W. H. FROGGATT, Jr.

COUNTING AND BOTTLING MACHINE.

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911,556.

Patented Feb. 2, 1909.

2 SHEETS—SHEET 1.

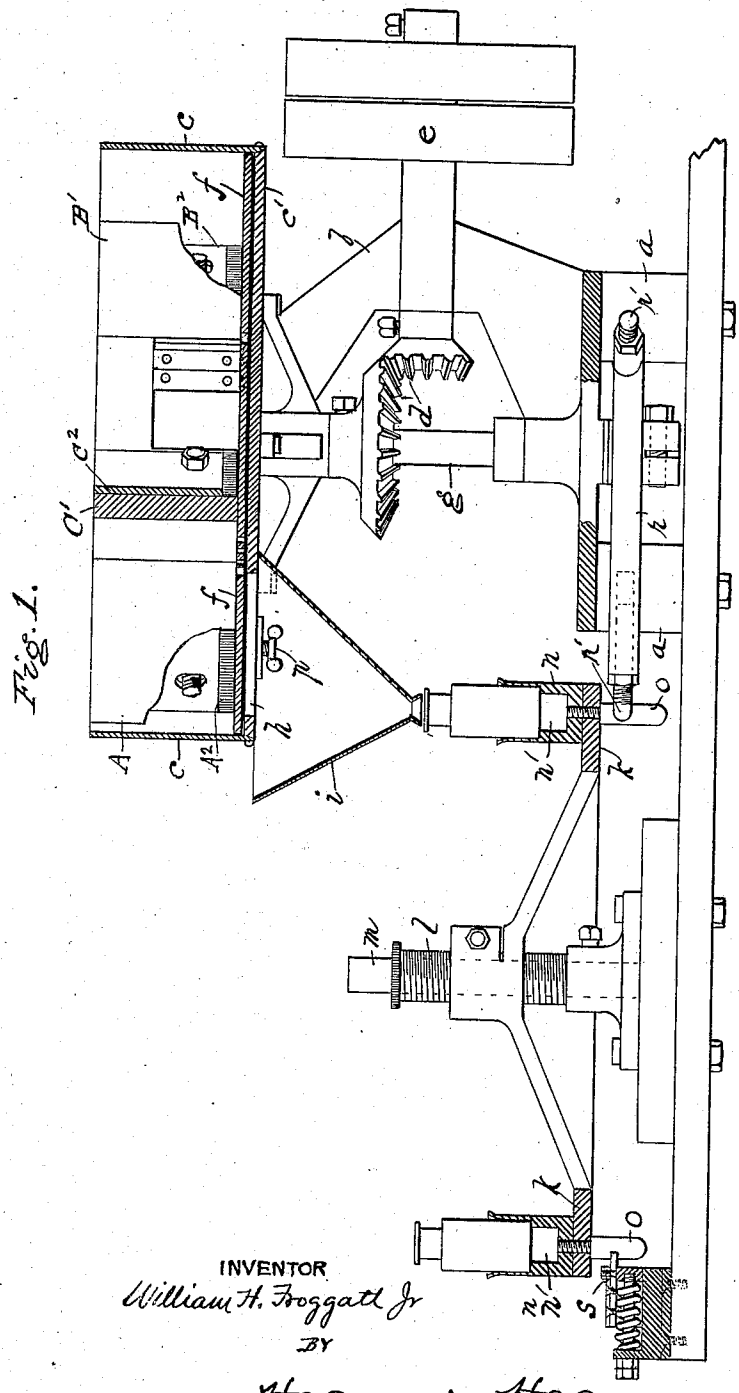


Fig. 1.

