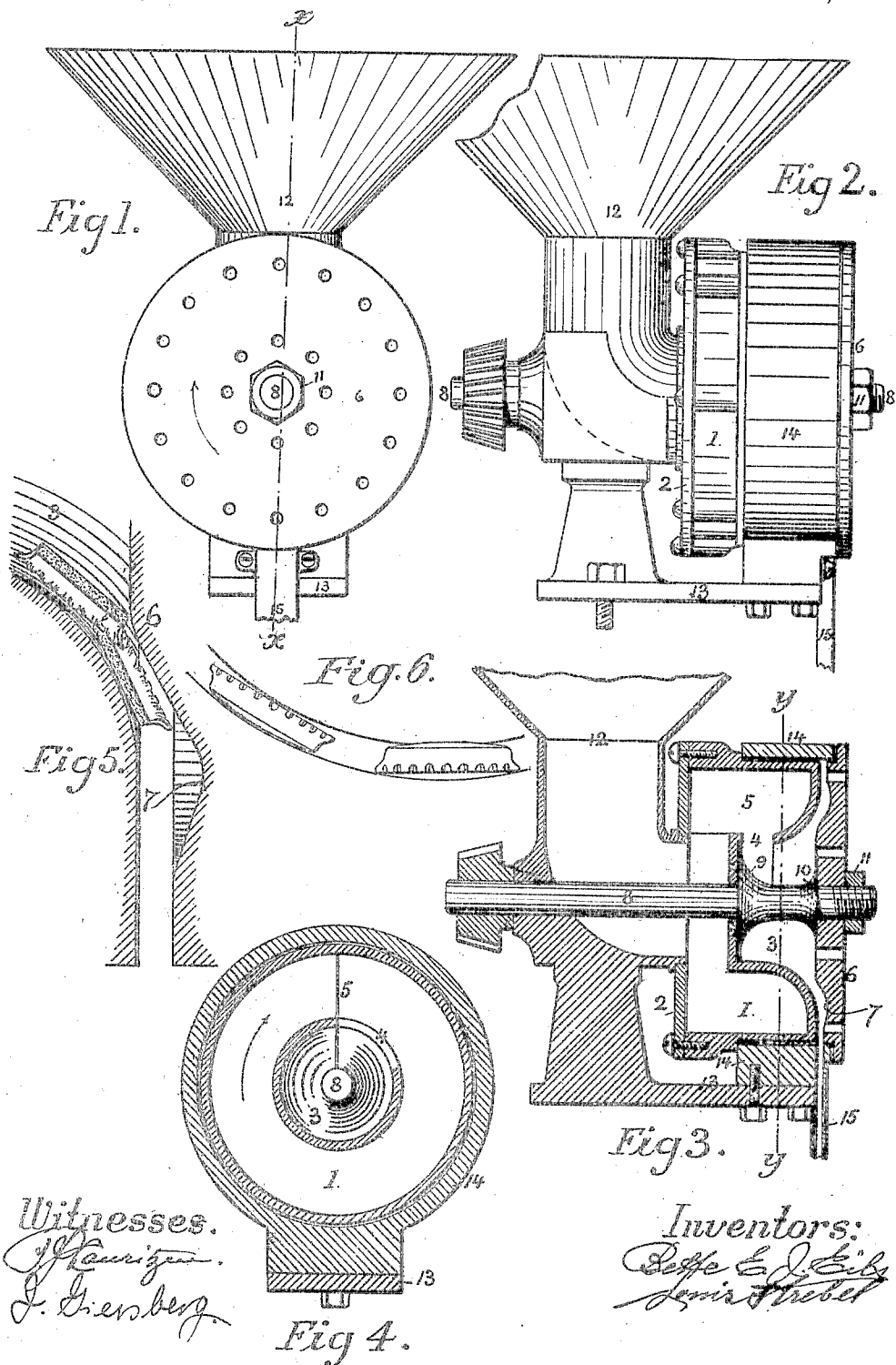


B. E. J. EILS & L. STREBEL.
BOTTLE CAP FEEDER.
APPLICATION FILED DEC. 21, 1909.

1,009,658.

Patented Nov. 21, 1911.



Witnesses.
H. E. J. Eils
L. Strebel

Fig 4.

Inventors:
B. E. J. Eils
L. Strebel

UNITED STATES PATENT OFFICE.

