

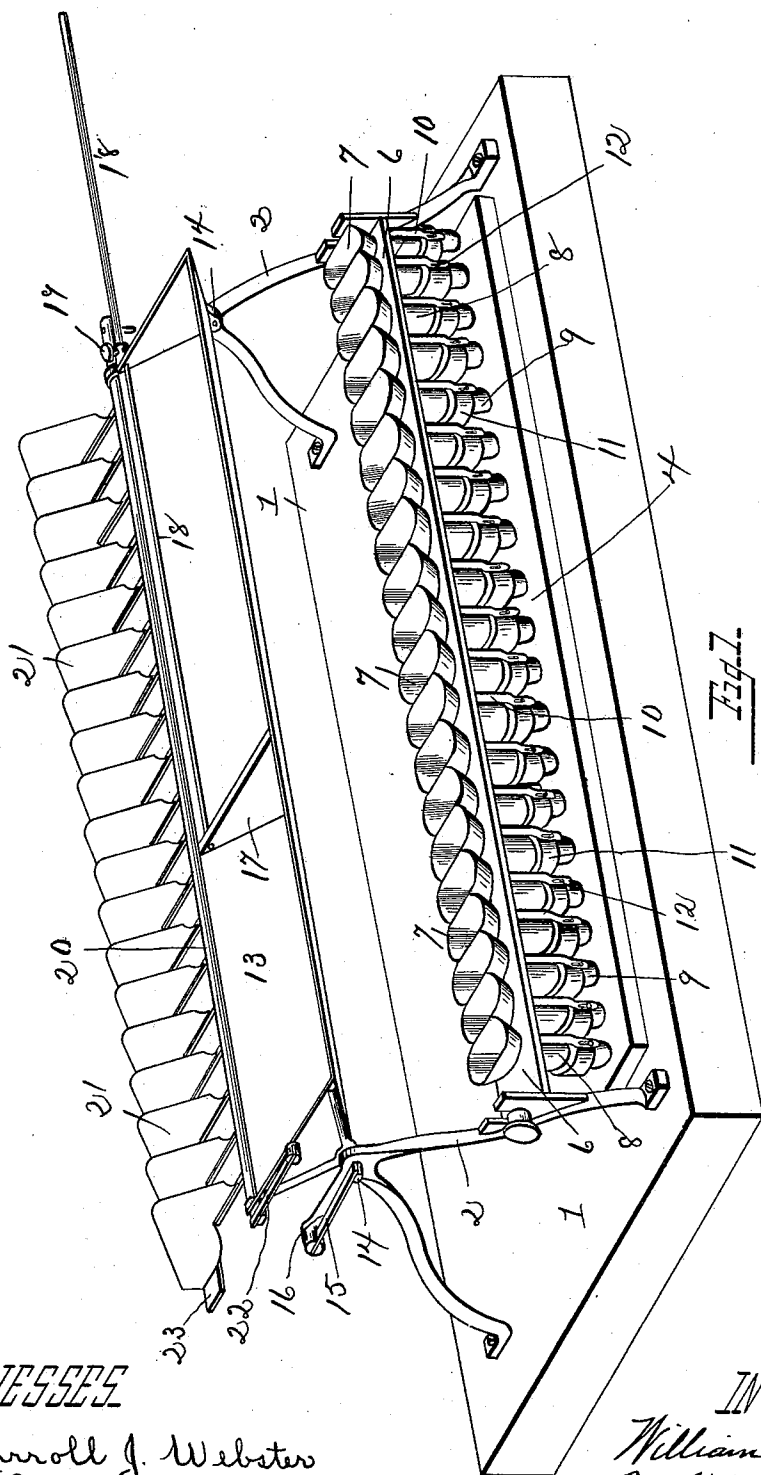
(No Model.)

2 Sheets—Sheet 1.

W. F. YOUNG.
APPARATUS FOR FILLING CAPSULES.

No. 507,870.

Patented Oct. 31, 1893.



