

C. F. JENKINS.
MACHINE FOR INSERTING CLOSURES IN RECEPTACLES.
APPLICATION FILED APR. 13, 1909.

954,106.

Patented Apr. 5, 1910.

2 SHEETS—SHEET 1.

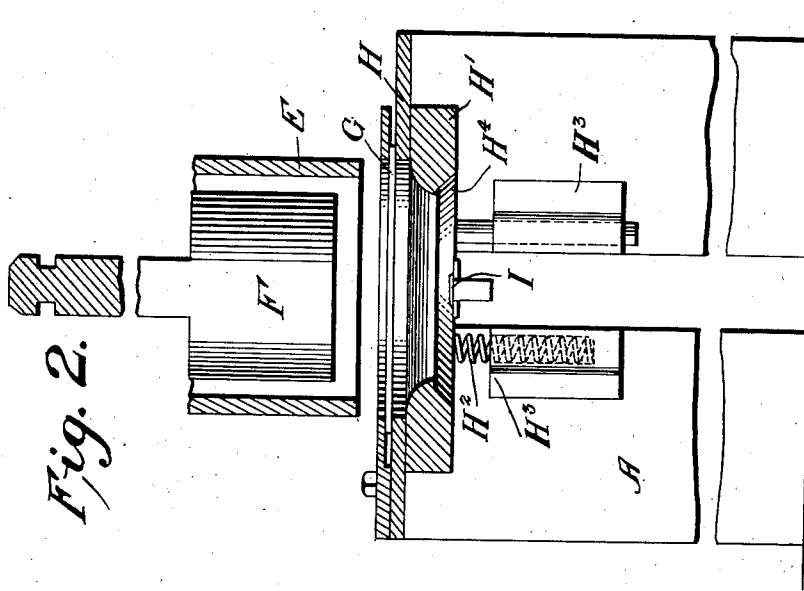


Fig. 2.

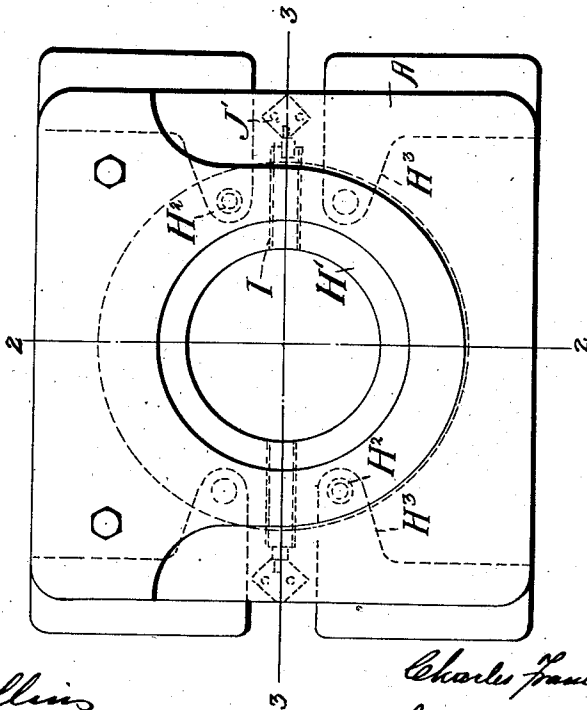


Fig. 1.

Witnesses.
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W^m M. Birney.

Inventor.
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by Wallace Greene,
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Fig. 3.

