

(No Model.)

G. A. KNOX.
HEEL STIFFENER MACHINE.

No. 374,414.

Patented Dec. 6, 1887.

Fig. 1.

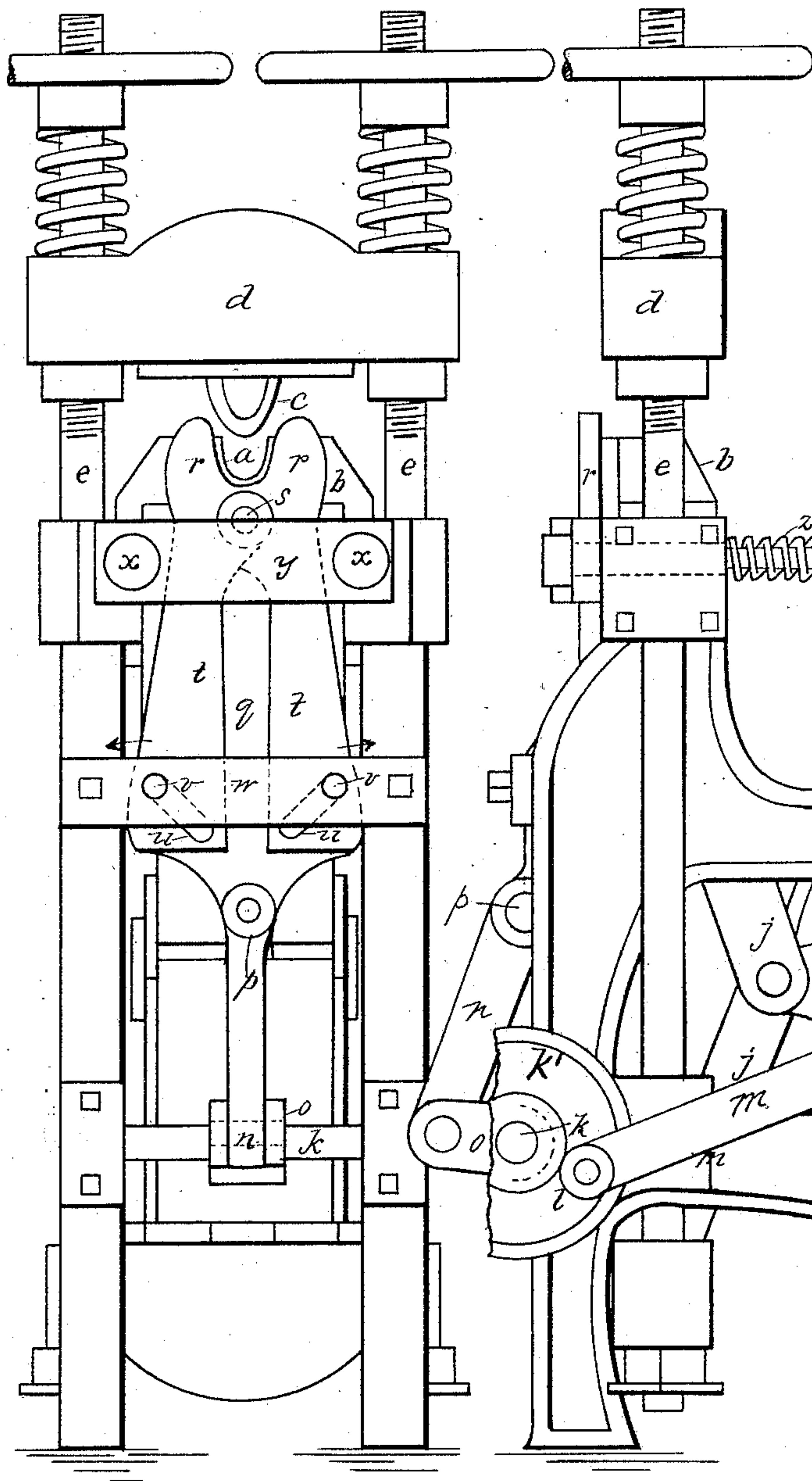
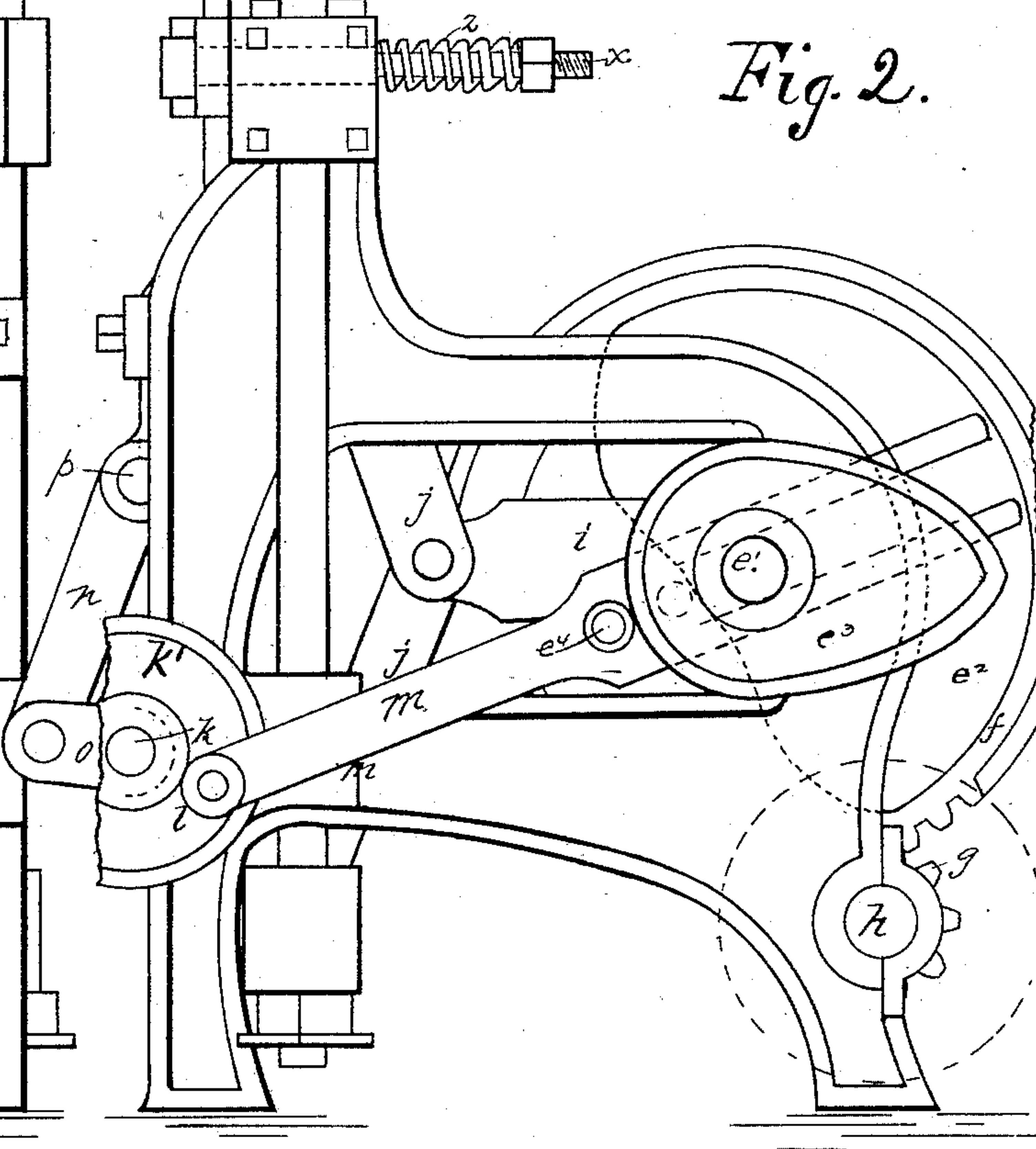


