

(No Model.)

C. LENG.

BOTTLE NECK FINISHING MACHINE.

No. 428,214.

Patented May 20, 1890.

Fig. 1.

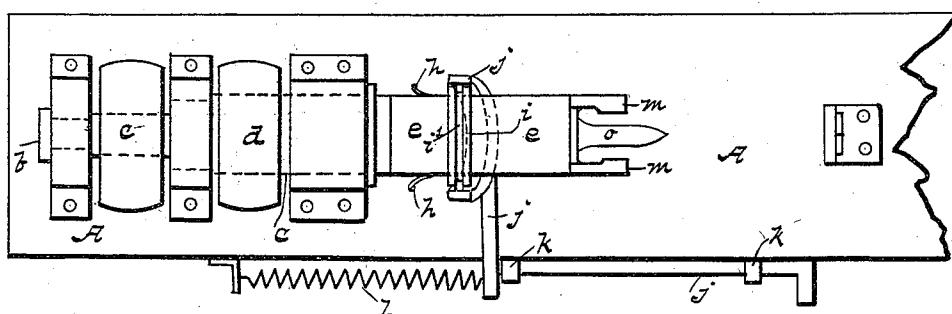


Fig. 2.

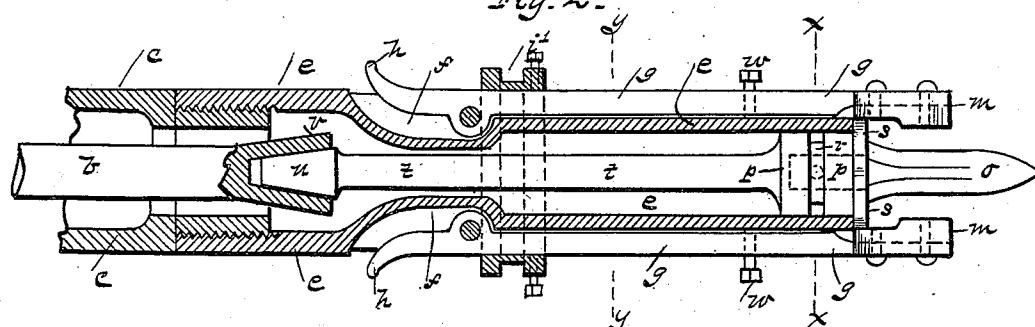


Fig. 3.

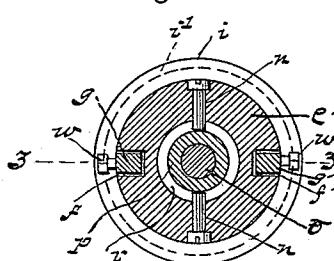


Fig. 4.

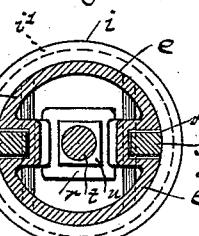
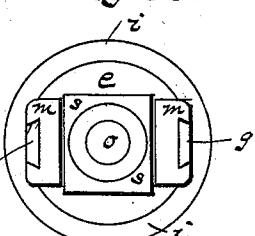


Fig. 5.



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UNITED STATES PATENT OFFICE.

CHARLES LENG, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR OF ONE-HALF
TO C. F. LENG, OF SAME PLACE.

BOTTLE-NECK-FINISHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 428,214, dated May 20, 1890.

Application filed February 14, 1889. Serial No. 299,873. (No model.)

To all whom it may concern:

Be it known that I, CHARLES LENG, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Bottle-Neck-Finishing Machines; and I 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 pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to an improvement in a machine for shaping the necks of bottles; and it consists in two dies attached to hinged levers and a means for rotating the same; a device for opening and closing the dies, and a central guide or plug to center the neck of the bottle and also to form the interior of the same, and a means whereby this plug is revolved in an opposite direction to that of the dies, thereby creating a friction on the outside and interior surface of the neck, which counterbalance each other, and prevents the bottle from turning, together with certain other details of construction and combination of parts, as will be fully described hereinafter.

In the accompanying drawings, Figure 1 is a plan view of a bottle-neck-finishing machine which is provided with my improvement. Fig. 2 is an enlarged sectional plan view of the die-holders, together with the various connections and means of operating the same. Fig. 3 is a vertical cross-section of the same, taken on the line $x-x$. Fig. 4 is a vertical cross-section on the line $y-y$. Fig. 5 is a front or face elevation of the dies in position.

To put my invention into practice, I provide a frame A, of suitable size and form of construction, and mount thereon two short shafts b c , the one within the other, in a manner that will admit of the same being revolved in opposite directions by means of two pulleys d , operated by belts connected to an overhead shaft in a manner well known to the art. At the front ends of these shafts b c is a device for operating the dies, which consists of a short cylinder e , attached by a screw-thread

