

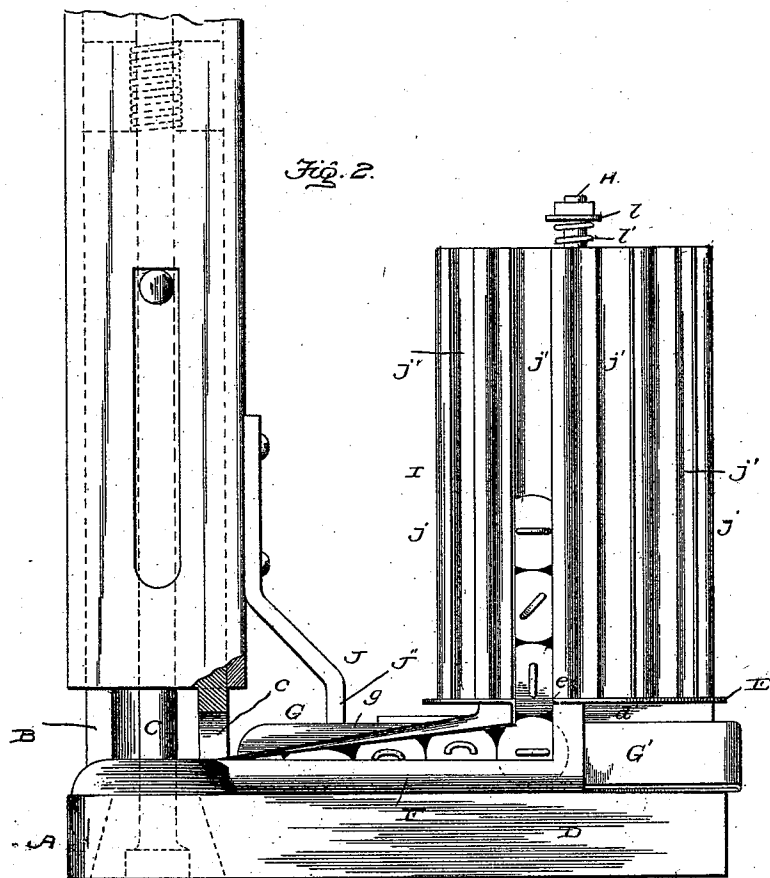
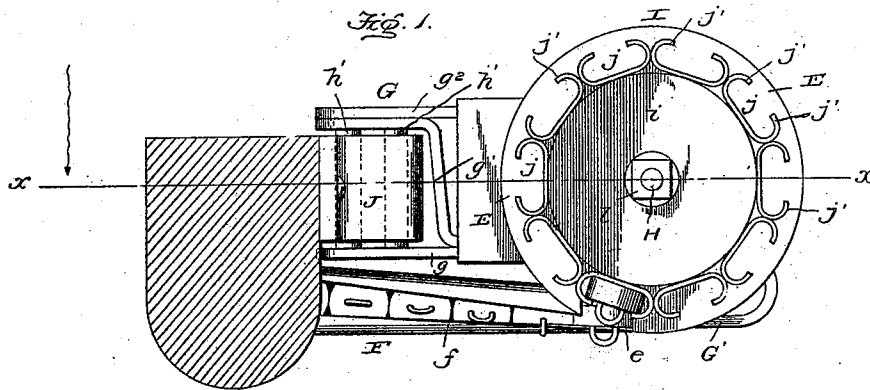
(No Model.)

2 Sheets—Sheet 1.

W. LIPPHARDT & J. BLUMENBERG.
MAGAZINE FEEDER FOR BOTTLE SEALING MACHINES.

No. 553,758.

Patented Jan. 28, 1896.



