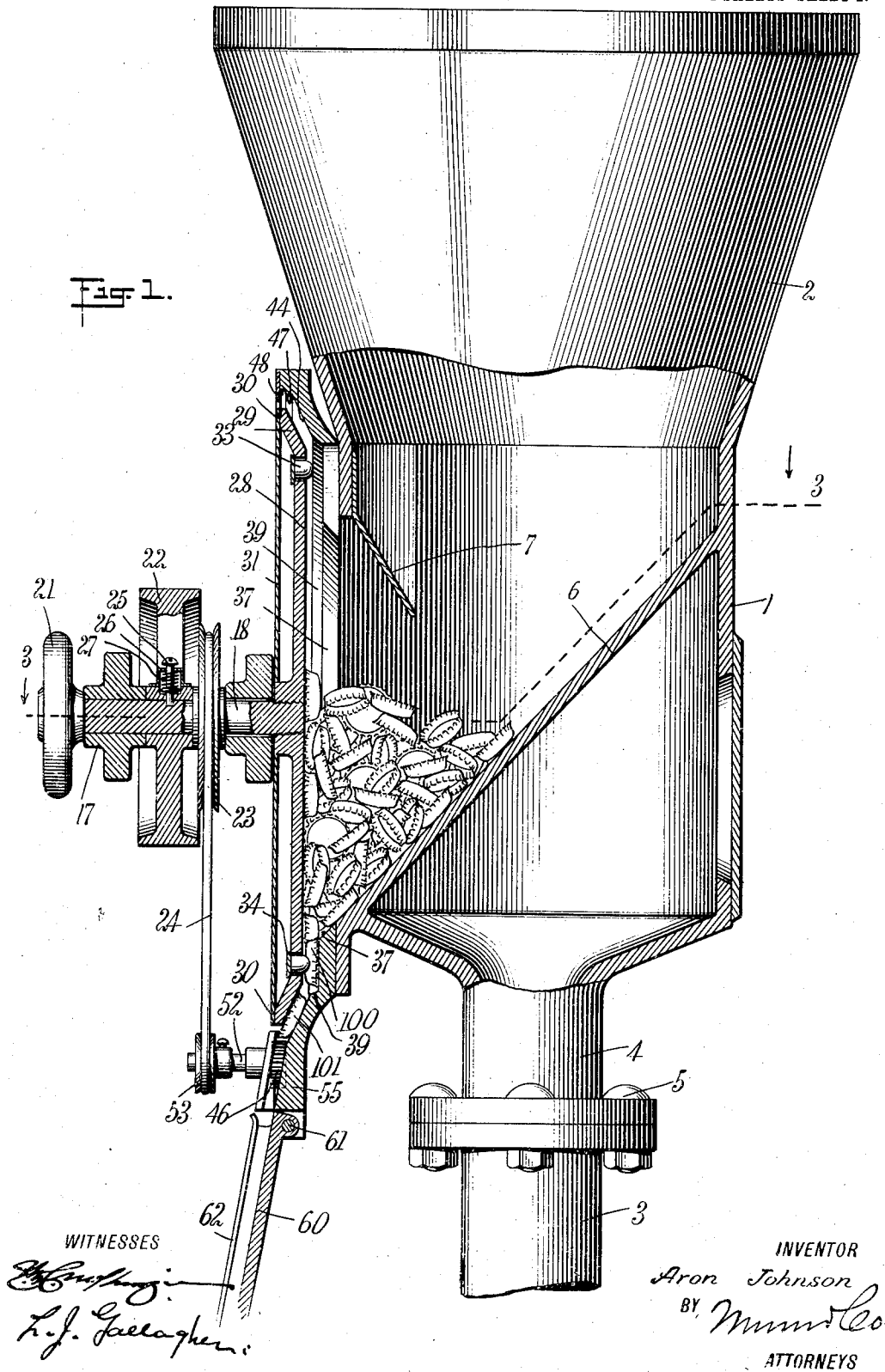


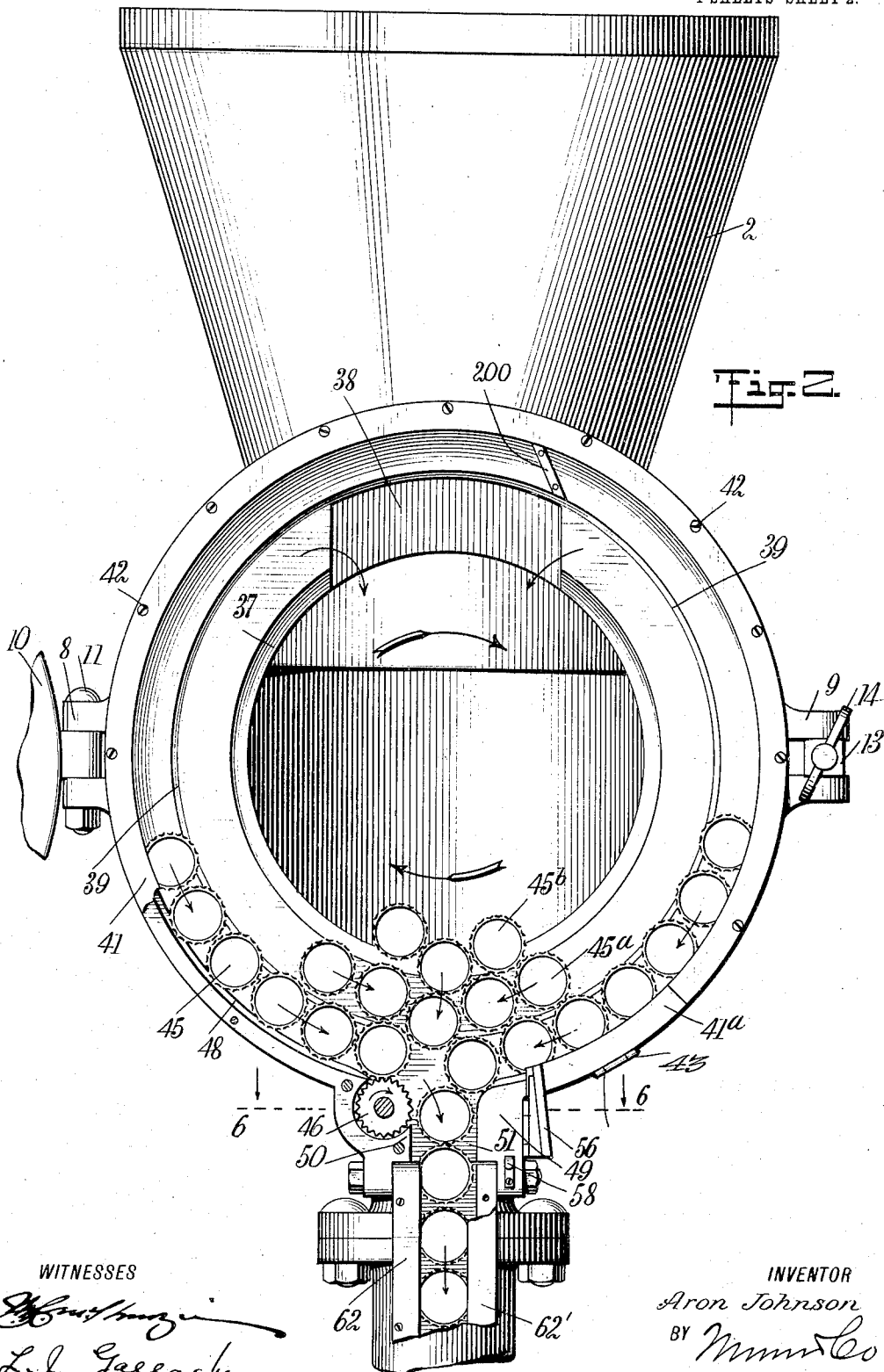


A. JOHNSON.
CAP FEEDING MECHANISM.
APPLICATION FILED FEB. 17, 1912.

1,042,922.

Patented Oct. 29, 1912.