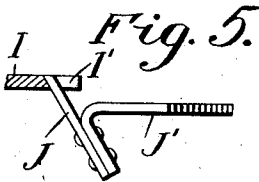
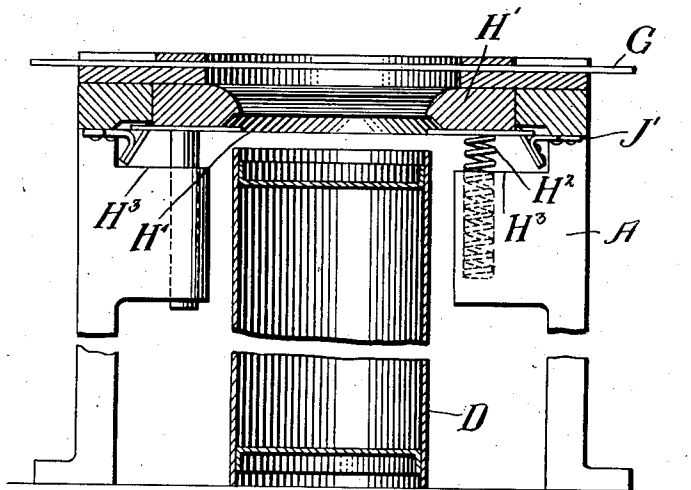


Fig. 4.

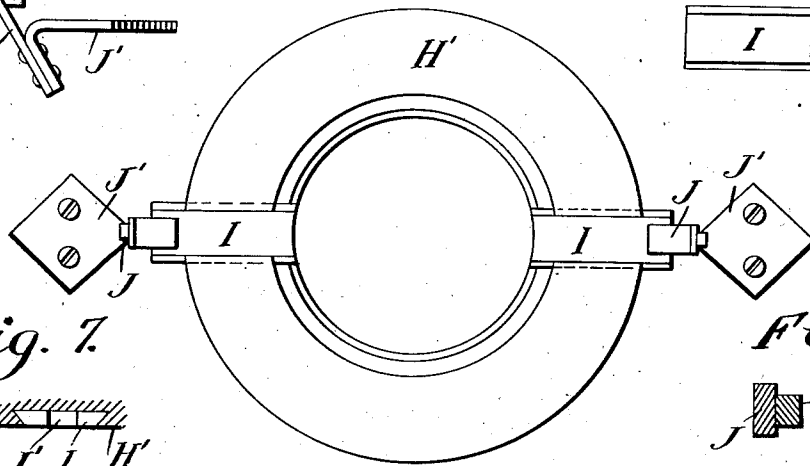


Fig. 6.

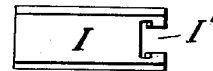


Fig. 7.

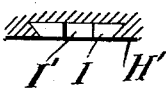


Fig. 8.



Witnesses.

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UNITED STATES PATENT OFFICE.

CHARLES FRANCIS JENKINS, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR
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A CORPORATION OF NEW JERSEY.

MACHINE FOR INSERTING CLOSURES IN RECEPTACLES.

954,106.

Specification of Letters Patent.

Patented Apr. 5, 1910.

Application filed April 13, 1909. Serial No. 499,666.

To all whom it may concern:

Be it known that I, CHARLES FRANCIS JENKINS, citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Machines for Inserting Closures in Receptacles, of which the following is a specification, reference being had therein to the accompanying drawing.

With certain kinds of stock, when disks are formed or drawn into cup-like closures and inserted in bottles or boxes by the forming plunger, there is a tendency of the closure to accompany the retreating plunger, and it is the object of this invention to obviate this difficulty in the use of machines of a certain type.

In the accompanying drawings, Figure 1 is a plan view of a die and portions of its supporting frame. Fig. 2 is a section on the line 2—2, Fig. 1. Fig. 3 is a partial section on the line 3—3, Fig. 1. Fig. 4 is a bottom plan view of a portion of the die and certain co-acting parts. Fig. 5 is a detail side view, partly in section, showing parts seen also in Fig. 4. Fig. 6 is a bottom plan view of a sliding bar seen also in Figs. 4 and 5. Fig. 7 is a view showing the end of the same bar with the part in which it slides appearing in section. Fig. 8 is a cross-sectional view of parts shown in side view in Fig. 5.

