

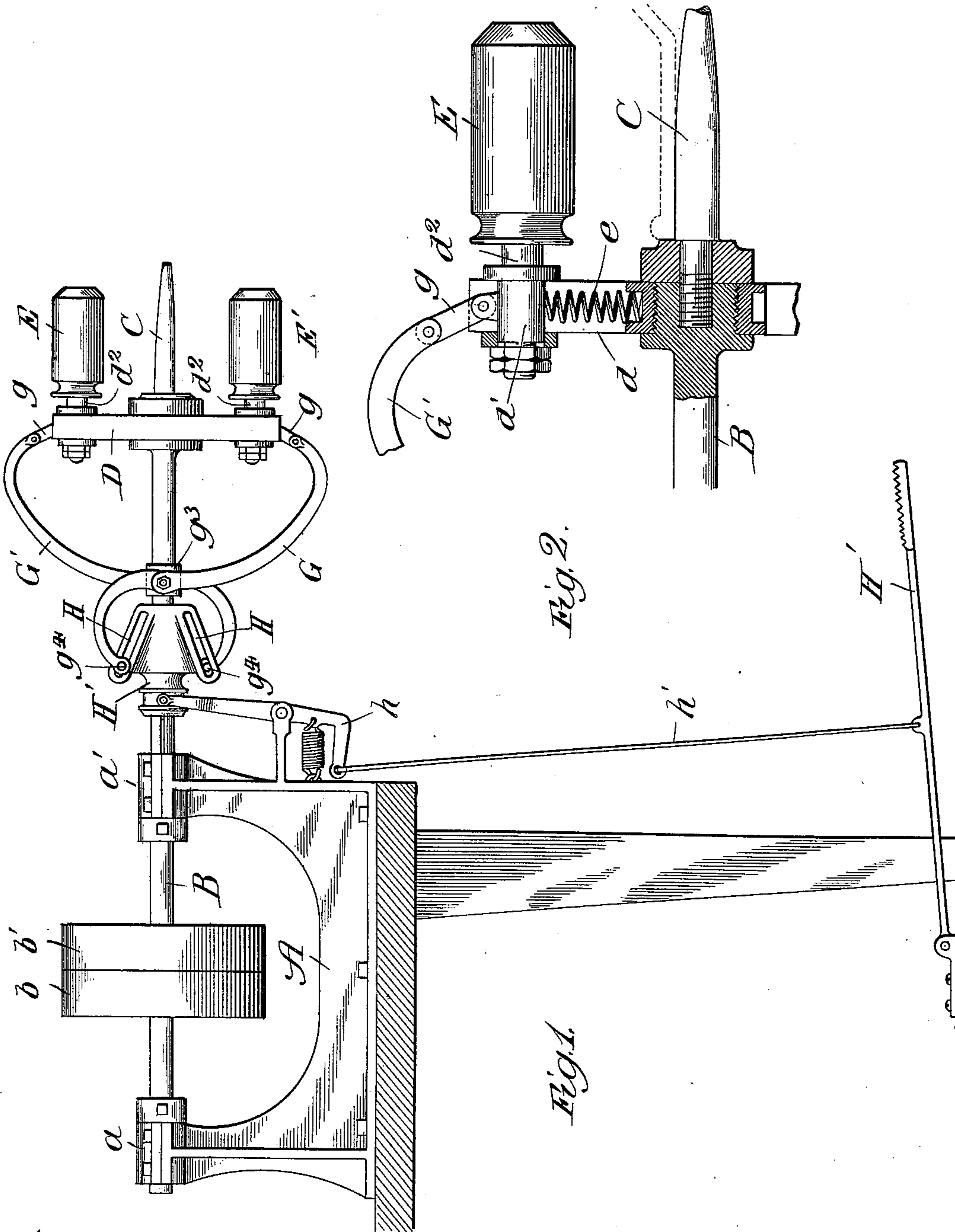
No. 631,588.

Patented Aug. 22, 1899.

A. J. RUDOLPH.
MACHINE FOR FORMING BOTTLE NECKS.

(Application filed Aug. 8, 1898. Renewed May 3, 1899.)

(No Model.)



Witnesses:
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UNITED STATES PATENT OFFICE.

ALEXANDER J. RUDOLPH, OF CHICAGO, ILLINOIS.

MACHINE FOR FORMING BOTTLE-NECKS.

SPECIFICATION forming part of Letters Patent No. 631,588, dated August 22, 1899.

Application filed August 8, 1898. Renewed May 3, 1899. Serial No. 715,476. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER J. RUDOLPH, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Machines for Forming Bottle-Necks, of which the following is a specification.

My invention relates to that class of mechanism for forming and finishing the necks of bottles and other open-ended tubular articles formed of glassware or similar material while such articles are in a heated, malleable, or ductile condition.

The principal object of my invention is to provide a simple, economical, and efficient machine for forming bottle-necks; and the invention consists in the features, combinations, and details of construction hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a side elevation of one form of machine embodying my improvements; and Fig. 2 an enlarged sectional detail view of a portion of the neck-forming mechanism, as hereinafter described.

In constructing a machine in accordance with my improvements I make a frame portion A of the desired size, shape, and strength to hold the operative and other parts in the desired position. Rotatably mounted in bearings *a* and *a'* of this frame portion is a rotatable spindle or mandrel B, provided with the usual tight and loose pulleys *b* and *b'*.

To form the bottle-necks, the front end of the spindle is provided with a plug C, adapted to enter the inside of the bottle-neck and size and finish the same. To form and finish the outer surface of the bottle-neck, the spindle is provided with a disk, plate, or bar D, which is attached to and rotates with the spindle, as shown in the drawings. This plate is slotted, as shown at *d*, and slidingly mounted therein are blocks *d'*, carrying shafts *d''*,

upon which are mounted the forming-rolls E and E'. The blocks are kept at their outer limits of motion by means of the helical springs *e*, though naturally by the rotations of the mechanism centrifugal force would be developed and tend to return and keep them in such position. To move the forming-rolls inwardly, cross-levers G and G' are provided, having one end in pivotal engagement with the sliding blocks by means of the toggle-levers *g* and the other end engaging at *g''* with inclined slots H of the bearing-sleeve H'. The operating-sleeve is moved forwardly and backwardly, or, in other words, reciprocated, by means of the operating-lever *h*, the connecting-rod *h'*, and the treadle H'.

It will be noticed that the levers for moving the forming-rolls inwardly and outwardly are arranged in an X-shaped manner and resemble ice-tongs and are pivoted upon a thimble *g'''* of the spindle.

I claim—

In a machine for forming bottle-necks, the combination of a rotatable spindle, a forming-plug mounted in one end thereof, a slotted disk, plate or similar element, mounted on such forming-spindle to rotate therewith, a sliding block or blocks in the slotted disk arranged to move inwardly and outwardly, a forming-roll on each sliding block arranged to be carried inwardly and outwardly thereby and in a parallel manner, a reciprocating operating-sleeve mounted upon the spindle and provided with inclined surfaces, and cross-levers engaging with the inclined surface of the operating-sleeve and pivotally engaged with the sliding blocks to move such sliding blocks inwardly in a parallel manner, substantially as described.

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