

(No Model.)

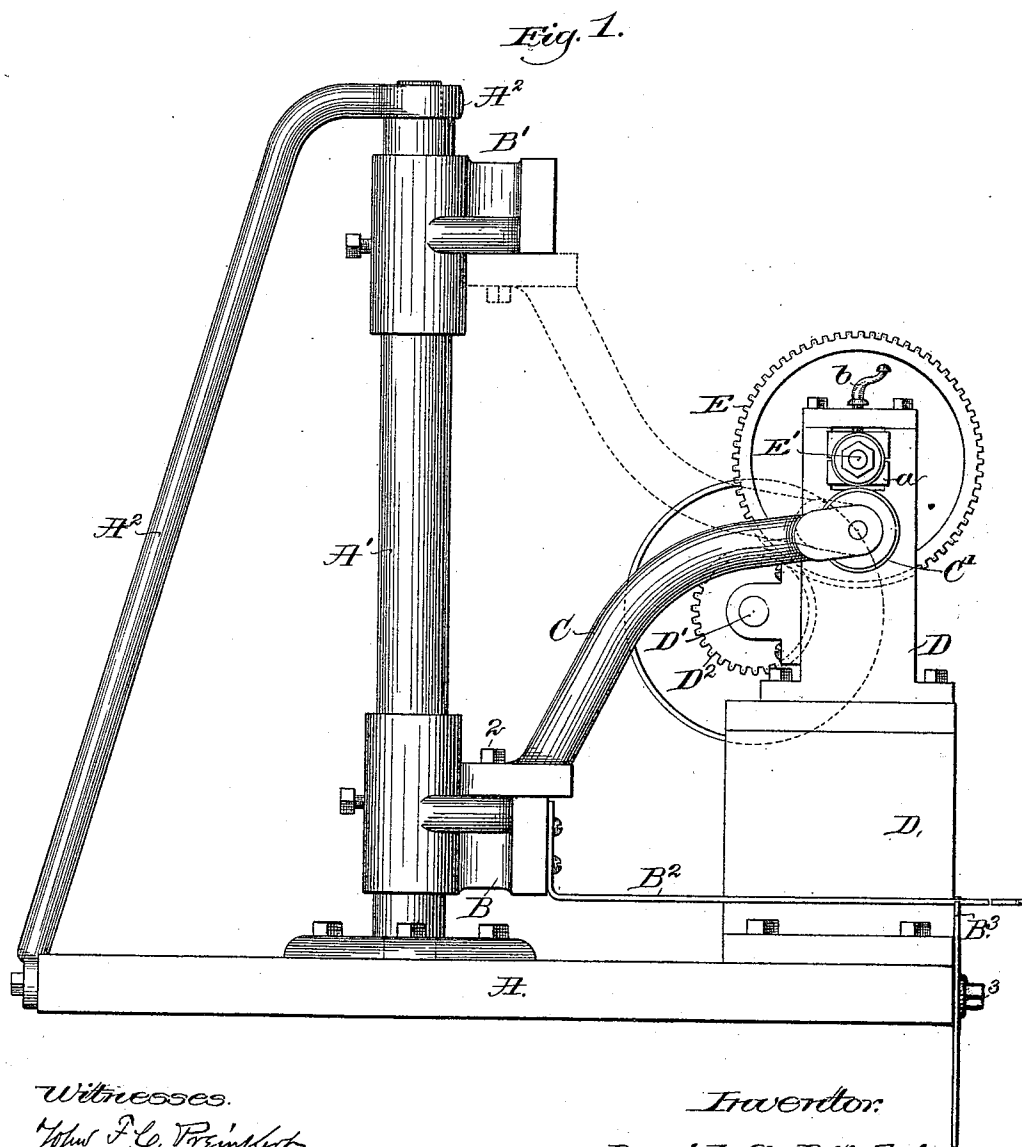
2 Sheets—Sheet 1.

D. A. RITCHIE.

MACHINE FOR SEAMING THE FLANGED EDGES OF METALLIC ELBOWS.

No. 463,408.

Patented Nov. 17, 1891.



Witnesses.
John F. C. Prentiss
Frederick L. Emery -

Inventor:
David A. Ritchie,
by Lemley & Gregory attys.