4 SHEETS—SHEET 2.



WITNESSES

L. J. Gallagher

INVENTOR

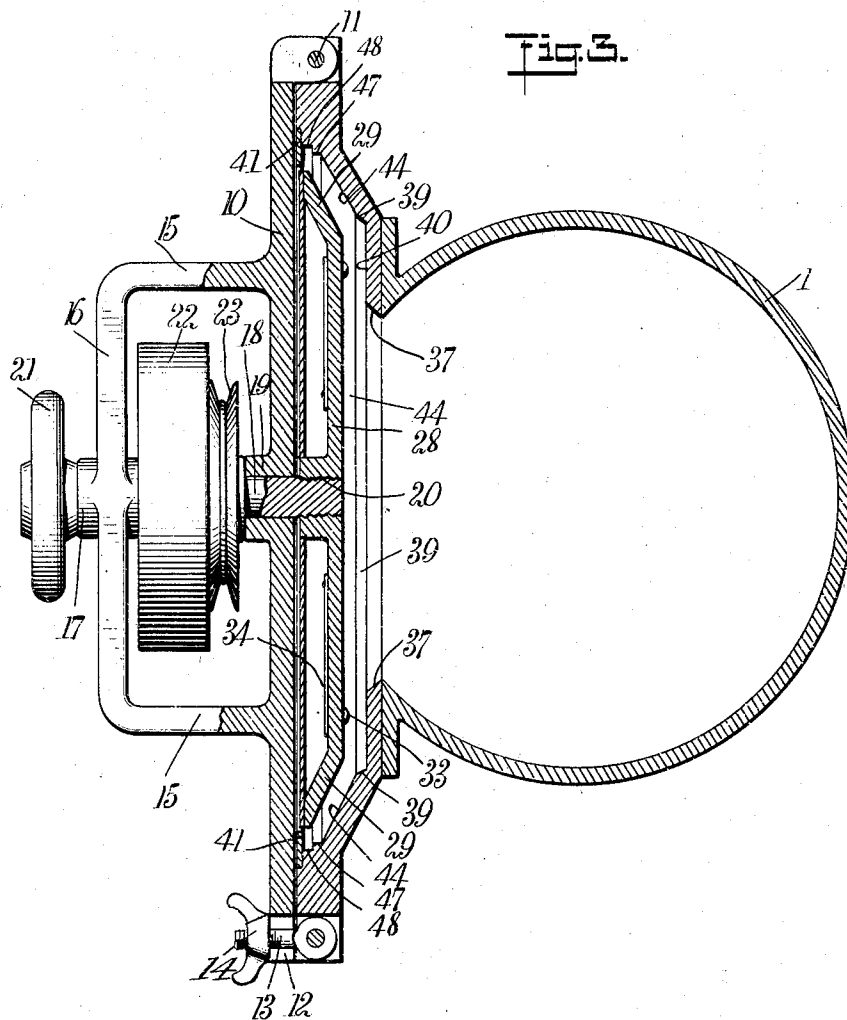
Aron Johnson
BY *Wm. Co.*

ATTORNEYS

1,042,922.

A. JOHNSON.
CAP FEEDING MECHANISM.
APPLICATION FILED FEB. 17, 1912.

Patented Oct. 29, 1912.
4 SHEETS—SHEET 3.



