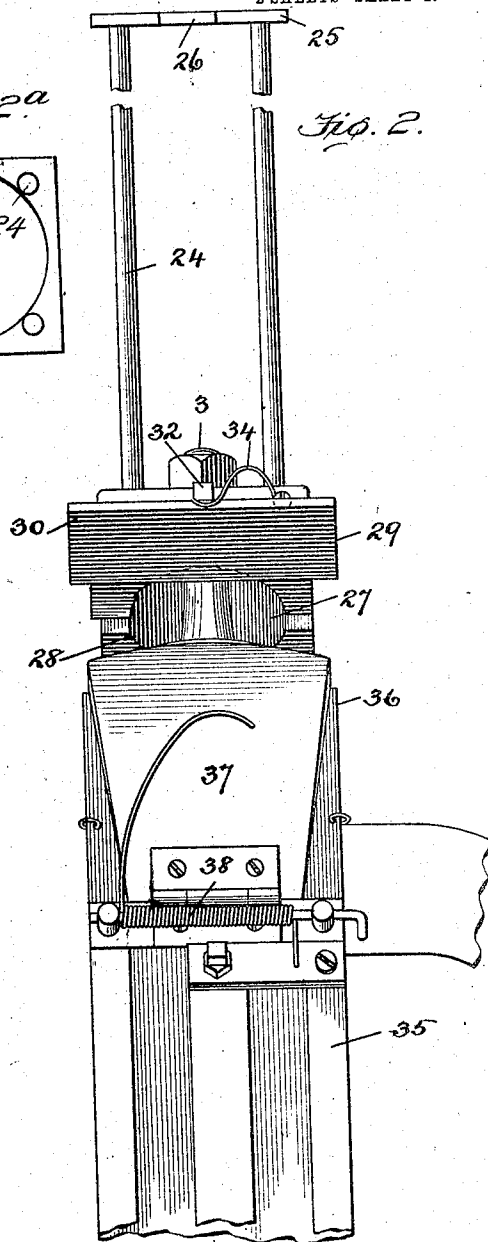
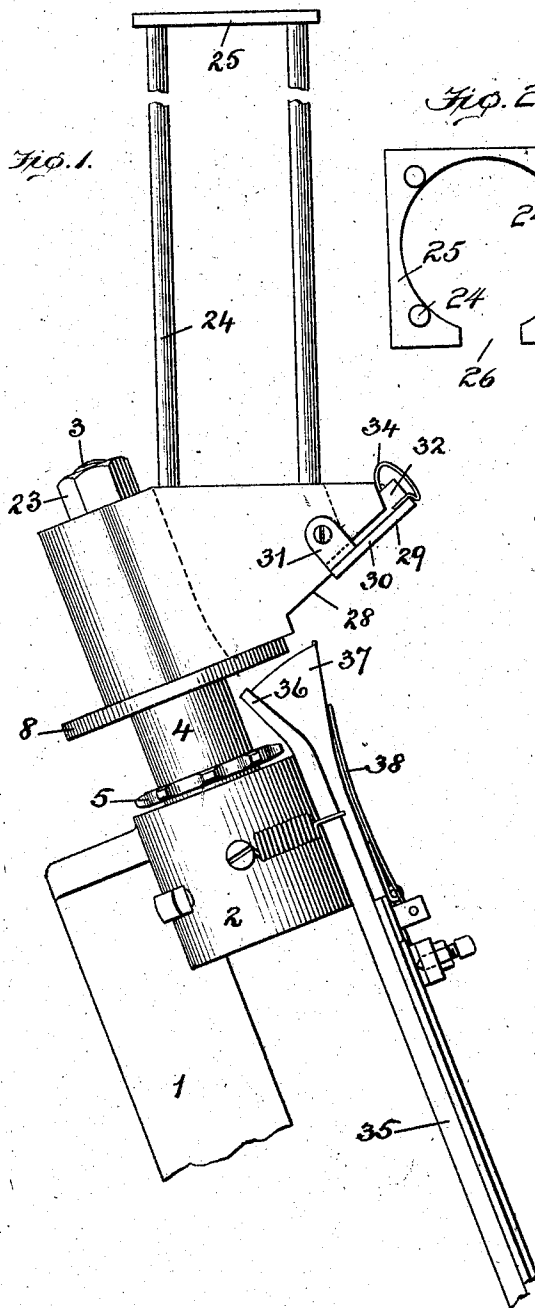


I. F. WARME.  
MECHANISM FOR FEEDING CAPS OR DISKS.  
APPLICATION FILED AUG. 21, 1908.

931,003.

Patented Aug. 10, 1909.

2 SHEETS—SHEET 1.



Inventor

*Ivan F. Warme*

Witnesses

*Edwin L. Bradford*  
*J. Ferdinand Glogt*

By

*Mann & Co.*

Attorneys

I. F. WARME.  
MECHANISM FOR FEEDING CAPS OR DISKS.  
APPLICATION FILED AUG. 21, 1908.

931,003.