to the outer shaft c . This cylinder e is provided with two deep grooves f , extending in the direction of its length, in which is pivoted two levers g , which when in position are flush or even with the exterior surface of the cylinder e , with the exception of the rear extremities h of the said levers g , which are slightly bent upward or away from the surface of the cylinder e , so as to prevent a neatly-fitting ring i from being drawn or moved over the ends of the same. This ring i is provided with a deep groove i' , by means of which a forked lever j is loosely attached thereto, the said lever j being secured in slides k and operated by a spring l , which tends to draw the collar i back over the bent portions h of the levers g , and thereby spread the forward ends of the same. These levers g are each provided with a removable die m , of suitable construction and of a form on their inner faces to correspond to the desired form of the neck of the bottles. Loosely secured in the forward ends of the cylinder e is a guide o , which tapers to a point and of a diameter equal to the opening through the neck of the bottle. This guide o is secured in the front of the cylinder e by means of an enlargement p , which fits the bore of the same, and the said enlargement p having an annular groove, in which two small screws n operate and prevent the same from being withdrawn. Between this guide o and the enlargement p is an oblong plate s , which prevents the dies m from moving farther inward than desired. At the rear of the enlargement p of the guide o and integral therewith is a shaft t , having a square end u , which fits into a socket v , formed on the inner shaft b . At suitable points on the two levers g are placed set-screws w , which will admit of the same being adjusted to separate or close the dies m .

In operation the neck of the bottle is placed between the dies m and over the guide o . The lever j is drawn forward, which by means of the collar i tightens the dies m about the same. The guide o revolving in one direction and the dies m in an opposite direction prevents the bottle from turning and at the same time rapidly finishes the same. The pressure is re-

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moved from the lever *j* and by the action of the spring *l* the collar *i* drawn back over the bent portions *h*, which allows the dies to separate, at which time the bottle is removed.

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

1. The herein-described means for operating on the necks of unfinished bottles, consisting of the two shafts *b c*, the one within the other, and a means for revolving the same in opposite directions, the cylinder *e*, attached to the outer shaft *c*, the levers *g*, embedded and pivoted in the face of the same and provided with bent portions *h*, the dies *m*, attached to the levers *g g*, the collar *i* and means for operating the same, the guide *o* and plates, the pins *n* for retaining the guides in position, the rear extension *t* of the guide *o*, the coupling *u v*, and the set-screws *w* as a means for adjusting the dies *m*, substantially as described.

2. In a machine for finishing the necks of bottles, the combination of a rotary hollow shaft having the longitudinal grooves, an inner oppositely-rotating shaft carrying a central guide, the levers arranged within the longitudinal grooves of said hollow shaft and normally lying flush therewith, the dies carried by said levers, and mechanism for operating the levers to open or close the dies, substantially as and for the purpose described.

3. In a machine for finishing the necks of bottles, the combination of a hollow exterior shaft, the levers carried by said shaft and having the dies, a central guide arranged between said dies and loosely supported and held against endwise movement in the forward open end of the hollow shaft, and an inner oppositely-rotating shaft to which said central guide is connected, substantially as and for the purpose described.

4. In a machine for finishing the necks of bottles, the combination of a hollow exterior shaft, the levers carrying the dies, an inner oppositely-rotating shaft, and a central guide removably socketed in the extremity of said inner shaft, so as to be rotated thereby, substantially as and for the purpose described.

5. In a machine for finishing the necks of bottles, the combination of a hollow exterior shaft, the levers carrying the dies, an inner oppositely-rotating shaft, and a central guide arranged between said dies and having an annular enlargement and longitudinal extension, the annular enlargement of said guide fitting loosely within the forward end of said hollow shaft and the rearward extension being detachably connected to the inner shaft, substantially as and for the purpose described.

6. In a machine for finishing the necks of bottles, the combination of a hollow exterior shaft, the levers carrying the dies, an inner oppositely-rotating shaft, a central guide having the annular enlargement, which fits snugly within the hollow shaft and is provided with a circumferential groove, fixed devices loosely fitting in said groove of the guide, and a shaft *t*, rigid with the enlargement of the guide and detachably connected to the inner shaft to rotate therewith, substantially as described.

7. In a machine for finishing the necks of bottles, the combination of a hollow exterior shaft, an inner oppositely-rotating shaft, a tubular extension detachably connected to one end of said hollow shaft, the levers carried by said extension and having the dies, and a central guide journaled in the tubular extension and having a rigid shaft *t*, which is detachably connected to the inner shaft to rotate therewith, substantially as and for the purpose described.

8. In a machine for finishing the necks of bottles, the combination of the oppositely-rotating concentric shafts, a pair of levers carried by the exterior shaft, the dies secured to said levers, a central guide connected to the inner shaft, regulating-screws for adjusting said levers relatively to the hollow shaft, and mechanism for operating said levers to open or close the dies, substantially as and for the purpose described.

9. In a machine for finishing the necks of bottles, the combination of the oppositely-rotating shafts, the levers carried by one shaft, a central guide connected to the other shaft, and a pair of dies detachably fixed to the levers on opposite sides of and out of contact with said guide, substantially as and for the purpose described.

10. In a machine for finishing the necks of bottles, the combination of a hollow exterior shaft having a longitudinally-grooved tubular extension detachably secured to one end thereof, a pair of levers arranged within said grooves and having the heels thereof extended beyond the face of said shaft-extension, a sliding sleeve fitted over said levers, an operating-lever connected to said sleeve and operating in slides on the machine, the dies carried by the levers on the hollow shaft, an inner oppositely-rotating shaft, and a central guide, substantially as described.

In testimony that I claim the foregoing I hereunto affix my signature this 11th day of February, A. D. 1889.

CHARLES LENG.

In presence of—
P. B. REILLY,
M. E. HARRISON.