In these figures, A represents a portion of a frame supporting the working parts of the machine. The disks are cut from a stock-strip G by the hollow reciprocating plunger E co-acting with a fixed die H and are then formed by a second reciprocating plunger F co-acting with a die H', yieldingly supported by springs H² which allow it to descend until it meets a stop H³, after which the plunger F in continuing to advance inserts the closure in the bottle D. The die H' has below an incline H⁴ surrounding its opening, and as it descends this incline meets the end of the bottle and forces it into exact position below the inserting plunger and also into exact form, so that the closure may be safely inserted although the machine runs at high speed. The entire structure thus far set forth is without novelty herein claimed.

As above suggested, with certain kinds of stock, the closure sometimes rises with the

withdrawing plunger taking with it the bottle, but the bottle is arrested when it meets the die H' and falls by gravity, so that at very slow speed harm may not result. But at high speed, decreasing cost, the interval between the withdrawal of the plunger and the advance of a bottle, by a belt or chain, is necessarily very slight, and there is not time for the bottle to rise to the die and again fall by gravity. I therefore prevent such ascent of the bottle by devices to be described.

At two or more points on the lower side of the die H' I form ways for radially sliding bars I, which, when the die is at the upper limit of its path, project inward nearly to the path of the inserting plunger, and at their opposite ends project outward beyond the die. This outwardly projecting end engages a fixed downwardly and outwardly inclined guide bar J sliding thereon as they descend with the die and being thereby drawn outward, so as to clear the bottle, before the latter is reached by the die. As soon as the plunger pushes the closure entirely through the die, into the bottle, the die is suddenly restored to initial position by its springs and the bars I rising, with it, are as suddenly shot forward, by the guide bars J, over the margin of the bottle, preventing the latter from rising with the plunger into engagement with anything which can materially resist its lateral advance by the belt. For convenience, the bar J is fixed to a narrower support J' lying in parallel position over its middle line, and the outer end of the broader bar I is provided with a T-shaped oblique slot I', the wider portion to receive the bar J and narrower part to permit it to pass along the support J'.

From the construction it follows that as the die descends the bar I is carried down with it and is compelled to slide radially outward, by its engagement with the inclined guide bar J, with the result that when the die reaches the top of the bottle the conical recess in its lower side is unobstructed so that the die both forms the end of the bottle and aligns it with the cap-inserting plunger. After the cap closure is inserted, the die being freed from the closure, has passed entirely below its narrower part, is instantly raised by the springs, and as it rises the bars I are again forced inward by

the inclined guide bars J. If, an instant later, the bottle and cap begin to rise with the plunger, the bars I arrest them, while the plunger moves on, leaving the bottle free to be advanced laterally by the belt, which at the same time brings another bottle to rest below the plunger, when all the parts are in position to repeat the operation.

What I claim is:

10 1. The combination with a ring die and means for moving it bodily out of and into its normal plane, of bars arranged to be moved into and out of the space within the ring, and means whereby the said bars are
15 withdrawn from said space as the die moves from said plane and projected into said space as the die returns.

2. The combination with a spring supported annular die arranged for limited
20 movement from its normal plane, and provided upon its lower side with walls flaring outward from its central opening, of bars secured to the die and arranged for radial movement with respect to the same, and
25 guiding devices engaging the bars and adapted to force them outward as the die

moves from said plane and inward as the die returns.

3. The combination with the frame, provided with stops for a die, of an annular die 30 arranged to move to and from said stops, springs yieldingly opposing the die's advance to the stops, radial bars mounted on the die to move radially, and guides engaging the bars and adapted to move them out- 35 ward as the die descends and force them inward as the die rises.

4. The combination with the spring supported annular die having the conical recess below, of a plunger to co-act with the die 40 in forming and inserting closure disks, radial bars movable in ways on the lower side of the die, and fixed inclined guides engaging the outer ends of said bars, substantially 45 as set forth.

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

CHARLES FRANCIS JENKINS.

Witnesses:

ARTHUR L. BRYANT,
WM. M. BIRNEY.