Witnesses—

Wm. C. Dashiell
H. D. Beukhof

—William Lipphardt—
—Julius Blumenberg—
—Inventors—

By—Edson Pross—
—Attys—

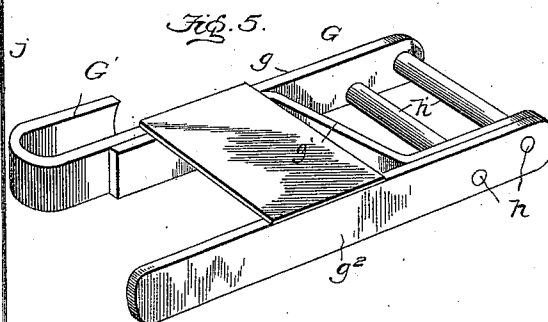
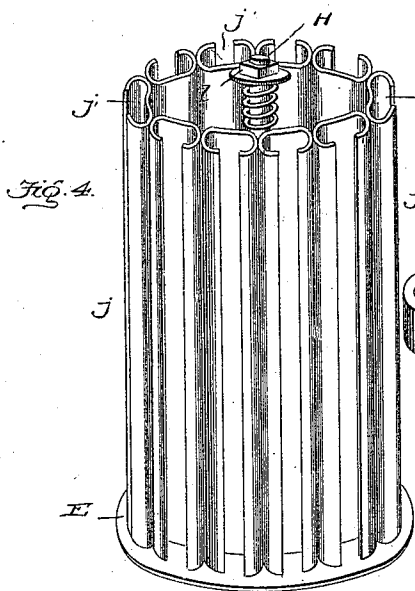
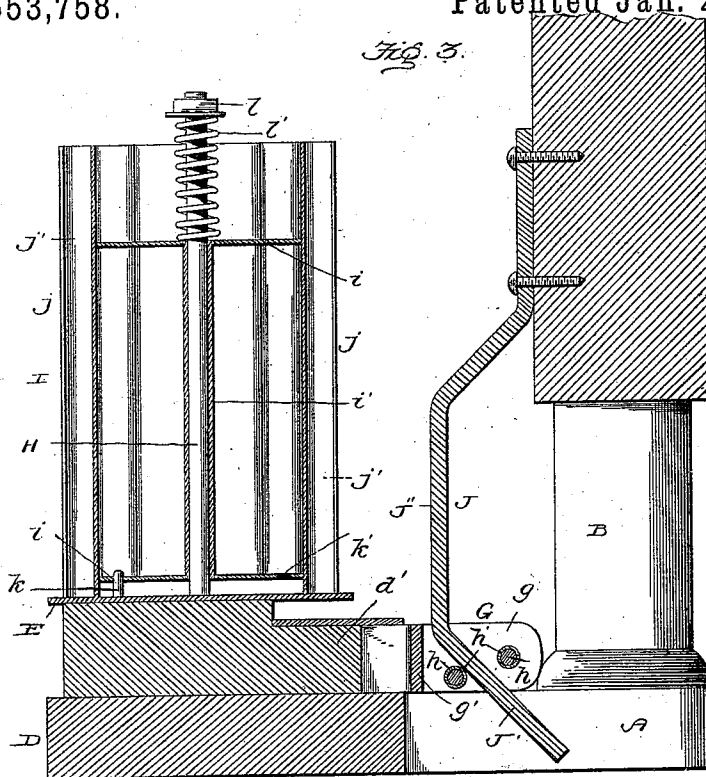
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Julius Blumenberg
Inventors

-BY- *Edson Bros.*
Attys.

UNITED STATES PATENT OFFICE.

WILLIAM LIPPHARDT AND JULIUS BLUMENBERG, OF MARTIN'S FERRY, OHIO.

MAGAZINE-FEEDER FOR BOTTLE-SEALING MACHINES.

SPECIFICATION forming part of Letters Patent No. 553,758, dated January 28, 1896.

Application filed May 31, 1895. Serial No. 551,163. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM LIPPHARDT and JULIUS BLUMENBERG, citizens of the United States, residing at Martin's Ferry, in the county of Belmont and State of Ohio, have invented certain new and useful Improvements in Magazine-Feeders for Bottle-Sealing Machines; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to improvements in magazine-feed mechanisms for bottle-sealing machines.

The object that we have in view is to provide a simple automatic device especially designed for supplying seals of that character which are provided with staple-like extractors, and are known to the trade as the "Baltimore seal," beneath the reciprocating plunger of a bottle-sealing machine, in order that the operation of feeding seals to the machine and forcing them into bottles may be carried on automatically and continuously without exposing the attendant's hands to injury.