WITNESSES

Carroll J. Webster
F. R. Webster

INVENTOR

William F. Young
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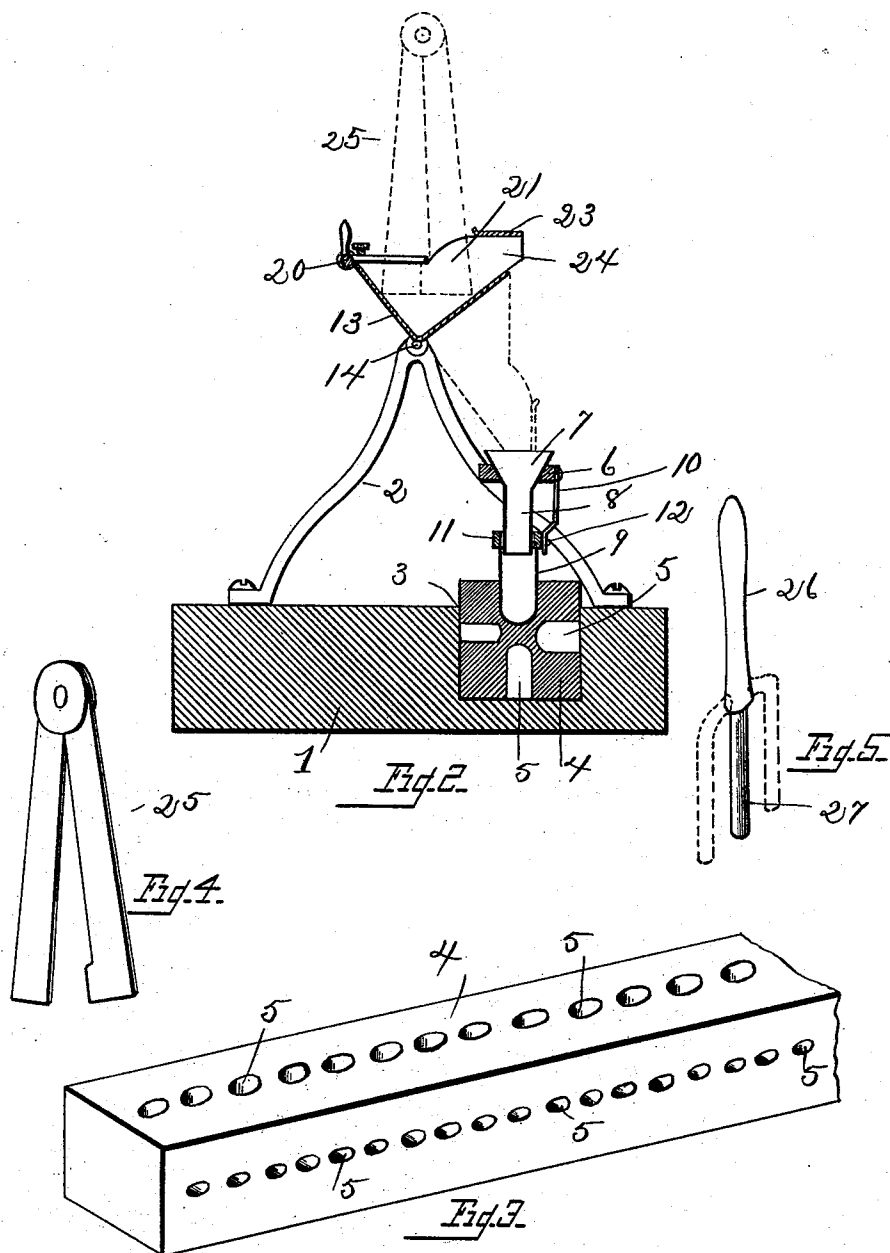
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UNITED STATES PATENT OFFICE.

WILLIAM F. YOUNG, OF TOLEDO, OHIO.

APPARATUS FOR FILLING CAPSULES.

SPECIFICATION forming part of Letters Patent No. 507,870, dated October 31, 1893.

Application filed March 31, 1893. Serial No. 476,179. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM F. YOUNG, of Toledo, county of Lucas, and State of Ohio, have invented certain new and useful Improvements in Apparatus for Filling Capsules; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form part of this specification.