WITNESSES

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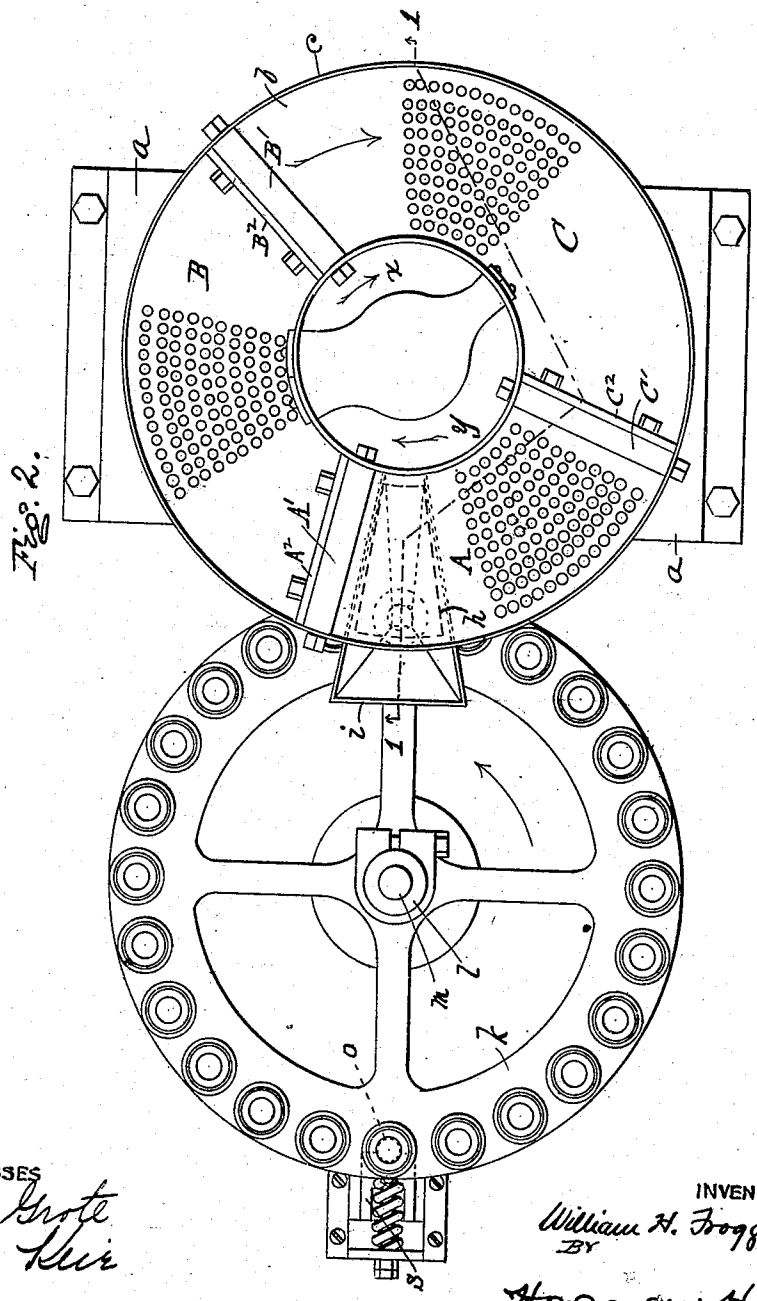
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2 SHEETS—SHEET 2.

Fig. 2.



WITNESSES

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COUNTING AND BOTTLING MACHINE.

No. 911,556. Specification of Letters Patent. Patented Feb. 2, 1909.

Application filed February 1, 1908. Serial No. 413,832.

To all whom it may concern:

Be it known that I, WILLIAM H. FROGGATT, Jr., a citizen of the United States of America, residing in the borough of Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Counting and Bottling Machines, of which the following is a specification.

My invention relates to counting and bottling machines and refers particularly to machines adapted for the automatic counting and bottling of tablets, although it will be readily understood that it may be adapted to the counting of pills, troches and other similar symmetrical bodies without departing from the invention disclosed.

In the accompanying drawings in which my invention is illustrated, Figure 1 is a broken sectional side elevation on the line 1—1, Fig. 2, and Fig. 2 is a plan view of a machine incorporating my improvements.

