June 21, 1932. G. FLOOK 1,864,422

FEED FOR COVERS OR ENDS FOR CONTAINERS

Filed Dec. 16, 1929 2 Sheets-Sheet 1

Fig. 1.

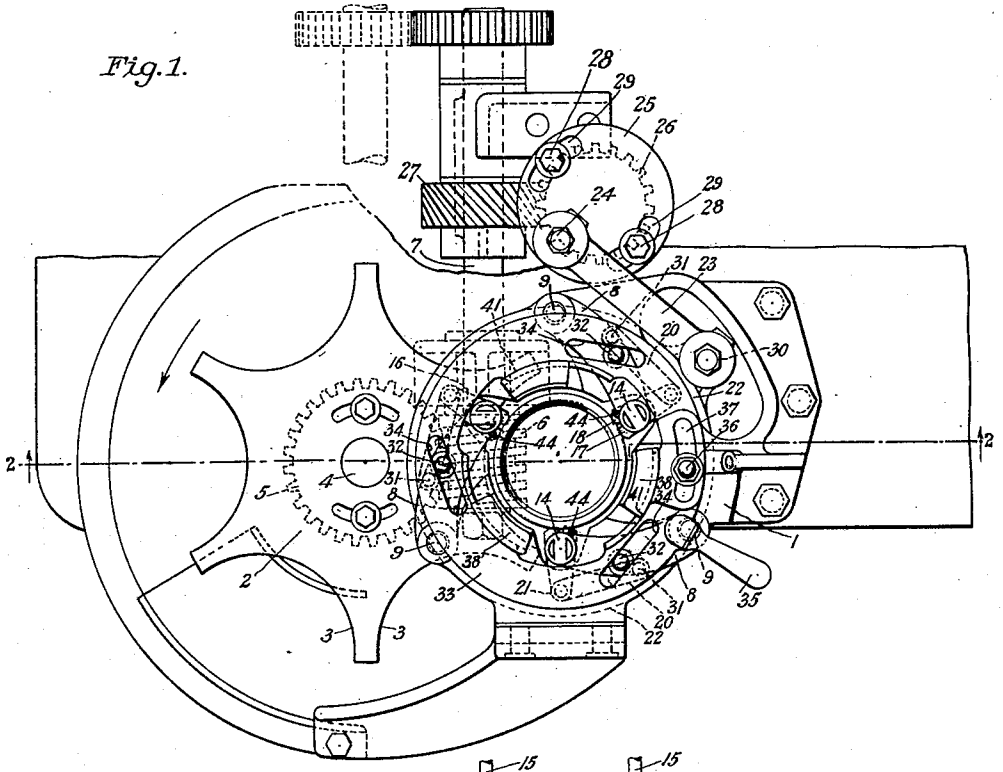
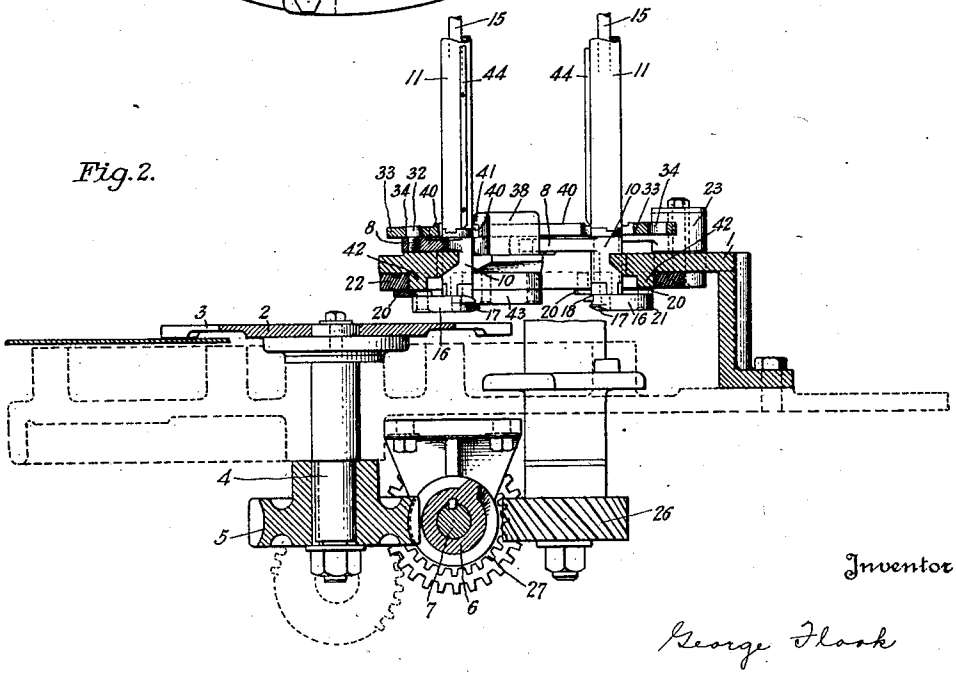