My invention relates to a capsule-filling machine, and has for its object to provide a convenient means for automatically filling a plurality of capsules of any desired size, with an arrangement for varying the number of capsules filled, and also the amount of material placed within the capsule, as well as to secure a uniformity of the quantity of material deposited therein.

With these objects in view, the invention consists broadly in a receptacle for the material pivoted, and divided transversely by a plurality of dividers, with a plurality of funnels co-incident with the partitioned receptacle for the material, so that when the receptacle is moved upon its pivots, the material is dumped into the funnels to be fed to the capsules.

The invention further consists in a receptacle for the material, pivoted to swing, a plurality of knives or dividers upon a pivoted bar and adapted to swing above the receptacle, to allow the placing of the material therein, and then returned to cause the dividers to separate the material into equal quantities, with means for reducing the area of the receptacle for material to any desired area longitudinally in order to vary the number of capsules filled at one operation.

The invention consists further in means for accommodating capsules of different sizes, and interchangeable funnels to co-act therewith.

The invention further consists in a V shaped receptacle for the material, and are equalized to level the material uniformly, comprising a scraper adjustable to contact with the sides of the receptacle at any height from the bottom.

The invention further consists in the parts and combination of parts hereinafter described and pointed out in the claims.

In the drawings:—Figure 1 is an elevation in perspective of a complete apparatus, the dividers being thrown back to disclose their construction and operation, and also to disclose the receptacle for the material with the gage plate adjusted to divide the receptacle longitudinally. Fig. 2 is an end view in transverse section. Fig. 3 is a perspective of the graduated reversible capsule receptacle. Fig. 4 is a side elevation of the scraper for uniformly distributing the material within the receptacle. Fig. 5 is an elevation of a punch for compacting the material within the capsules, showing in dotted lines the addition of punches if desired to facilitate the work.

1 designates the base upon which is secured end standards 2 preferably of inverted V shape, to properly brace and strengthen the same with proper lightness and symmetry of appearance, although the form is of no material moment providing the front of the standards incline sufficiently to support the movable portions with proper relation to each other. Supported upon base 1, and preferably within a rectangular recess 3 is a rectangular block 4, having a series of holes 5 forming receptacles for the capsules, each side of the capsule holder having a row of holes 5 of different size, whereby there is provision made for the reception of four sizes of capsules to each apparatus, and provision for a greater variety in sizes can be had by simply supplying an extra holder with each apparatus in which the graduation is contained.

Immediately above the central portion of the capsule holder is removably sustained upon the standards a plate 6 in which is secured a number of funnels 7, equal to the number of capsule holes in the side of block 4. From each funnel 7 there is a depending tube 8, of a length and diameter to enter the end of the capsule 9, and guide the material therein, and in order to close the annular space between the tube and capsule, and at the same time serve as a weight to hold the capsule in place, there are hangers 10 secured upon the plate 6, one to each tube, and an annular weight 11 suspended upon each hanger by means of a stud 12 projecting from one

side of the weight, and entering an elongated slot in the hanger. It is designed to furnish a plurality of plates 6 having the funnel and tubes of sizes to correspond with the different sizes of capsules used.

13 designates a V shaped trough or receptacle for the material to be used in forming the capsule, and is formed with a pivot 14 upon each end journaled in the standards 2 sufficiently in rear of the funnels to cause the forward side of the receptacle to co-incide with the funnels when the receptacle is rocked upon its pivots, as shown in dotted lines Fig. 2, in order to discharge the contents into the funnel. In order to secure the receptacle in either its horizontal or rocked position, the end of the pivot is squared upon two sides, and a leaf spring 15 is secured upon an arm 16 projecting from one of the standards 2, which bears upon the squared side when the receptacle is in either position, and holds the same in this adjustment, and at the same time allows of ready movement by exerting slight force upon the pivots. In the present instance, there are twenty funnels shown, and the receptacle is of a length to deposit in each at the same time, but in order to allow of using a less number of funnels, there is a gage provided comprising a plate 17 of the same contour of the interior of the receptacle, having a rod 18 secured thereto, which passes through an opening in the end of the receptacle, and is held in any adjustment by means of a thumb screw 19. By this arrangement the gage may be set to any desired length of operative portion of the receptacle, and determines the space into which the material is to be placed, and consequently the number of capsules filled at one time.