Referring to these drawings, it will be seen that I mount upon a suitable base *a* and frame *b*, a stationary hopper *c* to contain the tablets to be counted and bottled. Within the hopper and forming a false bottom superposed on the bottom c^1 thereof I provide a disk *f* which is rotated by means of suitable driving pulleys *e* and gearing *d*, the disk being secured to the upper end of the spindle *g*. This disk, which is made of the approximate thickness of the tablets to be counted, is perforated with holes having the shape of the tablets but of slightly greater diameter so as to permit the latter to pass freely therethrough. It will be readily understood that if the hopper is filled with tablets and the disk then rotated, the tablets will enter the perforations in the disk and will be carried around by the latter until they reach an aperture *h* in the bottom c^1 of the hopper and will then discharge through said aperture into a funnel *i* located below the same. The disk is detachable from the spindle *g*, so that one having a different number of perforations or one of different thickness with perforations to suit a different shape and size of tablet may be substituted. Instead of having the perforations scattered over the whole disk, they may be grouped closely together as shown, so that upon one revolution of the disk several counts may be made. Three groups are shown upon the disk in the drawing.

The construction of the hopper is of course more or less optional. I prefer however to make the same with three divisions, one A embracing the aperture *h* and in which no tablets are placed, and two others B and C, filled with tablets. The partition B^1 separating compartments B and C is provided with a brush B^2 which serves to press down into the perforations of the disk any tablets which may have fallen obliquely into the same and therefore still project above the upper surface of the disk. The partition C^1 is provided with a similar brush C^2 which serves a similar purpose, but is placed closer to the disk so as to act not only as a leveler but also as a retainer so that no tablets are carried by the disk into the compartment A except those that have fallen into the perforations. A similarly placed brush A^2 on the partition A^1 prevents the escape of tablets from compartment B. The use of brushes or some equivalent yielding edge for the partitions, particularly partitions B and C is very important, since otherwise, tablets carried obliquely in the perforations of the disk would be very apt to be broken or ground against the unyielding edge of the partitions, and the powder or grit resulting from a few breakages of this sort, being carried eventually to the opening *h* and falling into the bottles, would render the product unmarketable. When a plurality of compartments B and C are thus provided, I utilize the surface pressure of disk *f* upon the tablets to keep up a circulation of the latter from one compartment to the other and thus maintain an even distribution in both chambers of the hopper. To this end I provide channels *x* and *y* opening into opposite ends of the compartments. The tablets in B banking up against the partition B^1 escape laterally into the channel *x* and are carried through this into compartment C whence they escape in a similar manner into *y* and are carried back again to B.

It will be noted that the division A is considerably wider than the aperture *h*. This construction is adopted so that an attendant standing near by may observe whether or not any of the perforations in the disk have "missed". If this is discovered to be the case the proper number to complete the count may be easily dropped into the funnel which is extended beyond the edge of the hopper for this purpose.

In connection with this counting mechanism I propose to use an automatic bottling device comprising a ring *k* rotatably mounted through an adjusting sleeve *l* on the spindle *m*. Around this ring I arrange bottle holders *n* which may be secured thereto in any convenient way. A convenient method, which permits of easily changing the size of the holders, is illustrated and consists of pins *o* which extend through the ring and screw into the bottom of the holders. It will be noted that I form these holders *n* with a recess n^1 into which tablets, accidentally falling into the holder, may drop and thus not interfere with the proper set of the bottle in the holder; otherwise the bottle might be tipped out of alinement with the mouth of the funnel *i*. If a change in the position of the mouth of the funnel is made necessary by a change in the size of the bottle this adjustment is made through a sliding clamp *p*, by which the funnel is held to the hopper.