With these ends in view, our invention consists in the combination of a magazine provided with a series of longitudinal channels in which the seals are placed so that the staple-like extractors project from the surface of the magazine, a conduit arranged to receive from said magazine and bent or curved to turn or invert the seals from an endwise vertical position to a flat horizontal position, so as to present the seals beneath the reciprocating plunger in proper position to be forced by said plunger into the bottle, and a reciprocating slide actuated by the said plunger as it rises and falls and operating to permit the seals to pass, one at a time, from the magazine into the deflected conduit, and to force a series of seals along said conduit, whereby as the plunger is reciprocated to force one seal into a bottle the slide is actuated to move the seals a certain distance in the conduit and to present the seals one at a time beneath the plunger.

Our invention further consists in the construction of the magazine to enable it to carry a large number of seals and provide for the

convenient refilling or recharging thereof with seals, in the construction of the slide and its actuating-cam, and in the novel combination of devices, and in the construction and arrangement of parts which will be hereinafter fully described and claimed.

In the accompanying drawings, forming a part of this specification, we have illustrated our magazine-feeder in connection with so much of a bottle-feeding machine as is necessary to an understanding of our improvements.

In the drawings, Figure 1 is a plan view. Fig. 2 is a side elevation with the plunger of the sealing-machine in its lowered position. Fig. 3 is a vertical sectional view on the plane indicated by the dotted line *xx* of Fig. 1 with the parts in the position they occupy when the plunger is raised. Fig. 4 is a detail perspective view of the magazine detached from the machine. Fig. 5 is a detail perspective view of the horizontally-movable feed-slide.

Like letters of reference denote corresponding parts in all the figures of the drawings.

The reference-letter A denotes the bottle-head.

B is an upright hollow guide or stem which rises from the head A, and C is the vertically-reciprocating plunger which is fitted in and guided by the upright hollow guide or stem B, all of which parts are similar to the ordinary bottle-sealing machine now in use for forcing seals of the kind known to the trade as the "Baltimore seal," which seals are composed of flat elastic disks with metallic staple-like extractors fastened to the disks. Our invention, however, does not relate to the general structure of the sealing-machine proper nor to the stoppers or seals, but it does relate to a magazine mechanism for automatically feeding seals of the character described beneath the plunger C, the feed mechanism acting in synchronism with the plunger to place the seals one at a time beneath the plunger on each complete stroke thereof.

To apply our magazine feed mechanism to the sealing-machine we employ a bed D which is rigid with the head A, and which sustains all of the operative parts of the magazine-feeder, with the exception of the cam-slide presently referred to. This bed D may be made rigid with the head A in any suitable

way, either by fastening the bed D to the head A or by making the bed as a part of the head. This bed D extends a suitable distance to one side of the bottle-head A, and on it are mounted the base-plate E and the deflected conduit F. The base-plate E is raised a suitable distance above the top surface of the bed D and the conduit F, and beneath said plate is the oblong support *d'*, the latter serving as the means for fastening the plate in a raised position to the bed and as the guide for directing the reciprocating play or movements of the horizontally-movable slide or valve G. Said base-plate E is provided near one edge with an open-sided vertical slot *e*, the size of which is such as to permit the seals with their extractors to readily pass through the slot, and the plate E is fixed on the bed so its slot *e* overhangs the receiving end of the conduit F in order that the seals may pass from the magazine through the slot *e* into the conduit. From the center of the base-plate E, which is preferably in the form of a disk, rises a vertical spindle H, and on this spindle is fitted a magazine I which carries the seals to be supplied to the conduit F and thence beneath the plunger C. The magazine is substantially cylindrical in form, and we prefer to construct it in the manner shown by Figs. 1, 3 and 4. We take a series of strips of metal of appropriate length and width and bend each strip longitudinally into trough-shaped form with overhanging lips or flanges. These bent strips are assembled together into substantially cylindrical form and united edgewise together by soldering them, or in any other convenient way, the flanges of the trough-shaped strips being on the outside surface of the cylindrical magazine. The structure thus produced is reinforced by the internal heads *i* secured within the metallic strips; and through these heads is passed the vertical sleeve *i'*. We do not, however, limit ourselves strictly to a magazine-cylinder built up in the manner described; but our magazine is essentially provided with an annular series of vertical longitudinal grooves or receptacles *j*, having spaced flanges *j'*, forming slots on the outer face of the cylinder, whereby the disk-like seals are received in the grooves or receptacles *j* to be held in place by the flanges *j'*, and the staple-like extractors of the seals are arranged to project through the slots formed by and between the flanges *j'*. This construction of the magazine-cylinder enables the seals to be supplied readily by hand to the empty grooves *j* when the machine is in operation, and the seals are adapted to be fed from the cylinder without interfering with the operation of the machine. This magazine is fitted on the upright spindle H by slipping the sleeve *i'* over the same, so that the bottom head *i* of the magazine rests upon the base-plate E, and when in position the lower end of one of the grooves *j* is in exact alignment with the slot *e* in said plate E, the latter serving to hold the seals in all the grooves *j* of the