WITNESSES
W. J. Gallagher
L. J. Gallagher

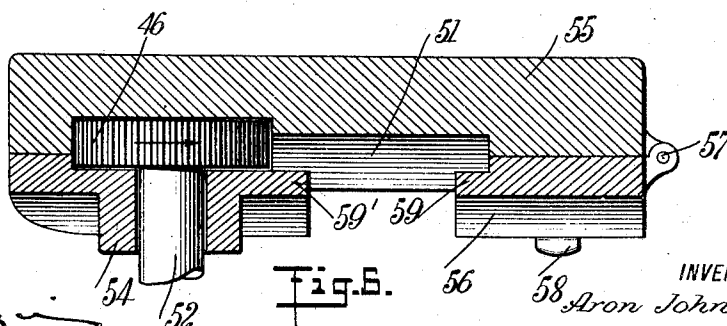
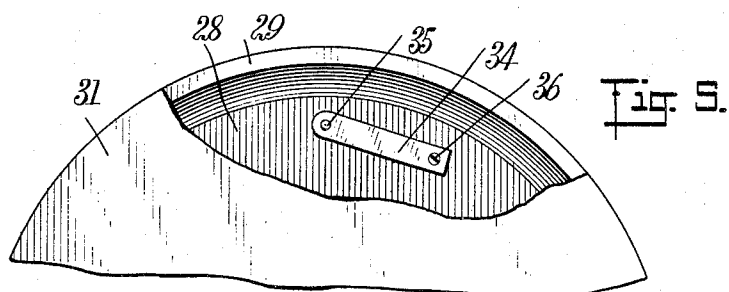
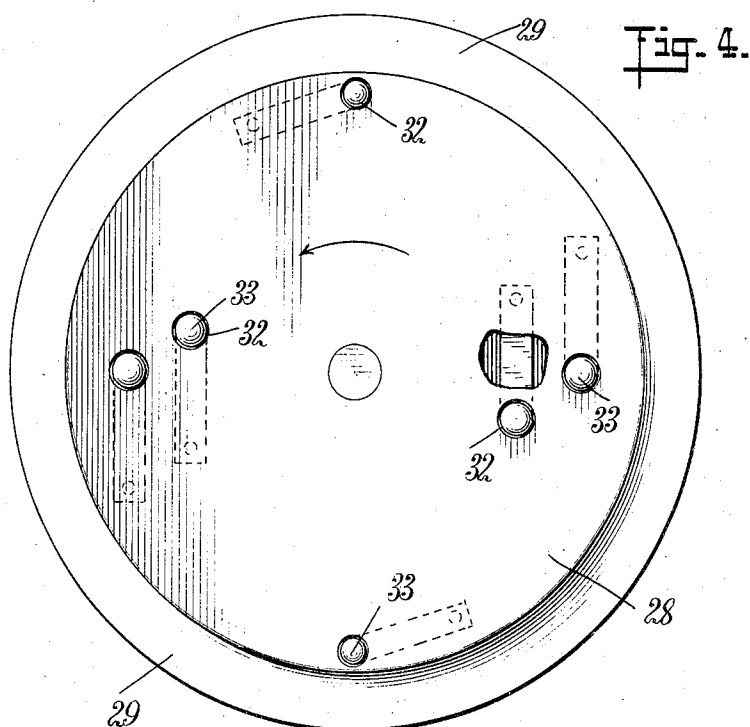
INVENTOR
Aron Johnson
BY *Munn & Co.*
ATTORNEYS

1,042,922.

A. JOHNSON.
CAP FEEDING MECHANISM.
APPLICATION FILED FEB. 17, 1912.

Patented Oct. 29, 1912.

4 SHEETS—SHEET 4.



WITNESSES
Ernest J. Gallagher
L. J. Gallagher

INVENTOR
Aron Johnson
BY *Wm. Co.*
ATTORNEYS

UNITED STATES PATENT OFFICE.

ARON JOHNSON, OF NEW YORK, N. Y.

CAP-FEEDING MECHANISM.

1,042,922.

Specification of Letters Patent.

Patented Oct. 29, 1912.

Application filed February 17, 1912. Serial No. 678,175.

To all whom it may concern:

Be it known that I, ARON JOHNSON, a citizen of the United States, and a resident of the city of New York, borough of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Cap-Feeding Mechanism, of which the following is a full, clear, and exact description.

My invention relates to a cap feeding mechanism especially adapted for use on bottle capping machines and the principal object of my invention is to provide a new and improved construction whereby the caps will be fed to the cap-affixing mechanism in proper sequence and in correct position.

More specifically, the object of my invention is to provide a new and improved hopper adapted to contain a quantity of bottle caps indiscriminately placed therein, movable means being provided for feeding the caps consecutively in proper position to a suitable outlet.

Other objects and advantages of the invention will appear as the description thereof proceeds, the new and useful features being set forth in the appended claims.

Reference is to be had to the accompanying drawings forming a part of this specification in which similar characters of reference denote corresponding parts in all the views, and in which—

Figure 1 is a partial vertical sectional view of the device; Fig. 2 is a side view with the movable element swung to open position; Fig. 3 is a horizontal sectional view of the device on the line 3—3 of Fig. 1; Fig. 4 is a plan view of the inner side of the movable element; Fig. 5 is a partial plan view of the opposite side thereof; Fig. 6 is a sectional view on the line 6—6 of Fig. 2.

The cap feeding mechanism herein described and claimed is adapted for use on any bottle capping machine, the size and shape of the parts illustrated being merely one embodiment of the inventive idea, it being clear that various changes may be made without departing from the invention.

Any suitable receptacle adapted to hold a plurality of caps and designated as a whole by 1, together with the upwardly flaring open portion 2 forms, in effect, a hopper and is adapted to receive and hold a quantity of caps. The hopper may be sup-

ported in any suitable manner, that shown in the drawings embodying a post or support 3, the lower end of the hopper having an extension 4 secured to the post by means of bolts or nuts 5. The hopper may be made in one or more pieces but is preferably of integral construction.