The bottle carrying ring is automatically rotated at predetermined intervals to correspond to the perforation groups in the disk, by means of arms *r* mounted on the spindle *g* and provided with adjustable extension fingers r^1 which engage the pins *o* and rotate them through an arc varying in length according to the adjustment of the fingers r^1. A spring catch device *s* holds the ring against rotation until the next arm *r* engages the next pin *o*. As illustrated, there are three arms *r* to correspond with the three perforation groups in the disk.

The operation of the machine is already clear but may be briefly summarized. Tablets having been placed in the compartments B and C, the disk *f* is revolved through *d* and *e*. The groups of perforations are filled as they pass beneath the tablets in B and C and come into view one after another as they enter division A before they discharge through the funnel *i* into the bottle, thus enabling an attendant to correct any miss in the count by the disk. Synchronously the arms *r* revolving with the spindle *g*, engage the pins *o* and move the next bottle into position under the funnel.

The details of my construction may be varied without departing essentially from my invention.

I claim as my invention:

1. A counting machine for tablets and the like, comprising a hopper having a substantially horizontal bottom and an escape aperture therein, in combination with a perforated disk rotatable above said bottom and partitions dividing said hopper into a plurality of compartments, and means to rotate said disk, the latter being of approximately the thickness of the tablets to be counted and the perforation being of a size and shape to freely accommodate a tablet, substantially as described.

2. A counting machine for tablets and the like, comprising a hopper, a disk revolving therein, and means to actuate said disk in combination with partitions dividing said hopper into a plurality of compartments, and brushes on said partitions adjacent said disk, substantially as and for the purposes described.

3. A counting machine for tablets and the like, comprising a hopper, a disk revolving therein, and means to actuate said disk in combination with partitions dividing said hopper into a plurality of compartments and a leveling brush on one of said partitions, substantially as described.

4. A counting machine for tablets and the like, comprising a hopper, a disk revolving therein, and means to actuate said disk in combination with partitions dividing said hopper into a plurality of compartments and means having channels to establish communication between said compartments, substantially as described.

5. A counting machine for tablets and the like, comprising a hopper provided with a bottom having a discharge aperture, a perforated disk revolving above said bottom, partitions dividing said hopper into a plurality of compartments, one of which embraces said discharge aperture and extends beyond the same to permit a view of the perforations of the disk before they pass over said aperture, in combination with means to revolve said disk.

6. A counting machine for tablets and the like, comprising a hopper, a perforated disk therein, a spindle carrying said disk and means to rotate said spindle, in combination with a rotatably mounted bottle carrying device and means in connection with the means for actuating said disk spindle, for rotating said device, and means for leading the tablets from the counting mechanism to a bottle carried by said device.

7. A counting machine for tablets and the like, comprising a hopper, a perforated disk therein, a spindle carrying said disk and means for rotating the latter in combination with a bottle carrying device comprising a carrying ring, bottle supports thereon, pins projecting below said ring and an actuating device therefor comprising arms mounted on the disk spindle adapted to engage said pins, together with means for leading the tablets from the counting mechanism to a bottle carried by said ring, substantially as described.

8. A counting machine for tablets and the like, comprising a hopper, a perforated disk therein, a spindle carrying said disk and means for rotating the latter in combination with a bottle carrying device comprising a

carrying ring, bottle supports thereon, pins projecting below said ring and securing said bottle supports thereto, and an actuating device therefor comprising arms provided with adjustable extension fingers mounted on the disk spindle and adapted to engage said pins, together with means for leading the tablets from the counting mechanism to a bottle supported on said ring, substantially as described.

9. A counting machine for tablets and the like, comprising a hopper, a perforated disk therein, a spindle carrying said disk and means for rotating the latter in combination with a bottle carrying device comprising a vertically adjustable rotatable carrying ring provided with detachable recessed bottle supports, means for intermittently rotating the same, means for holding the same stationary between rotations and adjustable means for leading the tablets from the counting mechanism to a bottle carried by said supports.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses.

WILLIAM H. FROGGATT, JR.

Witnesses:

WILLIAM ABBE,

L. H. GROTE.