Fig. 2.



Inventor

George Flook

By Sturtevant & Mason

Attorneys

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Fig.3.

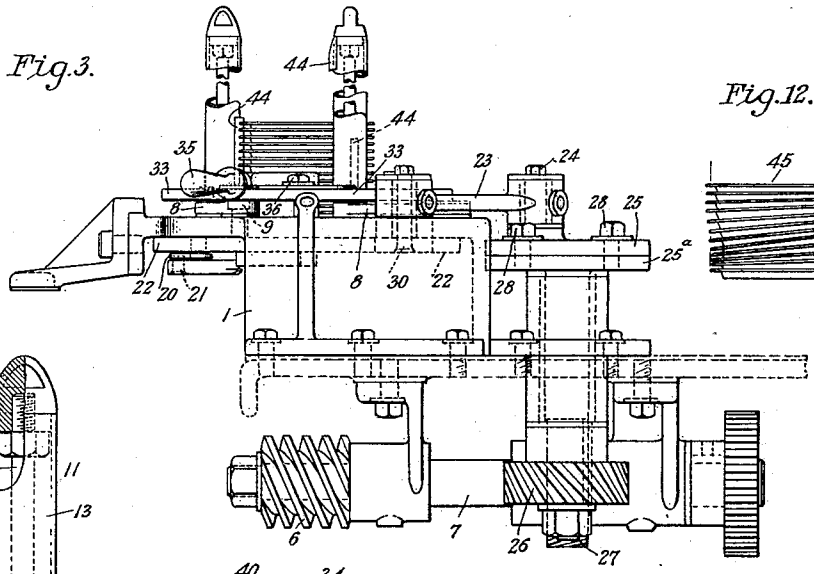


Fig.12.

Fig.5.

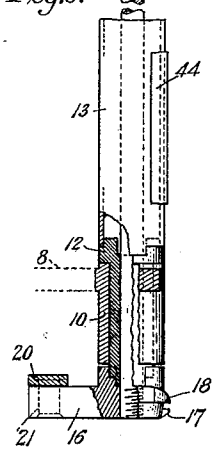


Fig.6.

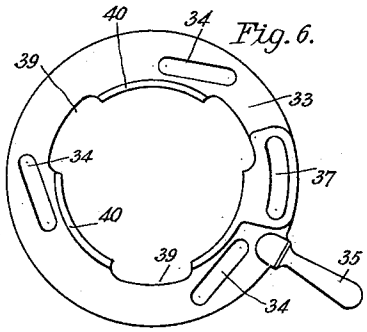


Fig.8.

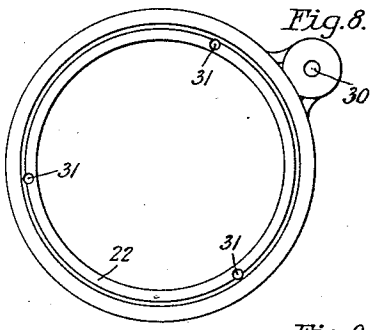


Fig.7.