Within the hopper and extending diagonally thereacross from the bottom adjacent what I term the front side, to the rear side, is a partition 6; the partition is shown integral with the hopper although it is clear that the parts may be separately made, if so desired. Within the hopper and adjacent the top of the front thereof is a deflecting plate 7, the purpose of which will be more specifically set forth later.

The hopper is preferably cylindrical in formation, one side, which is termed a front, being provided with a circular opening adjacent which a revoluble element is mounted in position, the construction and arrangement being substantially as follows: Secured at diametrically opposite points on the hopper are a plurality of lugs 8, 9, forming a mounting for the transversely extending arm 10, one end of the arm being provided with a pin 11 mounted between the lugs 8, the opposite end of the arm being provided with an opening 12 adapted to receive the pivoted bolt 13 having a winged nut 14 therein, the bolt being positioned between the lugs 9. This arm 10 is provided at suitable points with offsets 15, the outer ends of which are connected by a longitudinally extending piece 16, the intermediate portion of which forms a bearing 17 for a shaft 18 extending transversely thereof. The intermediate portion of the arm 10 is provided with an opening forming a bearing 19 through which this shaft 18 also extends, the inner end of the shaft being threaded as at 20 and extending beyond the arm. The outer end of the shaft has a hand wheel 21 secured thereto whereby the shaft may be turned when so desired, there being a pulley 22 secured to the shaft and also a grooved wheel 23 about which the belt 24 passes; the pulley 22 is designed to be driven by any suitable source of power while the belt 24 actuates coöperating means which will be later set forth. In some instances it may be desirable to turn the shaft 18 without turning the pulley 22 and to this end the securing means between the pulley and

the shaft comprises a pin 25 mounted in a suitable housing 26, there being a helical spring 27 within the housing and engaging the pin whereby the lower end thereof is maintained in engagement in a suitable recess in the shaft; by reason of its upper or headed end the pin may be brought out of engagement with the shaft, thereby permitting it to be turned independently of the pulley.

Secured to the inner threaded end 20 of the shaft 18 is a revoluble element 28, preferably circular in outline, the peripheral portion 29 of which is angularly extending, the outside edge portion of this peripheral part being flat, as at 30, whereby it may rest securely against a circular plate 31 loosely mounted on the revoluble element 28, as shown particularly in Figs. 1 and 3. This loosely mounted element 31 is designed to cover the revoluble element and also to provide a bearing means for the peripheral portion thereof.

Referring particularly to Figs. 4 and 5 it will be noted that this revoluble element 28 is provided with a number of openings 32, preferably circular in outline, into which movable plugs 33 are inserted, these plugs being suitably secured to leaf springs 34 carried by the opposite side of the revoluble element 28 in any suitable manner, as by means of rivets or screws 35; the plugs may be secured to the springs by screws 36 if so desired. Referring particularly to Fig. 4 it will be noted that the plugs 33 which are diametrically opposite each other and which are shown occupying upper and lower positions are spaced the same distance from the center of the element; the plugs 33, which lie at opposite sides of the revoluble element in the position shown in Fig. 4, also lie on circles of equal radii.

Referring particularly to Figs. 2 and 3 it will be noted that a peripheral shoulder 37 extends partially around the open front of the hopper, the ends of the shoulder being adjacent the top of the structure and being separated by an open or non-shouldered space 38; a second peripheral shoulder 39 is positioned a suitable distance from the first shoulder 37, this second shoulder 39, however, being continuous and the side wall 40 between the shoulders lying substantially in the same plane throughout.

An annular ring 41 is secured to the front of the hopper and extends around the opening therein, this ring being preferably held in position by any means, such as screws 42; if so desired, however, certain portions thereof may be movably mounted in position, a section 41^a being illustrated mounted on a hinge 43 whereby it may be moved in the event of the caps becoming clogged. As shown particularly in Fig. 3, this annular ring, when the parts are in operative posi-

tion, lies in substantially the same plane as the loosely mounted element 31 mounted adjacent the revoluble element 28.

The front of the hopper between the peripheral shoulder 39 and the annular ring 41 is inclined, as at 44, the inclination being substantially equal to the inclination of the angularly extending peripheral portion 29 of the revoluble element 28; the distance between these angularly extending portions or faces is substantially equal to what may be termed the thickness of the cap so that a quantity of caps may be entered or positioned between these angularly extending faces in the operation of the device.