Patented Aug. 10, 1909.  
2 SHEETS—SHEET 2.

Fig. 3.

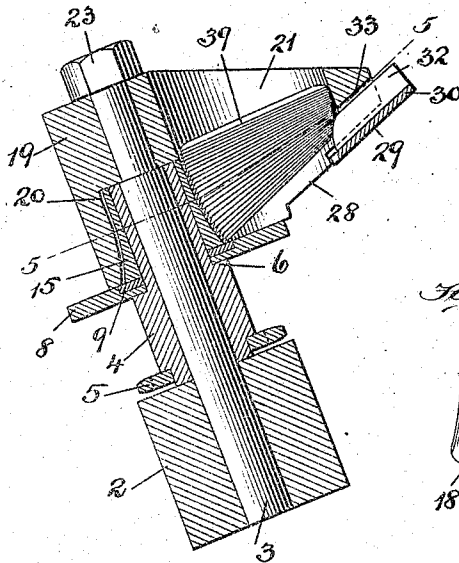


Fig. 5.

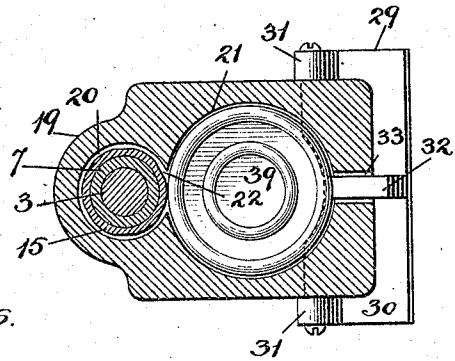


Fig. 6.

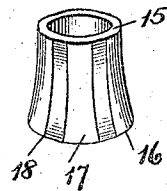


Fig. 7.

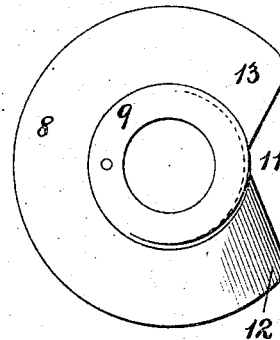


Fig. 4.

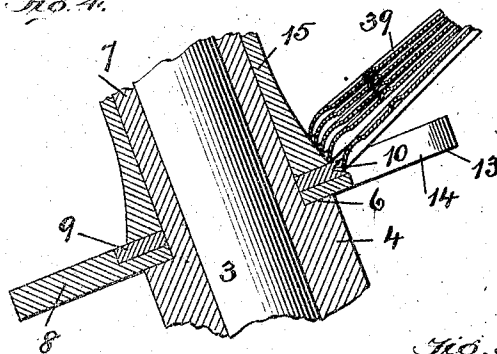
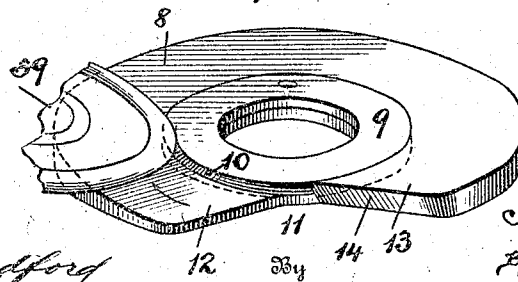


Fig. 8.



Inventor

Ivan F. Warme  
By Mann & Co.  
Attorneys

Witnesses

Edwin L. Bradford  
J. Ferdinand Vayt

# UNITED STATES PATENT OFFICE.

IVAR F. WARME, OF SYRACUSE, NEW YORK, ASSIGNOR TO CONTINENTAL CAN COMPANY, OF BALTIMORE, MARYLAND, A CORPORATION OF NEW JERSEY.

## MECHANISM FOR FEEDING CAPS OR DISKS.

No. 931,003.

Specification of Letters Patent.

Patented Aug. 10, 1909.

Application filed August 21, 1908. Serial No. 449,641.

*To all whom it may concern:*

Be it known that I, IVAR F. WARME, a citizen of the United States, residing at Syracuse, in the county of Onondaga and State of New York, have invented certain new and useful Improvements in Mechanism for Feeding Caps or Disks, of which the following is a specification.

This invention relates to an improved mechanism for separating disks or caps from a pile and feeding them one at a time.

The invention is especially useful in the art of can making where it is desired to utilize sheet-metal disks which are of a uniform size and which cling together or nest closely and make it exceedingly difficult to separate one from another.

One object, therefore, of the present invention is to provide a mechanism for receiving the disks in bulk and separating them and feeding the same one at a time for any purpose desired.