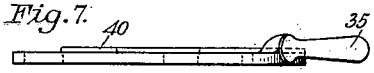


Fig.9

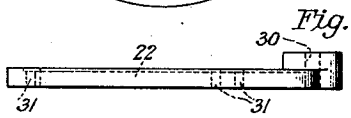
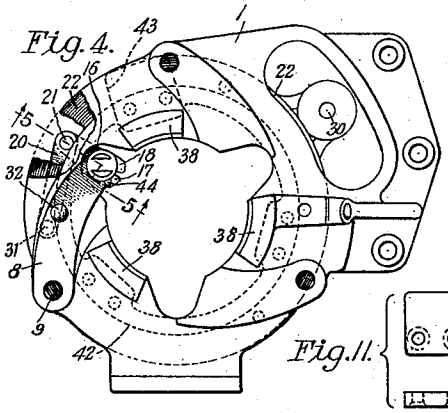
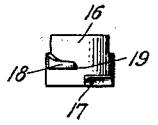


Fig.4.





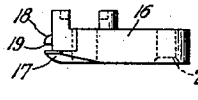


Fig.10.

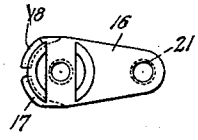
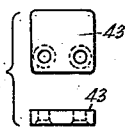


Fig.11.



Inventor

George Flook

By Sturtevant & Macon

Attorneys

Patented June 21, 1932

1,864,422

UNITED STATES PATENT OFFICE

GEORGE FLOOK, OF SYRACUSE, NEW YORK, ASSIGNOR TO CONTINENTAL CAN COMPANY, INC., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK

FEED FOR COVERS OR ENDS FOR CONTAINERS

Application filed December 16, 1929. Serial No. 414,474.

The invention relates to new and useful improvements in a cover feed for supplying covers one at a time to a machine for attaching the same to a can body.

An object of the invention is to provide a cover feed which may be readily adjusted for operation upon cans of different diameters without disturbing the actuating mechanism for the cover feed.

A further object of the invention is to provide a cover feed of the above character wherein a series of supporting and releasing fingers are provided for supporting the stack and wherein said fingers may be simultaneously shifted radially of the stack holder to different operating positions.

A further object of the invention is to provide a stack holder having supporting posts for supporting the stack wherein the stacked covers are intermittently engaged by the posts at each feeding operation for uniformly placing the covers one above another.

These and other objects will in part be obvious and will in part be hereinafter more fully disclosed.

In the drawings which show by way of illustration one embodiment of the invention:—

Figure 1 is a plan view of a portion of a machine showing a cover feeding mechanism embodying the invention.

Fig. 2 is a sectional view on the line 2—2 of Fig. 1.

Fig. 3 is a side view of the cover feed.

Fig. 4 is a plan view of the supporting base structure of the stack holder with certain parts removed and broken away.

Fig. 5 is a view partly in side elevation and partly in section on the line 5—5 of Fig. 4 showing one of the supporting and releasing fingers for the covers and also the stack holding post associated therewith.

Fig. 6 is a plan view of the adjustable plate for shifting the operating positions of the fingers which support the covers.

Fig. 7 is an edge view of the same.

Fig. 8 is a plan view of the operating ring which oscillates the fingers for releasing the covers.

Fig. 9 is a side view of the same.

Fig. 10 is a view showing in end and side elevation and also in plan the supporting and releasing finger for the covers.

Fig. 11 is a view showing in plan and in end elevation the sustaining plate for the ring which actuates the supporting and releasing fingers.

Fig. 12 is a diagrammatic view showing friction plug covers stacked and the irregular position of certain of the covers relative to others.

The invention is directed to a cover feed for feeding covers to be attached to can bodies and is intended to be used in connection with any type of covers whether for being joined to a can body by a double seam or by being seated in a can body and frictionally attached thereto. The covers are stacked one on another and are supported by a series of fingers which are oscillated for the purpose of releasing one cover at a time from the bottom of the stack. These cover fingers are oscillated by means of a ring which in turn is oscillated about the center of the stack and is connected by means of a link to each finger. These fingers are mounted on arms which are pivoted to the supporting base of the stack holder and when the arm is swung about its pivot the finger carried thereby is moved toward or from the center of the stack holder.