In order to correctly divide the material in the receptacle into equal parts, there is a rod 20 journaled in the rear side of the receptacle, and upon this rod is secured a plurality of knives or dividers 21 equal in number to the number of funnels whereby when the material is evenly distributed in the receptacle, the rod is revolved to cause the knives or dividers to enter the receptacle, and being of the same contour, pass through the material and divide the same into equal parts. The end of the rod 20 is squared upon two sides and a plate spring 22 secured upon a flat portion, when the rod is turned to raise the dividers from the receptacle or to introduce them into the receptacle.

23 designates a plate secured upon the upper front portion of the knives or dividers, and serves when the dividers are inserted into the receptacle to form a covering along the entire length of the receptacle, serving to form a spout 24 to each subdivision formed by the dividers, and guide the material into the funnels.

In order to level the material in the receptacle to insure an equal discharge of the same into the envelopes, I have devised an adjust-

able leveler 25 capable of being adjusted to any required width to compensate for varying heights of the material in the receptacle, so that if a capsule of the largest size is being filled and the greatest amount of material is being employed, the leveler will be adjusted to a width to contact with the inner inclined sides of the receptacle at a point to level the material, and if a less amount of material is being used, the leveler is adjusted to a less width for the same purpose.

In Fig. 5 is shown a convenient punch for compacting the material into the capsules after it has been introduced through the funnels and tubes, which comprises a handle 26, having a punch end 27 of a diameter to fit the capsule. If desired there may be a plurality of punches as shown in dotted lines to facilitate the operation of compacting the material into the capsules.

In operation, the dividers are thrown back, and the material placed within a receptacle and struck to an exact level, when the dividers are thrown forward, and caused to enter the receptacle and separate the material uniformly. The receptacle is then turned upon its pivots, and the material is poured from each compartment into its co-incident funnel, and gravitated through the tubes to the capsules. The receptacle is now returned to its horizontal position, and if the material is of a tenacious character, the punch is inserted into the tubes, and any particles that may have adhered to the tubes are forced into the capsule and the material is compacted therein. Plate 6 is now raised from its support, carrying with it the funnels and tubes, and as the tubes are withdrawn from the capsules, the weights 11 rest upon the ends of the capsules and hold them from displacement until the tubes are fully withdrawn, when, as the studs 12 contact with the lower ends of the walls of the slots in hangers 10, they are carried with the tubes, and the plate is entirely removed, when the capsules are capped and removed.

It will be seen that the whole operation is mechanical, and the division of the material absolutely perfect with reference to the quantity to be inserted into the envelopes.

What I claim is—

1. In a capsule filler, a receptacle for capsules, a tilting receptacle for the material to be inclosed, funnels in co-incidence with the receptacle when tilted, and also with the capsules and means for dividing the material within the receptacle into equal quantities.

2. In a capsule filler, a receptacle for capsules, funnels in co-incidence with the capsules, formed with tubular portions to enter the capsules and annular weights upon the tubes, a receptacle for material to be inclosed, having a movement to discharge into the funnels, and mechanism for separating the material in the receptacle into equal parts.

3. In a capsule filler, a receptacle for the

material to be inclosed, a movable gage with-
in the same, a plurality of dividers pivoted
to enter the receptacle and form compart-
ments, funnels in co-incidence with the com-
partments, and means for securing capsules
in co-incidence with the funnels.

4. In a capsule filler, a receptacle for cap-
sules formed with graduated openings for the
reception of capsules of different sizes.

10 5. In a capsule filler, a base, a frame, a re-
ceptacle for capsules supported upon the base,
a movable plate supported upon the frame
having a plurality of funnels and tubes in

co-incidence with the capsules, and means for
filling the capsules through the tubes.

6. In a capsule filler, a receptacle for the
material, and means for dividing the same
into equal quantities comprising a plurality
of blades adapted to enter the receptacle.

In testimony that I claim the foregoing as
my own I hereby affix my signature in pres-
ence of two witnesses.

WILLIAM F. YOUNG.

Witnesses:

WILLIAM WEBSTER,

F. R. WEBSTER.