BETTE E. J. EILS AND LOUIS STREBEL, OF NEW YORK, N. Y., ASSIGNORS TO GLOBE MACHINE & STOPPER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK

BOTTLE-CAP FEEDER.

1,009,658.

Specification of Letters Patent. Patented Nov. 21, 1911.

Application filed December 21, 1909. Serial No. 534,385.

To all whom it may concern:

Be it known that we, BETTE E. J. EILS, a citizen of the United States, and LOUIS STREBEL, a citizen of Switzerland, both residents of New York, in the county of New York and State of New York, have invented a certain new and useful Bottle-Cap Feeder, of which the following is a specification.

Our feeder of flanged bottle-caps is new as a whole, and also as regards most of its essential component parts which we prefer to use in conjunction but some of which may be embodied in other styles of bottle-cap feeders.

The feeder illustrated consists of a vertically revolving drum, the reservoir part of which is preferably though not necessarily supplied with bottle-caps from a suitable stationary hopper, and is constructed with an inwardly projecting and centrally arranged circular pocket, which flares outwardly into a vertical wall and forms one side of an annular out-feed throat. The other side of this throat consists of part of the surface of the drum's face plate which is so shaped and set that the annular inlet or mouth of the annular throat is formed by two plain concentric surfaces accurately spaced to permit the passage through such mouth of flanged bottle-caps facing in one direction but prevent the passage of such caps facing in the reverse direction. The annular throat is encircled by a stationary ring in which the drum revolves and which has an outlet issuing into the service chute. The pocket has a side inlet through which the caps are automatically shoveled into it from the reservoir part of the drum.

On the annexed drawing Figure 1 illustrates a front elevation of the feeder; Fig. 2 a side elevation thereof; Fig. 3 a vertical axial section thereof on line $x-x$ on Fig. 1; Fig. 4 a vertical cross section thereof on line $y-y$ of Fig. 2; Fig. 5 a vertical cross section of a part of the annular out-feed throat thereof with two oppositely faced flanged bottle-caps; and Fig. 6 an interior view of a part of the feeder looking into the mouth of the annular out-feed throat with two oppositely faced flanged bottle-caps. Figs. 5 and 6 are full-size illustrations of the annu-

lar out-feed throat as we have constructed and used it in practical work; while the other figures illustrate the feeder on a smaller scale.

The same reference numeral is used on all the figures to designate any one part of the feeder.

1 designates the reservoir of the vertically revolving drum, having a back plate 2, and constructed with an inwardly projecting and outwardly flaring circular pocket 3, into which the caps are fed from the reservoir through a side inlet 4 by means of radial blade 5 fixed in the reservoir and extending through down one side of said inlet into the pocket; the blade acting as a shovel in the rotation of the drum. The outwardly flaring end of the pocket merges into the vertical face of the reservoir, and is confronted by the face plate 6 of the revolving drum so as to form an annular opening or out-feed throat, curved toward its inner end because the interior side of the face plate overhangs the curve of the pocket, as most clearly shown in Fig. 5. A flanged cap, such as shown for instance, resting with its flange on the concave side of a curve sits up higher than one resting thereon with its top, as illustrated in Figs. 5 and 6; the difference being really more marked because the tops of the caps in common use are more or less crowned. We take advantage of this fact, and so form and adjust the face plate with reference to the flaring mouth of the pocket that the annular mouth of the annular out-feed throat is wide enough to permit the passage through such mouth of caps coming down the pocket top down, yet so narrow as to prevent the passage of caps coming down the pocket flange down as shown clearly in Fig. 5. It will be readily understood that for practical work the diameter of the annular mouth of the throat should not be too large. In the feeders which we have in practical use with perfect results this diameter is about five inches. When the outer portion of the out-feed throat is made vertical, as shown, the flanged caps, which enter the throat in an oblique direction, have to swing sufficiently to assume a vertical position. In such case, therefore, the face plate

is recessed at 7 to permit of such swinging of the caps as they pass.

The drum is turned by a central shaft 8, the back plate of pocket 3 being rigidly secured to a collar 9 on such shaft. The face plate 6 is mounted on one end of this shaft and so firmly pressed against another collar 10 thereon by a nut 11 that it also must turn with the shaft. The proper adjustment of the face plate 6 may be obtained by one or more thin shims placed between it and the collar 10 of the shaft.

