

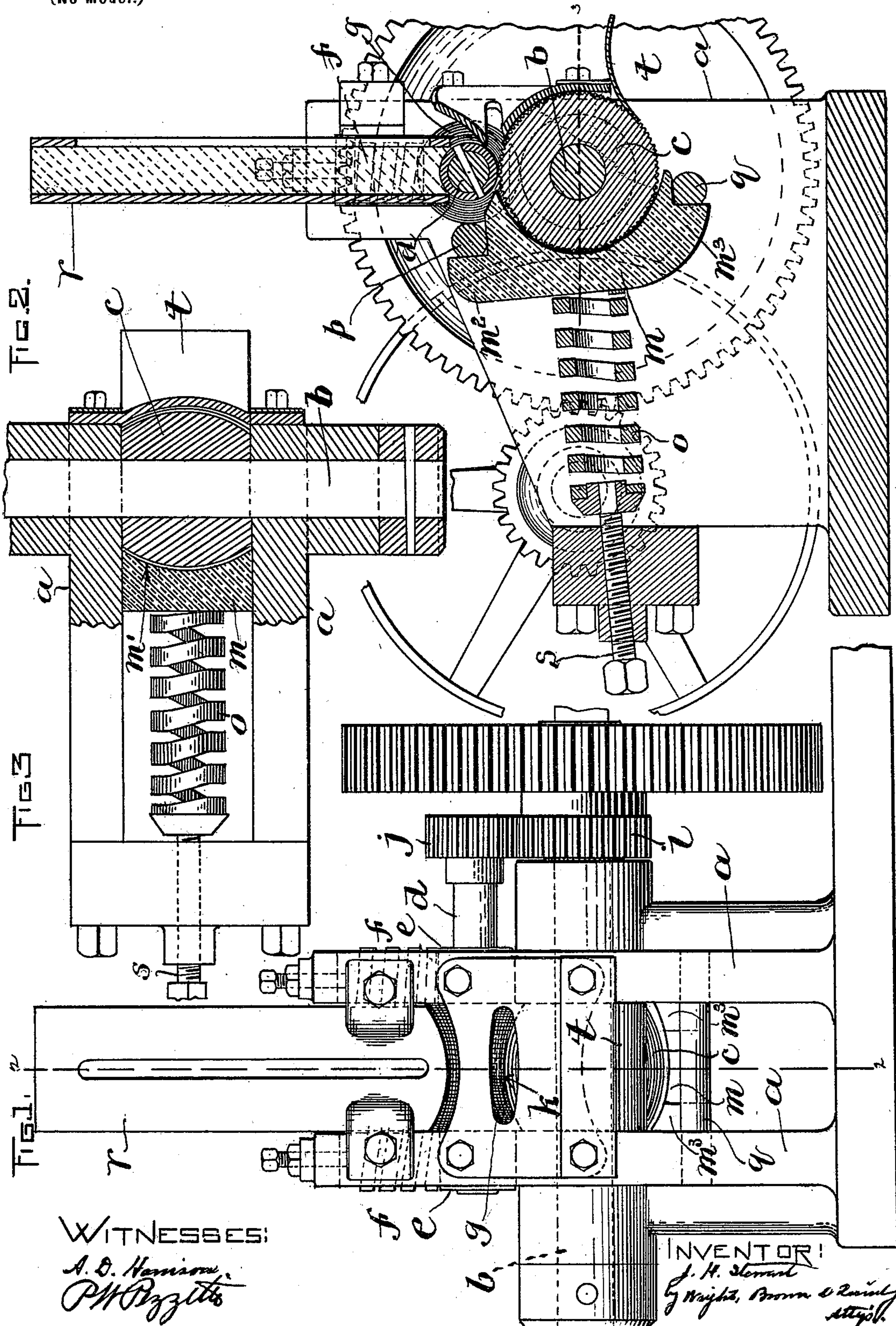
No. 637,533.

Patented Nov. 21, 1899.

J. H. STEWART.
COUNTER ROLLING MACHINE.

(Application filed Nov. 12, 1898.)

(No Model.)



WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHN HAMMOND STEWART, OF LYNN, MASSACHUSETTS, ASSIGNOR TO
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COUNTER-ROLLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 637,533, dated November 21, 1899.

Application filed November 12, 1898. Serial No. 696,211. (No model.)

To all whom it may concern.

Be it known that I, JOHN HAMMOND STEWART, of Lynn, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Counter-Rolling Machines, of which the following is a specification.

This invention has for its object to provide a simple and effective machine for rolling heel-counter blanks into the so-called "clam-shell form;" and it consists in the improvements which I will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a front elevation of a counter-rolling machine embodying my invention. Fig. 2 represents a section on line 2 2 of Fig. 1. Fig. 3 represents a section on line 3 3 of Fig. 2.

The same letters of reference indicate the same parts in all the figures.