As shown particularly in Fig. 1, the caps are indiscriminately placed within the hopper and are urged toward the front of the device because of the downwardly extending partition 6, the caps, when being sorted or arranged, occupying the positions shown substantially in Fig. 2 wherein some caps 45, lie between the before-mentioned inclined faces of the parts 29, 44; other caps 45^a lying on the substantially vertically extending face 40 between the shoulders 37, 39; still other caps 45^b resting on the shoulder 37 itself.

The purpose of the structure hereinbefore set forth is to properly arrange the caps for feeding to a suitable outlet or chute carried by the device, which outlet or chute will now be described. Beyond the inclined face or portion 44, are a plurality of shoulders 47, 48, which shoulders are adjacent the annular ring 41 and are designed to receive the crimped edge portions of the caps which are included or seated between the inclined faces or portions 29, 44.

Referring particularly to Fig. 1 it will be noted that the substantially annular ring 41 has a portion thereof removed, a rotatable serrated wheel 46 being revolubly mounted in position adjacent one end of the ring, which end is also adjacent one end of the peripheral shoulder 48, previously mentioned. The other end of the ring 41, which in Fig. 2 is shown as one end of the hinged section 41^a, is positioned adjacent the other end of the peripheral shoulder 48, these shoulders being downwardly extended at 49, whereby a chute or outlet 51 is provided. The serrated wheel 46 previously mentioned is of such diameter that its periphery engages with the crimped portions of the caps so that, when the device is in operation and the wheel is turning, the caps adjacent the chute 51 are kept moving and the chances of clogging are lessened. This serrated wheel 46 is mounted on a shaft 52 having a grooved wheel 53 also mounted thereon, the before-mentioned belt 24 engaging this grooved wheel. A suitable bearing 54 is provided for the shaft 52 which bearing is preferably rigid and made as a part of the

downwardly extending front portion 55 of the device. As shown particularly in Figs. 2 and 6, the chute or outlet 51 is provided adjacent its upper end with a hinged door 56 pivotally mounted in position at 57 to the side of the downwardly extending portion 55 of the device, the cover being maintained in closed position by means of a spring clutch 58; the particular construction of this door is such that a shoulder 59 is provided adjacent one side of the chute or outlet so that caps entering the chute are prevented from falling out; the opposite side of the chute is also provided with a shoulder 59', which shoulder is preferably made integral with the bearing 54 of the shaft 52.

In order to provide for a certain degree of adjustment in positioning the hopper on any desirable machine, the guide member 60, which forms, in effect, a continuation of the chute or outlet 51, is pivotally mounted at 61 whereby it may occupy different positions relatively to the chute proper, the sides of the outlet being provided with shoulders 62, 62', whereby the caps are maintained in proper position therein.

The use of the device is substantially as follows:—The caps, after having been deposited in the hopper, assume the position shown in Figs. 1 and 2; some of the caps fall down into the space between the angularly extending sides 29 and 44 with the crimped side of the cap adjacent the inner face of the revoluble element 28; other caps come into the space between the plane face 40 of the hopper and the inner face of the revoluble element 28 with the crimped sides thereof adjacent the inner face of this revoluble element, the caps then being in proper position; others of the caps, one of which 100, as shown in Fig. 1, become positioned with the crimped side adjacent the plane face 40, the crimped edge engaging against the inner corner portion of the shoulder 39, such caps being prevented from entering the chute or outlet 51 because of such engagement. However, the cap shown as 101, particularly in Fig. 1, with the crimped side thereof adjacent the inner side of the revoluble element 28 can pass the shoulder 39 by reason of the curved formation thereof, caps occupying a position the same as that designated 100 being prevented from entering the chute or outlet because of the before-mentioned engagement of the crimped edge with the shoulder 39. As the revoluble element 28 turns, the plugs 33 engage the caps which are wrongly positioned, like that designated 100, and sweep or move such caps with them during their travel until they reach the upper front portion of the chute, where they fall down through the open portion 38 into the hopper and again take up their position adjacent the lower end of the revoluble element 28. The turn-