If the reservoir of the drum is supplied with caps from a stationary hopper 12, as shown, the back plate 2 of the reservoir has a central opening fitting the neck of the hopper, and shaft 8 extends through a hub on the latter to receive an exterior gear for turning it. The central in-feed thus provided for insures an unfailling and unobstructed flow of caps from the hopper into the reservoir of the drum, and in such a way that the caps can receive no damage in their passage from the one into the other. The hopper has a base with a horizontal flange 13 projecting under the drum to support the stationary ring 14 which encircles the annular out-feed throat. This ring has a suitable outlet opening for the passage of caps from said throat down the service chute 15.

The face plate 6 has numerous holes for observation, the inner edges thereof aiding in a measure in the movement and tumbling of the caps.

The shoveling blade is so positioned that the inlet of the pocket is in front of it. So that if it be desired to revolve the feeder in the direction reverse to that indicated by the arrows on Figs. 1 and 4, the shoveling blade must be positioned on the other side of the inlet. The size of this inlet is such as to freely admit a cap in whatever position presented, yet prevent too many to enter at a time in order that the pocket may not be overfilled and the free movement of the caps therein interfered with. We are using, with perfect success, an inlet full 1 1/4 inches long and 3 inches wide in a pocket 4 inches in diameter at that place; the feeder having a great out-feed capacity when revolved at full speed.

The operation of this bottle-cap feeder will be readily understood from the foregoing description. One important and distinctive feature thereof not referred to so far should, however, be mentioned. The caps pass through this feeder without meeting or being caught in any obstruction that can mar or distort them. This is especially important as regards the out-feed throat. So far as we know in all previous bottle-cap feeders there are obstructions in the out-feed throat, fixed, or movable, or both kinds, acting as selecting devices, which are liable

to and frequently do not only distort caps but cause jamming of the mass, so that the feeder must then be opened and cleaned out. It will be readily observed that our cap feeder is not liable to these objections because the selection of the caps is effected by the wholly unobstructed annular mouth of the out-feed throat.

The style of our bottle-cap feeder illustrated and described is designed for use on a single machine; but its construction may be readily so varied that it can supply caps simultaneously to two machines through two separate service chutes.

We have illustrated and described our invention as we have embodied it for practical work. As to possible variations, more especially as regards the formation of the entrance of the out-feed throat, it must be distinctly understood that that feature of our invention consists broadly of a wholly unobstructed annular mouth thereof formed by two plain concentric surfaces so separated that by reason of the greater projection of a flanged cap from the concave circular surface of such mouth when its flange faces such surface such cap cannot pass through such mouth; whereas a flanged cap the top of which faces such surface, and therefore projects less therefrom, may pass through such mouth.

We claim as our invention.

1. A feeder for flanged bottle caps, having an annular out-feed throat, the mouth of which is formed of two plain concentric opposed surfaces affording a free passage for correctly faced caps, and so spaced apart that they engage and prevent the passage of reversely faced caps, substantially as and for the purpose set forth.

2. A feeder for flanged bottle caps, revolving in a vertical plane and having an annular out-feed throat, the mouth of which is formed of two plain concentric opposed surfaces affording a free passage for correctly faced caps, and so spaced apart that they engage and prevent the passage of reversely faced caps, substantially as and for the purpose set forth.

3. A bottle-cap feeder embodying in its construction a reservoir containing a fixed shoveling blade, and a centrally arranged circular pocket projecting into said reservoir and having a side inlet in front of said shoveling blade, all these parts being connected and revolving together in a vertical plane when in operation, substantially as hereinbefore set forth.

4. For feeding flanged bottle-caps into a service chute faced all in one direction, a feeder composed of a drum constituting a reservoir and containing a fixed shoveling blade, a cap selecting annular out-feed throat, and a centrally arranged pocket projecting into said reservoir from said throat.

and having a side inlet, all said parts being connected and revolving together in a vertical plane when in operation, in combination with a stationary ring encircling the
5 out-feed throat and having an outlet for the passage of selected caps from the throat into the service chute.

Signed at New York in the county of

New York and State of New York this 17th day of December A. D. 1909.

BETTE E. J. EILS.
LOUIS STREBEL.

Witnesses:

J. PLAURITZEN,
IDA GRIERSBERG.