Fig. 2.



WITNESSES.

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GEORGE ALFRED KNOX, OF LYNN, MASSACHUSETTS.

HEEL-STIFFENER MACHINE.

SPECIFICATION forming part of Letters Patent No. 374,414, dated December 6, 1887.

Application filed April 1, 1887. Serial No. 233,307. (No model.)

To all whom it may concern:

Be it known that I, GEORGE ALFRED KNOX, of Lynn, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Machines for Molding and Flanging Counters or Stiffeners for Boots or Shoes, of which the following is a specification.

My invention has reference to machines for molding and flanging stiffeners or counters for boots or shoes.

The invention consists in improvements on the machine shown and described in my application No. 226,991, filed February 8, 1887, and especially to the means for forming the flange on the stiffener.

It is the object of my improvements to provide means whereby all portions of the flange may be set or formed simultaneously and at a single movement.

Reference is to be had to the accompanying drawings, and to the letters of reference marked thereon, the same letters indicating the same parts in both views.

Figure 1 represents a front view of a machine embodying my improvements. Fig. 2 represents a side view of the same, parts being shown as broken away.

The main operative parts of the machine shown do not differ essentially, except in two or three particulars, from those shown and described in my aforesaid application, so that it will not be necessary to do more than to refer to them briefly and in like manner mention their purposes or functions.

a represents the lower or female mold or former fixed on the stationary bed b , and c the upper or male mold or former secured to the adjustable cross-head d , the latter being attached to the vertically-movable rods e , guided and supported in suitable bearings on the frame. The molds or formers a c are of such shape as to properly mold a stiffener pressed therebetween, and it is designed that the stiffener so pressed and molded shall be held by the formers until the flange is set thereon, which flange is formed from a portion of the blank which is left projecting from the front face of the molds.

e' represents a shaft driven through the medium of gears f g from main shaft h , which shaft e' is provided with a cam, e^2 , as explained

in my aforesaid application, for operating link i and toggle-levers j j to draw down cross-head d at the proper times for the purpose of bringing the two molds or formers together to mold the stiffeners placed therebetween, as before explained.

k represents a rock-shaft having bearings in the frame of the machine, said rock-shaft being operated by means of a link-lever, m , connected to a disk or wheel, k' , by means of a wrist-pin, l , and reciprocated by means of a cam, e^3 , secured to the end of shaft e' , said cam acting on a bowl or pin, e^4 , as shown in Fig. 2.

o indicates a short arm secured at one end to rock-shaft k and forked and pivoted at its other end to a link-lever, n , pivoted at its upper end, as at p , to a slide, q , so that as link-lever m is reciprocated shaft k will be rocked and slide q will be reciprocated vertically through the medium of arm o and link-lever n .

A blank to be operated upon is placed on the lower former, a , with enough of its edge out of which to form the flange left projecting from the front face of the said former, and the cross-head with the male mold c is brought down upon the blank, as before described, and the latter is held between the molds until the flange is set thereon, which is accomplished by the jaws r r , pivoted at s on the upper end of slide q . Said jaws r r have arms t t extending down in front of the slide, which arms are provided at their lower ends with inclined slots u u , into which project pins v v , extending inward from a cross-bar, w , of the frame. The inner opposing edges of the jaws r r are together U-shaped and embrace or extend about, though not in their normal position in contact with, the projecting edge of the blank. After the blank has been pressed and while it is being still held by the molds, as explained, slide q is raised by lever n and connected devices, which operation will cause the lower ends of arms t t to be thrown outward in the direction of the arrows in Fig. 1 by the action of pins v v in inclined slots u u , and as a consequence cause jaws r r to be closed upon the projecting edge of the blank and to be simultaneously bent inward and ironed down to form or set the flange, the lower portion of the opposing edges of the jaws, just above their pivot-point s , pressing in and forming the lower portion of the flange, as said jaws are raised

by the slide *q* and as the substantially vertical edges close in upon the projecting edges at the sides of the front faces of the mold. In this way the entire flange is formed or set at the same instant, and is made uniform in character, there being no tendency of one part of the projecting edge of the blank to rob from another, as is the case where one portion of the flange is set at a different time from another.

10 The molds or formers *a c* are single solid dies.

x x represent rods passing through the frame and holding the jaws pressed against the face of the dies or formers with a yielding pressure by means of a cross-bar, *y*, bearing against the jaws. A spiral spring, *z*, surrounds the rear portions of each of said rods and bears at one end against the frame and at the other against a nut on the end of the rod, the latter affording means for adjusting the tension by which cross-bar *y* bears against the jaws.

20 It is obvious that the form and arrangement of parts comprising my invention may be varied within the limits of mechanical skill without departing from the nature or spirit of the improvements.

25 Having thus described my invention, what I claim is—

1. The combination, with the molds, of jaws *r r*, slide *q*, to which the jaws are pivoted, and mechanism, substantially as described, for reciprocating said slide and jaws and simulta-

neously therewith rocking the same upon their pivot, all constructed, arranged, and operating substantially as set forth.

2. The combination, with the molds, of jaws *r r*, provided with arms *t t*, having inclined slots *u u*, pins *v v*, projecting into said slots, slide *q*, rock-shaft *k*, a link connecting said rock-shaft with said slide *q*, and mechanism, substantially as described, for rocking said shaft, all constructed, arranged, and operating substantially as and for the purposes set forth.

3. The combination, with the rotary shaft *e'*, provided with cam *e'*, link-lever *m*, rock-shaft *k*, provided with disk *k'*, wrist-pin *l*, connecting said link-lever with said disk, slide *q*, a link connecting said rock-shaft with said slide, jaws *r r*, pivoted to said slide and provided with arms *t t*, having inclined slots *u u*, pins *v v*, projecting into said slots, and molds or formers *a c*, all constructed, arranged, and operating substantially as and for the purposes hereinbefore set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 26th day of March, A. D. 1887.

GEORGE ALFRED KNOX.

Witnesses:

ARTHUR W. CROSSLEY,
C. F. BROWN.