Associated with the arms is a ring having cam slots therein, that is, slots which are eccentric to the center of the stack and when this ring is shifted it will simultaneously shift the position of the arms and thus shift the position of the pivoted fingers carried thereby. Associated with each finger is a post which forms the holder for the stacked covers. This post is provided with a rib which projects radially from the post. The posts oscillate with the fingers and thus move the rib toward and from the center of the stack. When stacking covers of the friction plug type it is difficult in placing the covers one upon the other uniformly, so that the cover flanges lie in parallel planes. The central depression in each cover forming the friction plug is apt to bring about a tilted relation of one cover on another.

In order that they may be all uniformly

placed with their flanges parallel to aid in the efficient release and separation of the covers one from another, these ribs when the posts oscillate move into contact with the covers and force the covers so that they are centered one directly above another.

Referring more in detail to the drawings, the invention is shown as applied to a cover feed which includes a supporting base bracket 1 mounted on the machine with which it is to be used. As shown in the drawings, this cover feed drops the covers one at a time from a stack onto a support beneath the stack holder and the covers are fed from beneath the stack by a rotating turret 2 having segmental pockets 3, 3 which receive and move the covers along the support. This rotating turret 2 is carried by a shaft 4 provided with a spiral gear 5 which meshes with a spiral gear 6 on the shaft 7. The shaft 7 is rotated in timing with the parts of the machine with which the cover feed is associated and the covers as they are received from the stack are moved along the support and placed over the containers to which they are to be attached and fed therewith to a machine for attaching the covers to the containers bodies.

Mounted on the supporting base bracket 1 are three arms with each of which is associated a cover supporting and releasing finger. These arms are all of similar construction and the description of one will answer for the others.

The supporting arm is indicated at 8 in the drawings. This arm is pivoted at 9 to the supporting base bracket 1. At the outer end of the arm 8 is a depending sleeve bushing 10 and mounted in this sleeve bushing 10 is a post 11. The post 11 consists of a lower sleeve 12, an intermediate tubular portion 13 and a top portion 14. A rod 15 is threaded into the top portion and extends downwardly through the tubular portion and the sleeve. The sleeve 12 has a shoulder which overlies the bushing 10, and thus it is that the post is supported.

Mounted on the lower end of the sleeve 12 and held thereon by the rod 15 is a supporting and releasing finger 16. This supporting and releasing finger 16 is provided with two spaced projections 17 and 18. These projections are spaced from each other vertically so as to release one cover at a time. The projection 18 is tapered so as to provide substantially a knife edge 19. When the finger 16 is oscillated the knife edge 19 passes between the flanges of the lowermost cover in the stack and the next adjacent cover, and thus separates the covers and releases the lowermost cover. The projection 17 at this time has moved from beneath the lowermost cover so that it is dropped from the stack. When the projection 17 moves back underneath the stack the projection 18 is withdrawn and the covers descend onto the projection 17. This is a well known type of cover supporting and releasing structure.

The supporting and releasing finger is oscillated by means of a link 20. This link 20 is pivoted at 21 to the finger and is also pivoted to a ring 22 which is mounted on the base and oscillates about the center of the stack. The ring 22 is connected by means of a link 23 with a wrist pin 24 on a crank disc 25 which is operated by a spiral gear 26 meshing with a spiral gear 27 on the shaft 7. The disc 25 is adjustable attached to a corresponding disc 25*a* beneath the same by means of bolts 28, 28 passing through slots 29, 29 in the disc 25. The disc 25*a* is connected to the shaft which carries the spiral gear 26. The link 23 is pivoted at 30 to the ring 22. The links 20 are each pivoted at 31 to this ring 22. When the ring is oscillated it will oscillate the finger and bring about the release of the covers one at a time from the stack.

Mounted on each arm 8 is a pin 32. Located above the arms is a ring 33. This ring 33 is provided with slots 34 one for each pin 32. The pin 32 is located in the slot 34. These slots 34 are eccentric to the center of the ring 33. The ring is provided with a handle 35 by which it may be shifted. It is held in set positions by means of a clamping bolt 36 passing through a slot 37. When this clamping bolt is released the ring 33 may be shifted about the center of the stack and when it is shifted in a counter-clockwise direction the pins 32 will be shifted outward away from the center of the stack. When it is shifted in a clockwise direction, then the pins 32 will be positively forced inward toward the center of the stack.