magazine except the groove in line with the slot *e*. The magazine is adapted to be turned to bring its grooves *j* successively into line with the slot *e* in the plate E during the operation of the machine, so that when the seals have been exhausted from one groove *j* another filled groove may be brought over the slot in the plate, and to insure accuracy in adjusting the magazine to bring its grooves *j* into line with the slot *e* we have provided the pin *k* on the base-plate E, which pin is adapted to fit into any one of the series of apertures *k'* formed in the bottom head *i* of the magazine. It is only necessary to lift the magazine slightly, just sufficient to clear the pin *k*, turn the magazine to bring the next groove *j* into line with the slot *e*, and drop the magazine back to place on the plate E, thus permitting the pin *k* to enter the next one of the series of apertures *k'*. The magazine is not lifted far enough for the seals to drop out of the grooves *j* when changing the position of the magazine to bring a groove filled with seals into line with the slot *e*, and when adjusted the magazine is held in place by the pin *k*. To further assist in holding the magazine to place, and prevent it being jarred out of position, we have provided a nut *l*, which is screwed on the upper threaded end of the stem H, and between the nut *l* and the upper head *i* of the magazine is provided the tension-spring *l'*, which normally presses down upon the upper head *i* of said magazine, but which spring is adapted to be compressed, when the magazine is lifted, sufficiently for the magazine to clear the pin *k*.

It will be noted that the seals in the vertical grooves or receptacles *j* of the magazine are presented in an edgewise vertical position to the plate E and the conduit F; but the head A and the plunger C of the sealing-machine are arranged to force the seals in a horizontal position to the filled bottles which are necessarily presented to the head A in vertical positions. We therefore construct the conduit F to turn or deflect the seals from their vertical positions as received from the magazine to flat horizontal positions when presented to the head A beneath the plunger C. This result is effected by deflecting, bending, or curving the conduit F by giving the latter a quarter-turn, whereby the receiving end of the conduit F beneath the plates E takes a substantially vertical position, while the delivery end of said conduit at the head A lies in a substantially horizontal position. The deflected conduit F extends between the plate E and head A, and it is of such length as to contain a series of seals. This conduit has a longitudinal slot *f* in its exposed face or side for the staples in the seals to project through, and the cross-sectional interior dimensions of the quarter-turned conduit conforms substantially to the diameters of the seals in order that the seals may fit snugly therein and yet have sufficient freedom to permit them to be shoved along and through

the conduit. A slot or opening *c* is cut or formed in one side of the head C, and through this slot are discharged the seals from the conduit F, said seals being pushed one at a time over the usual vertical opening in the head A.

To control the descent of the seals from the groove in the magazine which aligns with the slot *e* and the receiving end of the conduit, and to push the seals along the conduit, we employ the horizontally-movable slide or valve G, which is shown by the detail view, Fig. 5. This slide consists of the plates *g g'*, of which the bent plate *g'* is arranged between the plates *g g''* and is rigidly fastened to the same by the cross-bolts *h*, on which are mounted the loose sleeves *h'*. The plate *g''* of the slide works on one side of the plate or support *d*, and the plate *g* works on the other side of the support *d*, next to the conduit F, and this last-named plate *g* is bent to form the pusher-arm G', which is fitted to work in the end of the conduit F beneath the slot *e* in the plate E. The seals in the groove *j* of the magazine which is in line with the slot *e* rest upon the top edge of the pusher-arm G', and the free end of the pusher-arm impinges against the last seal in the row of seals in the conduit F. The loose rollers *h'* on the end of the slide opposite to the pusher-arm are spaced a suitable distance apart to accommodate the lower end of the cam J, which consists of a bent plate of metal having the angular lower extremity J' and the straight part J'', the upper end of said plate-cam being fastened securely to the plunger C or a movable part thereof.