Another object of the invention is to provide an automatic mechanism that may be attached to machines for various purposes where can caps or disks are to be utilized and which will receive the caps or disks in a pile and then deliver them one at a time from said pile.

With these and other objects in view the invention is illustrated in the accompanying drawings, in which,—

Figure 1 is a side elevation of the improved feed device. Fig. 2, a front elevation of the same, Fig. 2<sup>a</sup>, is a plan view of the cap-feed chute. Fig. 3, a vertical section of the upper end of the separator. Fig. 4, an enlarged sectional view of the same. Fig. 5, a cross-section through the head of the separator—the section being taken on the line 5—5 of Fig. 3. Fig. 6, a perspective view of the vibrator sleeve. Fig. 7, a plan view of the revolving separator disk, and Fig. 8, a perspective view of the disk with a cap in position to be acted upon.

In the drawings the numeral, 1, designates an upright post, which in the present instance has an inclined position although this is not essential and is provided at its upper end with a bearing, 2, which sustains a shaft, 3. A sleeve, 4, fits loosely on the shaft, 3, and its lower end carries a sprocket or other member, 5, by means of which the sleeve may be revolved on the shaft. The

sleeve, in the present instance, is provided with a shoulder, 6, between its ends whereby to form a reduced upper end, 7, as clearly shown in Figs. 3 and 4.

A disk or plate, 8, fits over the reduced end of the sleeve and rests upon the shoulder thereof and said disk or plate is rigid on and revolves with said sleeve. At the upper side, the disk or head is provided with a central circular recess or cavity in which a circular plate, 9, of washer-like form is seated. This plate is rigid with respect to the disk or head, and revolves with the latter, and its circumferential outer edge is provided with a groove, 10, having the form of a screw-thread, see Figs. 4 and 8.

At one side the disk or head, 8, is cut away so as to form a notch, 11, and the disk at one side, 12, of said notch is thinned or reduced in thickness as compared to the thickness at the other side, 13, of said notch as can be seen in Fig. 8. This construction provides a shoulder or wall, 14, at the far side of the notch which extends above the groove or thread in the insert plate, 9, and performs a useful function in the operation of the machine as will hereinafter be described.

Above the disk or plate, 8, the reduced end of the sleeve is provided with a collar, 15, which fits down close around said sleeve and which revolves with the latter. This collar has a somewhat frusto-conical form, being larger circumferentially at its base, 16, than at its upper end. The circumference of this collar is provided with a plurality of substantially flat surfaces, 17, forming a series of turns, bends or angles, 18, all for a purpose which will shortly be explained.

The extreme upper end of the shaft, 3, carries a stationary head, 19, which has a frusto-conically-shaped cavity, 20, in its bottom which fits down over the sleeve or collar, 15. This head extends laterally to one side of the shaft, 3, and is provided with a passage, 21, extending downwardly through which the caps or disks to be fed may pass. A slot, 22, is provided in the wall of the head between the cavity, 20, and downwardly-extending passage, 21, as may be clearly seen in Fig. 5, so that a slight portion of the circumferential surface of the sleeve or collar, 15, may be exposed to said passage. A nut, 23, on the upper end of the shaft, 3, serves to retain the head rigidly thereon.

A chute comprising a plurality of rods, 24, in the present instance four in number, extend vertically above the head, 19, and are connected at their upper ends by a plate, 25, that may have a central perforation, and a slot, 26, at one side for convenience in placing the caps in piles in the chute directly over the passage, 21.

The head, 19, is provided with a bottom opening, 27, and the walls, 28, thereof around said opening incline upwardly at the front side of the mechanism. In the present instance I provide a gate, 29, at the outer end of the opening, 27, and said gate comprises a cross bar, 30, having lugs, 31, at either end which are pivoted to the side wall of the head, and also having a lug or rib, 32, at the upper side which has position about midway between the opposite ends of the bar. The front side of the head is provided with a notch, 33, into which the lug or rib, 32, of the pivoted gate projects, so that the inner end of said lug may be exposed to the passageway, 21, in the head, as shown in Fig. 3. The gate is yieldingly sustained by means of a wire spring, 34, so that it may rock slightly when pressure is applied to either longitudinal side.

Beneath the head and supported in any suitable manner in front of the post, 1, is a chute, 35, the upper end, 36, of which turns or inclines laterally and projects beneath the disk, 8. A hinged cover, 37, having a funnel-shaped upper end is mounted at the front side of the chute and is held up close against the latter by means of a spring, 38.