(No Model.)

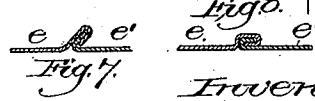
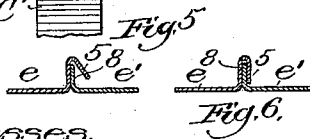
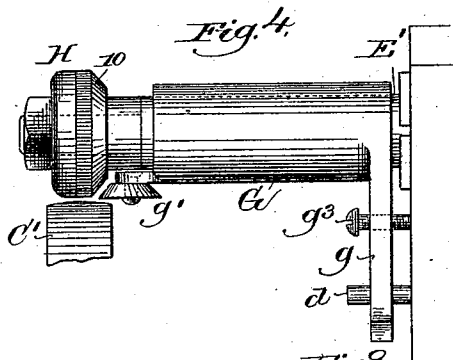
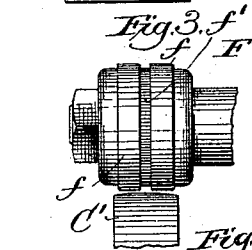
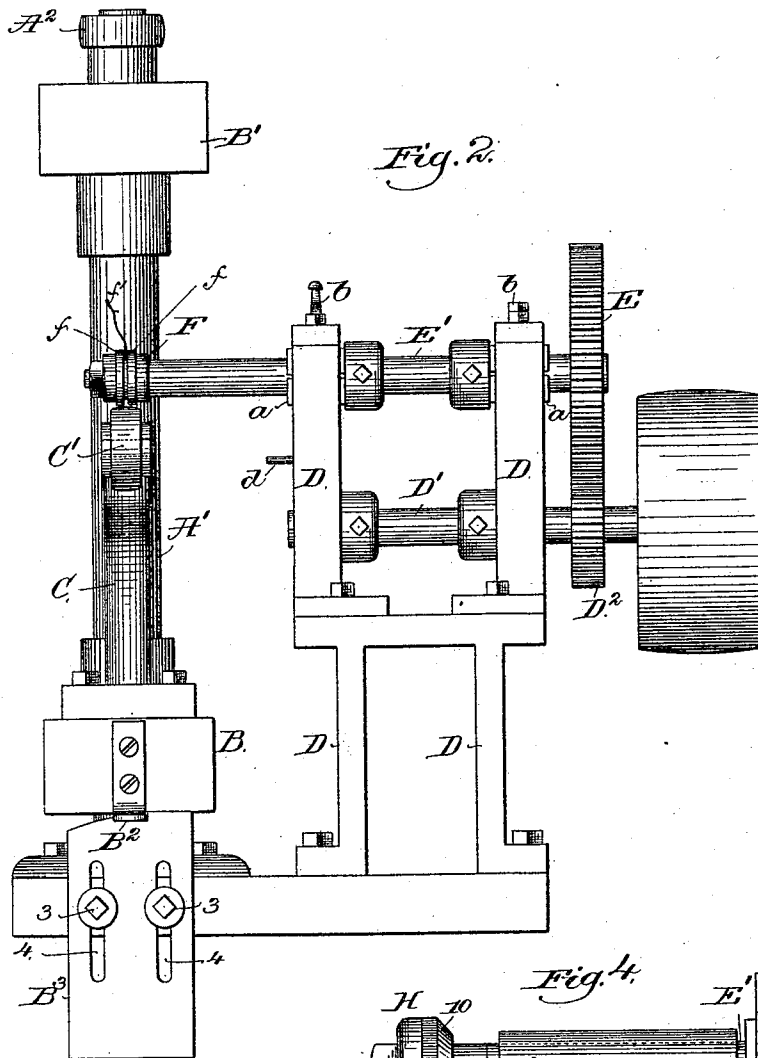
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No. 463,408.

Patented Nov. 17, 1891.



Witnesses.
John F. C. Prinkert
Frederick L. Emery—

Inventor.
David A. Ritchie,
by Lewis & Gregory attys.

UNITED STATES PATENT OFFICE.

DAVID A. RITCHIE, OF CAMBRIDGE, MASSACHUSETTS.

