same parts in all of the figures.

We will describe in detail the mechanism and details of construction of the preferred embodiment of our invention, shown by the drawings, it being understood that the description and illustration are not intended to limit us to this particular embodiment, excepting as otherwise specified in certain of the more limited claims appended hereto.

70 (Figure 1) represents a shaft journaled in a bearing on a bracket 57, and rotated continuously at a relatively slow rate by a

worm 71, on a driving-shaft 40, a worm gear 72, fixed to a counter-shaft 73, journaled in another bearing in said bracket, and provided with a bevel gear 74, meshing with a bevel gear 74^a on the shaft 70. The upper portion of the shaft 70 projects through the bottom of a cylindrical hopper, which is fixed to the bracket 57, the hopper being coaxial with the shaft, and including a confining wall 75 and a bottom 76. Said bottom closes the non-registering receivers hereinafter described, and is interrupted at one side of the center of the hopper by a delivering port 79. As here shown the port 79 is near the higher edge of the inclined bottom 76, all portions of the bottom not interrupted by the port, being adapted to support merchandise. Fixed to the shaft 70 within the hopper is a disk or turret 77, having a plurality of merchandise receivers 78 arranged in a circular series, as shown by Figure 2. Said receivers are tubes open at both ends, and are caused by the rotation of the turret 77 to register singly and successively with the port 79, so that a charge inserted in any receiver, as presently described, is delivered through said port. For convenience, we hereinafter refer to the receiver which registers with the port 79, as the registering receiver, and the other receivers, which are closed at their lower ends by the bottom 76, as shown by Figure 4, the non-registering receivers.

A gravity feed chute 81 is provided for supplying merchandise, such as loose globules or drops of candy to the non-registering receivers. We regard as of the essence of the invention means for delivering upon a portion of the turret, and in the path of said receivers, a loose bank 80, the external form of which is determined by the angle of repose of the merchandise, so that the merchandise forming said bank is free from crushing pressure from the weight of merchandise in the chute, and is adapted to flow loosely into receivers passing under the bank, and is not unduly compressed in said receivers, the arrangement being such that each receiver is charged from said bank when in its non-registering position, so that the rotation of the turret will move each non-registering charged receptacle out from under the pile 80, before it reaches the port 79, and becomes a registering receptacle.

Provision is thus made for segregating measured charges of frangible merchandise units, such as globules of candy, without liability of crushing or injuring the units in any way.

The chute 81 communicates with an outlet 82 in the hopper wall 75, the chute being inclined and enlarged at its upper portion to form a reservoir. The inlet 82 is arranged to locate the bank 80 with the angle of repose of its external surface so located that it is above one or more of the non-registering receivers 78, but is spaced from the location occupied by each receiver when it becomes a registering receiver. While each filled receiver is moving toward the part 79, the charge therein is evened by an evening device or wiper which contacts with the upper side of the turret and wipes off any merchandise projecting above the mouth of the receiver. Said wiper is preferably a rotary brush, composed of a circular back 83, and bristles 84, bearing on the upper side of the turret. The brush is mounted on a short shaft 85, journaled in a fixed bearing 86 attached to the hopper wall 75, as shown by Figure 3.

A gear 87 fixed to the shaft 85, meshes with and is driven by a gear 88 fixed to the shaft 70.

The brush is adapted to force the wiped-off merchandise back toward the pile 80. The tubular receivers 78 are preferably mounted to move endwise in guides 90 in the turret, and pressed by springs 91 against the hopper bottom 76.

The shaft 70 is preferably inclined as shown by Figure 1, the hopper and the turret being correspondingly inclined, the delivery port 79 being in the higher portion of the hopper bottom, and the feeding means being arranged to feed merchandise upon the lower portion only of the turret. This arrangement ensures an ample space between the pile of merchandise maintained in communication with the non-registering receivers and the location of the receiver which becomes the registering receiver, and facilitates the return to the pile of the merchandise brushed off by the wiper.

The described measuring and delivering mechanism may be incorporated in a machine organized to enclose the delivered charges in containers, such as envelopes, as shown in another application filed by us concurrently herewith, the driving-shaft 40 being an element of said machine. Mechanism embodying the present invention may be used for any purpose for which it is suitable, or to which it may be adapted.

We claim:

1. A merchandise-measuring and delivering machine comprising a fixed hopper, including a continuous annular confining wall having an inlet in one side, and a merchan-

dise-supporting bottom having a delivery port out of alinement with the said inlet; a circular turret closely fitting and rotatable in said confining wall, and having a circular series of open-ended tubular receivers, whose lower ends are in sliding contact with, and closed by the hopper bottom, the receivers being caused by the rotation of the turret to revolve in a circular path, and register singly and successively with said port, to permit the discharge of their contents, a gravity feed chute outside the hopper, and communicating with said inlet, and adapted to deliver, upon a portion of the turret and in the path of said receivers, a loose bank of merchandise, the external form of which is determined by the angle of repose of the merchandise, so that the merchandise forming said bank is free from crushing pressure from the weight of the merchandise in the chute, and is adapted to flow loosely into receivers passing under the bank, the arrangement being such that each receiver is charged from said bank when in its non-registering position.

2. A merchandise-measuring and delivering machine substantially as specified by claim 1, comprising also a wiper located in the path of receivers passing from under the said bank to the delivery port, and contacting with the turret to sweep surplus merchandise from the upper ends of said receivers.

3. A merchandise-measuring and delivering machine substantially as specified by claim 1, comprising also a wiper located in the path of the receivers passing from under the said bank to the delivery port, and contacting with the turret to sweep surplus merchandise from the upper ends of said receivers, the hopper and the turret being inclined, and the inlet being at the lower side of the hopper; so that the merchandise swept from the upper ends of the receivers returns by gravity to said bank.

4. A merchandise-measuring and delivering machine, comprising a fixed hopper including a confining wall and a merchandise-supporting bottom having a delivering port interrupting the continuity of the bottom at one side of the hopper, a turret rotatable in the hopper and having a series of open-ended receivers, which are caused by the rotation of the turret to register singly and successively with said port, the non-registering receivers being closed by said bottom, and feeding means adapted to supply merchandise to the non-registering receivers only, the said receivers being open tubes movable in guides in the turret and pressed by springs against the bottom of the hopper.

In testimony whereof we have affixed our signatures.

JOHN D. LANE.
JAMES MACNAUGHTAN.