In operation the magazine I has its grooves filled with seals, and the conduit F is also filled with seals from the point where it receives from the magazine to the vertical opening in the head A. On the descent of the plunger C the angular end J' of the cam rides against the rollers of the slide and forces it backward, withdrawing the arm G' away from the seals and the slot *e* in the plate, thus allowing a seal to gravitate from the groove *j* in the magazine into the space occupied by the arm before the plunger began its descent, the rearward movement of the slide being continued until the angular end J' clears the rollers *h'*; but the slide remains at rest while the straight part J'' of the cam moves between the rollers. This downstroke of the plunger forces the seal across the vertical opening in the head, through the head and into the bottle. On the upstroke of the plunger the slide remains at rest in its retracted position until the angular end J' strikes the rollers *h'*, and this action of the cam on the slide causes it to advance and move the arm G' across the slot *e* and against the row of seals in the conduit F, the effect of which is to cause the arm G' to sustain or hold up the seals in the groove *j* of the magazine, thus serving as a valve, and to push the seals a limited distance along the conduit F, thereby bringing the first of the

row of seals in said conduit over the vertical opening in the head A in position to be forced by the plunger, on its next downstroke, into the next bottle. When the seals have been exhausted from one groove in the magazine, the latter can be turned to bring the next filled groove in line with the slot *e* and conduit F, and the magazine when empty can be replaced by a new magazine or its empty grooves can be charged with seals without detaching it from the spindle H.

We are aware that changes in the form and proportion of parts and in the details of construction of the devices herein shown and described as an embodiment of our invention can be made by a skilled mechanic without departing from the spirit or sacrificing the advantages of our invention, and we therefore reserve the right to make such modifications as fairly fall within the scope of our invention.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a magazine feed mechanism for bottle-sealing machines, the combination with a bottle-receiving head, and a reciprocating plunger, of the reciprocating slide provided at one end with the spaced rollers or pins and at its other end with the pusher-arm G, a cam attached to the plunger and fitted between said pins or rollers on the slide, a deflected conduit in which is fitted the pusher-arm of said slide, and a magazine to feed to said conduit, substantially as described, for the purposes set forth.

2. In a magazine feed mechanism for bottle-sealing machines, the combination with a bottle-receiving head, and a reciprocating plunger, of a guide *d'*, the slide fitted to the guide and provided with the spaced pins *h* and with the bent pusher-arm G, a bent cam-plate J rigid with the plunger and having its free part fitted between the pins *h*, a deflected conduit, and a magazine, substantially as and for the purposes described.

3. In a magazine feed mechanism for bottle-sealing machines, the combination with a bottle-receiving head, and a reciprocating plunger, of a stationary plate E having a vertical slot *e*, the rotatable magazine mounted on a fixed spindle and normally pressed, by a spring, into locking engagement with the plate, a turned conduit between the slot *e* and the bottle-head, a reciprocating slide provided with a pusher-arm which operates in said conduit below the slot in the plate E, and a cam carried by said plunger and engaging with the slide, substantially as and for the purposes described.

4. In a magazine feed mechanism for bottle-sealing machines, the combination with a bottle-receiving head, and a reciprocating plunger, of the stationary plate E having a locking-pin and a slot *e*, a spindle H, the rotatable magazine fitted to the spindle and engaging with the locking-pin, a spring tending to normally hold the magazine and pin in en-

gement, a turned conduit receiving from the magazine through the slot *e* in the plate, the slide having the pusher-arm, and a cam to actuate the slide, substantially as and for the purposes described.

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5. In a magazine feed mechanism for bottle-sealing machines, the combination with a bottle-receiving head, and a vertically-reciprocating plunger, of a deflected or turned conduit having one end arranged to deliver seals in a flat, horizontal position to said head and its other end arranged to receive seals which are presented thereto in a vertical edgewise position, a magazine which supplies the seals edgewise to the receiving end of said deflected conduit, a cam carried by the reciprocating

plunger, and a horizontally-reciprocating slide arranged to have one part thereof in the path of said cam and provided with a pusher-arm which is fitted in the receiving end of the conduit, to operate therein and below the magazine, whereby the pusher-arm regulates the flow of seals from the magazine to the conduit and forces the seals along said conduit, as set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

WILLIAM LIPPHARDT.
JULIUS BLUMENBERG.

Witnesses:

H. C. ULRICH,
F. H. EICK.