The shifting of the pins shifts the arms 8 and the shifting of the arms 8 will shift the position of the supporting and releasing fingers 16. The link 20 is of considerable length and oscillates the finger by an endwise movement when the ring 22 is oscillated. This radial shifting of the operating position of the fingers does not interfere with or disturb the timing of the actuating mechanism therefor.

It will be noted from the above that the supporting and releasing fingers for the stack holder through this shifting of the ring 33 may be simultaneously moved toward or from the center of the stack holder, and thus their operating positions shifted for bringing about a proper cooperation of these fingers with the covers and for feeding the covers for operation on covers of different sizes.

The ring 33 rests on top of the supporting base bracket 1. Said supporting base bracket is provided with segmental members 38 which are symmetrically disposed relative to the center of the stack and spaced from each other a sufficient distance to allow the largest size cover to pass therethrough. These segmental members 38 project upwardly from

the supporting base bracket 1 and serve as a means for centering the ring 33 which surrounds these segmental members. The ring 33 is provided with a series of recesses 39 and between these recesses is a raised rib 40. The segmental members 38 are each provided with an overhanging ledge 41. The segmental member is passed through the recess 39 and then the ring turned a sufficient distance so that the overhanging member 41 overlies the rib 40. This serves as a means for holding the ring 33 center relative to the stack and at the same time permits it to be shifted about said center when the clamping bolt 36 therefor is released.

The ring 22 is placed on the under side of the base bracket 1 and surrounds an annular rib 42 formed integral with the base bracket. Said ring is supported by plates 43 which are secured to this base bracket by screws.

Attached to the tubular member 13 of the post which forms the stack holder is a rib 44 which projects radially from the outer face of said tubular member. This post is rigid with the supporting and releasing finger 16 and when said fingers are oscillated the posts oscillate. This will move the rib 44 toward and from the center of the stack. By adjusting the tubular member 13 these ribs are so placed that when the fingers are oscillated in one direction the ribs will come into contact with the covers and move the covers so that they will be centered and placed directly one above the other with their flanges lying in parallel planes.

In Fig. 12 of the drawings, a stack of friction plug covers are indicated at 45. Each cover has a cup shaped central depression which forms the friction plug which is forced down into a seat in the container. This is a well known type of friction plug closure, and detailed description thereof is not thought necessary. When such covers are placed one on the other they are likely to become out of alinement and irregularly positioned one on another so that their flanges may make contact at one side of the stack and be widely separated at the other side, as shown in Fig. 12. When, however, the ribs on the posts engage these covers they engage them so that they become centered one above the other and they are so delivered to the supporting and releasing finger. This insures that the flanges will be spaced properly to permit the projections 18 to move in between the flange of the lowermost cover and the flange of the cover next above. Thus it is that the covers are released with certainty.

While the invention has been shown and described in connection with covers of the friction plug type, it will be understood that this stack holder may be used in connection with covers which are joined by a double seam to a can body. The covers may be used for closing containers after they have been filled, or they may be used for forming the bottom of a container when it is double seamed thereto. The term "cover" as used in the description is used in the broad sense as meaning a cover for a closure, or an end attached to the body in the forming of a container.

The essential features of the invention reside in the capability of shifting the operating positions of the supporting and releasing finger so as to properly position the same for operation upon covers and so as to position said fingers for operation upon covers of different sizes; and the centering of the covers one on another so as to insure the proper positioning of the covers for action by the supporting and releasing fingers. This adjustment of the cover feed for covers of different sizes is accomplished without in any way disturbing or throwing out of timing the actuating mechanism for the supporting and releasing fingers.

It is obvious that minor changes in the details of construction and the arrangement of the parts may be made without departing from the spirit of the invention as set forth in the appended claims.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. A feed for covers for containers comprising a stack holder, a series of supporting and releasing fingers associated therewith, means for oscillating said fingers for releasing the covers one at a time, and means independent of said oscillating means for the fingers whereby the oscillating position of said fingers may be simultaneously shifted bodily toward and from the center of the stack holder.