In the drawings, *a a* represent side portions of a supporting-frame having bearings in which is journaled a shaft *b*, supporting a convex forming-roll *c*.

d represents a shaft which is journaled in sliding bearings *e e*, which are movable toward and from the bearings of the shaft *b* and are pressed yieldingly toward the latter by means of springs *f*, mounted in housings on the supporting-frame. To the shaft *d* is affixed a forming-roll *g*, which is longitudinally concave and is arranged to cooperate with the convex roll *c*, the peripheries of said rolls *g* and *c* being preferably fluted or corrugated longitudinally. The shaft *b* is driven by power applied to it in any suitable way, while the shaft *d* is driven by means of gears *i j*, affixed, respectively, to the shafts *b* and *d*.

k represents a throat or guide arranged to conduct a counter-blank to the meeting points of the rolls *c* and *g*.

m represents a non-rotating concave die or cup which is located behind the roll *c* and has a concave acting face *m'*, which is shaped to conform to a portion of the periphery of the said roll. The cup *m* is loosely mounted on the frame and is pressed by a spring *o* forward toward the roll *c*, its forward movement being limited by stops *p q*, mounted on the frame of the machine, said stops being arranged so that when the cup *m* is at the for-

ward extreme of its movement its acting face *m'* will be in close proximity to the periphery of the roll *c* without touching the latter, said acting face and the periphery of the roll *c* being separated by a crevice or space narrower than the thickness of a counter-blank.

A counter-blank passed through the guide *k* is grasped by the rolls *c* and *g* and partially formed in its passage between said rolls, the blank being curved from one end to the other or longitudinally by said rolls. As the partially-formed blank emerges from the rolls *c* and *g* its advancing end enters between the cup *m* and the rear portion of the roll *c* and passes downwardly between said cup and roll. The extended parallel surfaces of the cup and roll cooperate in completing the preliminary molding of the blank, curving it from its forward to its rear edge or transversely, the two curvatures making the blank approximately concavo-convex. The blank then emerges in the desired clam-shell form from between the cup and roll below their cooperating portions and is ready for the second molding operation, which forms the flange and completes the counter.

r represents a wax-holder which is located above the concave roll *g* and is arranged to hold a stick of wax and permit the lower end of the latter to bear upon the said roll.

The stops *p* and *q* are studs journaled to turn in bearings in the side pieces *a a* of the frame and extending across the space between said side pieces. The studs bear against shoulders *m² m³*, formed on the cup *m*. The lower stud *q* is located nearer the front of the machine than the upper stud *p*, this arrangement enabling the cup to swing backwardly on a center which is the lower stud when the counter first enters the cup, the upper end of the cup yielding to a greater extent than the lower, which simply turns with the lower stud, without being pressed backwardly. Hence the counter is inserted between the lower roll and the cup more easily than would be the case if the described provision for a backward-swinging movement of the die on a center or fulcrum at its lower end were not employed. After the counter has advanced to the central portion of the cup, or thereabout, the lower end of the cup yields also and is pressed backwardly against the pressure of the spring.

The studs *p* and *q* prevent upward and downward displacement of the cup, as will be readily seen.

The pressure of the spring *o* may be regulated by means of an adjusting-screw *s*, engaged with the rear portion of the frame. Said spring is arranged to exert pressure on the cup at a point about midway between its upper and lower ends, and its pressure is exerted toward the axis of the roll *c*, the spring being preferably somewhat inclined, as shown in Fig. 2.

t represents a deflecting-plate, which is arranged to detach the advancing ends of the counters from the roll *c* and prevent them from obstructing the guide in case they stick to the roll in emerging from the cup. Said plate may be of sheet metal, attached in any suitable way to the frame of the machine.

I claim—

1. A counter-rolling machine comprising a pair of rolls, one convex and the other concave, adapted to grasp a counter-blank with a yielding pressure and feed it forward, said rolls imparting a longitudinal curvature to the blank, and a non-rotating yieldingly-supported concave cup which faces the convex roll and is arranged to cooperate with the latter in giving the blank a transverse curvature after it has received a longitudinal curvature from the two rolls, the cup presenting to the convex roll an extended yielding concave surface.

2. A counter-rolling machine comprising a pair of rolls, one convex and the other concave, adapted to grasp a counter-blank with

a yielding pressure and feed it forward, a non-rotating yieldingly-supported concave cup which faces the convex roll and conforms to the periphery of the latter below and behind the portion of said roll which cooperates with the other roll, a spring arranged to press the die forward toward the convex roll, and stops arranged to limit the forward movement of the cup by the spring, and to prevent upward and downward displacement of the cup.

3. A counter-rolling machine comprising a pair of rolls, one convex and the other concave, adapted to grasp a counter-blank with a yielding pressure and feed it forward, a non-rotating yieldingly-supported concave cup which faces the convex roll and conforms to the periphery of the latter below and behind the portion of said roll which cooperates with the other roll, a spring arranged to press the die forward toward the convex roll, and stops arranged to limit the forward movement of the cup by the spring, one of said stops being above the axis of the convex roll and the other below said axis and nearer the front of the machine than the higher stop, whereby the cup is permitted to swing backwardly at its upper end, without bodily displacement of its lower end.

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

JOHN HAMMOND STEWART.

Witnesses:

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