ing of the revoluble element 28 is continuous; the caps which are properly positioned passing downwardly through the chute 51 in the periods between the times which the plugs 33 come adjacent this chute, the caps on the right side of the hopper (Fig. 2) being urged forwardly into position to pass through the chute by the engagement of one of these plugs with the uppermost cap; as the element 28 continues turning, the serrated wheel 46 also turns, the teeth thereon engaging the lower one of the outermost caps, thereby keeping it moving and preventing clogging so that the caps are fed continuously to the chute. The engagement of any one of the plugs 33 with any of the caps keeps a certain number of the caps constantly in motion until they reach the top of the structure where they fall back into the receptacle or hopper, Fig. 2 showing a strap or stop 200 whereby further passage of the caps adjacent the shoulder 39 is prevented. Of course, if any cap comes into the position of that designated 100 in Fig. 1, such cap will remain in such position until the next plug on the movable element 28 comes into position to engage such cap and move it out of the way; the width of the chute is such that but one cap can enter it at a time, the movable element 28 keeping the caps sufficiently stirred so that the feeding into this chute is facilitated.

Having thus described my invention, I claim as new, and desire to secure by Letters Patent:

1. The combination of a receptacle adapted to contain a plurality of caps, the front of the receptacle being open, a plurality of peripheral shoulders adjacent the opening, the distances between the shoulders being substantially equal to the diameter of the caps, an outlet communicating with the receptacle adjacent the bottom thereof, the upper ends of the side walls of the outlet being adjacent the lower ends of some of the shoulders, a member rotatably mounted in position adjacent the front of the receptacle, the member being provided with a plurality of resiliently mounted plugs, the paths of travel of some of the plugs being intermediate some of the said shoulders whereby the plugs may engage some of the caps when they are positioned intermediate some of the shoulders, thereby moving them, other caps being permitted to come adjacent the outlet and enter therein, together with a revoluble serrated wheel adjacent the top of the outlet for engagement with some of the caps in order to bring them adjacent the top of the outlet, there being suitable means whereby this wheel may be driven.

2. The combination of a receptacle adapted to contain a plurality of caps, an outlet connected to the receptacle, means for feeding the caps successively to the outlet, to-

gether with a wheel adjacent the outlet for engagement with the caps whereby they are guided to the outlet.

3. The combination of a receptacle adapted to contain a plurality of caps, the receptacle being provided with an outlet, the caps being adapted to be entered successively into the outlet, means for feeding the caps to the outlet, together with a serrated revoluble wheel adjacent the outlet for engagement with the caps whereby they are guided into position.

4. The combination of a receptacle adapted to contain a plurality of caps, peripheral guiding means carried by the receptacle, revoluble means for moving the caps about the said peripheral guiding means, an outlet connected to the receptacle, together with a revoluble serrated wheel adjacent the outlet for engagement with the caps whereby they may be successively fed to the outlet.

5. The combination of a receptacle adapted to contain a plurality of caps, a chute leading from the receptacle, peripheral guiding means carried by the receptacle, said guiding means comprising shoulders, whereby the proper positioning of a cap within the chute is determined, and a revoluble serrated wheel adjacent the outlet and adapted to engage caps adjacent one of the shoulders, whereby such caps may be kept in motion on their way to the chute.

6. The combination of a receptacle adapted to contain a plurality of caps, a chute leading from the receptacle, a plurality of peripheral shoulders forming guiding means

for the caps on their way to the chute, movable means for engagement with the caps adjacent the shoulders, whereby they may be moved, and a revoluble wheel adjacent the outlet for engagement with the caps adjacent one of the shoulders, whereby the said caps may be kept moving on their way to the chute.

7. The combination of a receptacle adapted to contain a plurality of caps, the front of the receptacle being open, peripheral shoulders adjacent the opening, a chute communicating with the receptacle adjacent the bottom, the upper ends of the side walls of the chute being adjacent the lower ends of some of the shoulders, a member rotatably mounted in position adjacent the front of the receptacle, resiliently mounted elements on the said member and moving therewith, the paths of travel of the said elements being intermediate the said shoulders, whereby the said elements may engage some of the caps and move them, other caps coming adjacent the chute and entering it, and a revoluble wheel adjacent the top of the chute for engagement with some of the caps before they are entered into the chute, whereby such caps may be kept moving, clogging being thereby prevented.

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

ARON JOHNSON.

Witnesses:

PHILIP D. ROLLHAUS,

LAWRENCE J. GALLAGHER.