2. A feed for covers for containers comprising a stack holder, a series of supporting and releasing fingers associated therewith, an actuating ring, links connecting said actuating ring to said releasing fingers, means for oscillating said rings for oscillating the fingers, and means independent of said oscillating means for the ring whereby the oscillating position of said fingers may be simultaneously shifted bodily toward and from the center of the stack holder without disturbing the link connections between the fingers and the ring.

3. A feed for covers for containers comprising a stack holder, a series of supporting and releasing fingers associated therewith, means for oscillating said fingers for releasing the covers one at a time, means whereby the oscillating position of said fingers may be simultaneously shifted toward and from the center of the stack holder, said stack holder including supporting posts attached to and oscillating with said releasing fingers,

and means carried by the posts for centering the stacked covers relative to each other.

4. A feed for covers for containers comprising a stack holder, a series of supporting and releasing fingers associated therewith, means for oscillating said fingers for releasing the covers one at a time, means whereby the oscillating position of said fingers may be simultaneously shifted toward and from the center of the stack holder, said stack holder including supporting posts attached to and oscillating with said releasing fingers, said supporting posts having a tubular section capable of being shifted about the center of the post, and a rib attached to said tubular section and adapted to engage the covers when the fingers are oscillated for centering the covers in the stack one above another.

5. A feed for covers for containers comprising a stack holder, a series of supporting and releasing fingers associated therewith, an actuating ring, links connecting said actuating ring to said releasing fingers, means for oscillating said ring for oscillating the fingers, means whereby the oscillating position of said fingers may be simultaneously shifted toward and from the center of the stack holder without disturbing the link connections between the fingers and the ring, said stack holder including supporting posts attached to and oscillating with said releasing fingers, and means carried by the posts for centering the stacked covers relative to each other.

6. A feed for covers for containers comprising a supporting base bracket, arms pivotally mounted on said supporting base bracket, supporting and releasing fingers for the covers pivotally mounted at the outer ends of said arm, means for oscillating said fingers on said arms, means for simultaneously shifting said arms for shifting the supporting and releasing fingers toward and from the center of the stack holder, and a stack holder for holding the covers stacked above said supporting fingers.

7. A feed for covers for containers comprising a supporting base bracket, a series of arms pivoted to said bracket, a supporting and releasing finger mounted at the outer end of each arm, means for oscillating said fingers on said arms, a stack holder for holding the covers stacked above said supporting fingers, a ring, pins carried by said arms, said ring having slots eccentric to the axis of the center of the stack, means for holding said ring in fixed position, and means for shifting the ring when released for shifting the position of the arms for varying the oscillating position of the supporting and releasing fingers.

8. A feed for covers for containers comprising a supporting base bracket, a series of arms pivoted thereto, a supporting and releasing finger mounted at the outer end of each arm, a ring oscillating about the center of the stack, links connecting said ring to said supporting and releasing fingers for oscillating the same, a second ring associated with said arms, pins carried by the arms, said second ring having eccentric slots receiving said pins, and means for shifting said second ring for shifting the oscillating position of said supporting and releasing fingers.

9. A feed for covers for containers comprising a supporting base bracket, a series of arms mounted thereon, each arm having a depending sleeve, a post mounted in said depending sleeve, said posts forming a stack holder, a supporting and releasing finger secured to the lower end of each post, an oscillating ring, links connecting said oscillating ring to said supporting and releasing fingers, a shiftable ring having slots eccentric to the center of the stack, said arms having pins engaging said slots whereby when said shiftable ring is moved from one set position to another the posts and the supporting and releasing fingers may be shifted toward and from the center of the stack.

10. A feed for covers for containers comprising a supporting base bracket, a series of posts carried by said bracket and forming a stack holder, a series of oscillating fingers mounted on said base bracket for controlling the discharge of the covers from the stack holder, and means for simultaneously moving said posts toward and from the center of the stack holder to different set positions and for shifting the positon of said oscillating fingers whereby said stack holder is adjusted for different size covers.

In testimony whereof, I affix my signature.

GEORGE FLOOK.