In the operation the sleeve, 4, disk, 8, and collar, 15, are all revolved continuously, the sprocket, 5, or equivalent driving means being employed for this purpose. The caps or disks, 39, are placed in the chute formed by the rods, 24, and are delivered therefrom into the passage, 21, in the head. As the caps settle down in the head they gradually incline more and more, one side thereof being sustained by the gate in a higher plane than the other side which has position adjacent the revolving collar, 15, as clearly shown in Fig. 3. This gradually increasing inclination of the caps effects a slight separation of the caps at the lowermost side and as the separated side of said caps is sustained by the disk, 8, the latter when revolving will cause the screw thread of the circular plate, 9, to engage the lowermost cap, as shown in Figs. 4 and 8, and gradually separate it from beneath the pile of caps until the notch, 11, of said disk arrives at a point just beneath the passage, 21, whereupon the wall, 14, at the far side of the notch will cause the cap to tilt and turn to a vertical position and thus pass through said notch and enter the funnel-shaped cover, 37, which will direct it into the chute, 35. In the same manner the caps will be successively drawn from the

passage, 21, and discharged into the chute to be utilized in any manner and for such purpose as described. During the feeding of the caps through the passageway, 21, they are constantly agitated by means of the revolving flat surfaced collar, 15, and this agitation or vibration causes the disks or caps to separate and thereby avoid all liability of more than one cap being delivered at a time.

Having thus described my invention what I claim and desire to secure by Letters Patent is,—

1. In a cap feed device the combination with a post having a bearing at its upper end, of a shaft sustained in said bearing; a screw mounted on said shaft; means for revolving said screw; a head also sustained by said shaft and having a passage therein; a yielding cap support at one side of said passage; a cap chute over said head and delivery chute below said head.

2. In a cap feed device the combination with a post having a bearing at its upper end, of a shaft sustained in said bearing; a head sustained by the shaft and having a passage to hold the caps in a pile therein; a screw support at the lower end of said passage; a delivery chute below the head and screw and means for revolving the screw to release one cap at a time and discharge it edgewise into the delivery chute.

3. In a cap feed device the combination with a post having a bearing, of a shaft rigidly sustained by said bearing; a head also rigid on the shaft and having a cap passage therein; a screw on the shaft; a vibrator collar also on the shaft above the screw and rigid with respect to the latter; means for revolving the screw and collar and delivery chute below the screw for receiving the caps.

4. In a cap feed device the combination with a post having a bearing, of a shaft rigidly sustained by said bearing; a head also rigid on the shaft and having a cap passage therein; a yielding support carried by the head at one side of the passage; a screw on the shaft below the head; a cap-feed chute carried by the head and feeding caps to the passage of the latter; means for revolving the screw and a delivery chute below the passage and head to receive the caps one at a time.

5. In a cap disk feed mechanism the combination with a feed chute to hold the caps in a pile, one on top of another, of a delivery chute below the feed chute, and a revoluble support at one edge only of the pile of caps and interposed between the feed and delivery chutes to successively release and tilt the caps of the pile and drop them edgewise into the delivery chute.

6. In a cap disk feed mechanism the combination with a feed chute to hold the caps in a pile one on top of another, of a delivery

chute below the feed chute, and a screw operating in a plane crosswise of and between the two chutes to successively release the caps from one chute and direct them edge-wise into the other chute.

7. In a cap disk feed mechanism the combination with a feed chute to hold the caps in a pile one on top of another, of a delivery chute below the feed chute, means for sustaining the lowermost caps in an inclined position between the two chutes and a screw operating between the two chutes for engaging the lowermost edges of the caps and releasing one cap at a time.

8. In a cap feed mechanism the combination with a head having a cap passage, of a screw support revoluble with respect to said head to sustain the caps at one side and a yielding support at the opposite side of said caps.

9. In a cap feed mechanism the combination with a head having a cap passage, of a screw support for sustaining the caps at one edge and a yielding support at the opposite side of said caps and having position in a plane above the screw support whereby to hold the caps in an inclined position.

10. In a cap feed mechanism the combination with a head having a cap passage, of a downwardly-extending chute below the head; a screw support between the head and chute; a cap support opposite the screw and between the head and chute, and means for

revolving the screw support to release the caps at one edge.

11. In a cap feed mechanism the combination with a head having a cap passage, of a downwardly-extending chute below the head; means at opposite sides of the cap passage for sustaining a pile of caps at diametrically opposite edges; means for revolving one of said supports to engage and free the lowermost cap of the pile, and means for yieldingly sustaining the other support.

12. In a cap feed mechanism the combination with a head having a cap passage, of means at opposite sides of the passage for sustaining a pile of caps; means at one side of the passage for operating on the edges of and vibrating the caps to separate them and means for moving one of the sustaining means to release the caps.

13. In a cap feed mechanism the combination with a head having a cap passage, of a screw support at one side of the passage; a cap vibrator also at one side of the passage and adjacent the screw support; a yielding support at the opposite side of the passage, and means for operating the vibrator and screw support.

In testimony whereof I affix my signature in presence of two witnesses.

IVAR F. WARME.

Witnesses:

WILLIAM QUINN,  
JAMES DONNELLY.