MACHINE FOR SEAMING THE FLANGED EDGES OF METALLIC ELBOWS.

SPECIFICATION forming part of Letters Patent No. 463,408, dated November 17, 1891.

Application filed November 9, 1889. Serial No. 329,803. (No model.)

To all whom it may concern:

Be it known that I, DAVID A. RITCHIE, of Cambridge, county of Middlesex, State of Massachusetts, have invented an Improvement in Machines for Uniting the Flanged Edges of Metallic Elbows, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

This invention has for its object the production of a machine by which to automatically overturn and lock together the flanged edges of metallic elbows, such as represented in United States Patent No. 342,465, granted to me May 25, 1886. The elbow referred to is composed of two arc-shaped pieces of metal having flanged edges, the edge of one blank being wider than the edge of the other blank, so as to enable one flange to be bent over and embrace the other flange. To lock together the flanged edges of these arc-shaped elbow-blanks, I have provided a curved horn having a rolling-anvil, on which is placed the said elbow, while it is acted upon by a series of rolls or devices to be described.

The principle of the invention will be described first, and then the part or improvement which I claim as my invention will be particularly pointed out and distinctly claimed.

Figure 1, in side elevation, represents a machine embodying my invention; Fig. 2, a front elevation thereof; Fig. 3, an enlarged detail of the anvil and closing-roll shown in Figs. 1 and 2; Fig. 4, a detail of the overturning-rolls and anvil; and Figs. 5, 6, 7, and 8 show various steps in the operation of completing the lock of the two halves of the elbow-blank.

The bed-plate A has stepped upon it a pivot-post A', journaled at its upper end in a bearing A². The post A' has secured to it in adjustable manner two stands B B', which serve to support the horn C, according to whether the outer convexed or the inner concaved edges of the elbow are to be locked.

In Fig. 1 the horn is shown by full lines as connected by screw 2 to the stand B in position to act on the convexed edges of the blank; but to lock the concaved edges of the blank the horn will be attached to the stand B', as shown by dotted lines. The horn C, of proper shape to permit the elbow to be slipped onto

it, has at its free end an anvil C'. (Shown as a roller.) The bracket B has connected to it a handle B², which engages a catch-plate B³, (shown as adjustably attached by screws 3 3 in slots 4 to the bed-plate,) the said handle permitting the post and its connected horn to be swung aside when desired. The bed-plate has suitable standards D D, which receive suitable boxes for the main shaft D', which may be rotated in any usual way. The shaft D' has a pinion D², which engages a toothed gear E on a shaft E', adapted to rotate in vertically-adjustable boxes *a a*, controlled as to their vertical position by a crank-screw *b*. The shaft E' has fast on it in Figs. 1 and 2 a closing device F, (shown as a roll having two annular projections *f* and a space *f'* between,) the said roll between the said projections being preferably scored or roughened to aid in feeding the elbow. One of the uprights D has a stud *d*, which at times acts to hold the lower end of an arm *g* of a sleeve G, carrying the gage-roll *g'*, which sleeve at certain times, as will be described, is put upon the shaft E' loosely after removing the roll F, the overturning roll H being then substituted for the roll F, as shown in Fig. 4. The screw *g*³ enables the sleeve to be adjusted longitudinally on the shaft E' to thus place the gage-roll in proper position with relation to the roll H for the work to be done.

Referring to Fig. 5, let *e e'* represent parts of the two halves of a molded or formed elbow of segmental or arc shape, as shown in the said patent, one of the said flanges, as 5, being broader than the other and being partially bent over, as shown in Fig. 5, to receive the straight flange 8 of the other half. With the flanged parts in the condition Fig. 5 the elbow is placed on the horn and the bent part of the flange 5 in the annular groove *f'*, the inner side of the elbow resting on the anvil. The rotation of the roll F feeds the elbow and causes the flange 5 to be fitted closely to and so as to embrace the flange 8, as in Fig. 6. After this operation the roll F is removed and the sleeve G and roll H are applied to the shaft E' and the elbow again applied to the horn, the edge of the gage-roll *g'* acting against the elbow at the end of the flange 5, while the beveled face 10 of the roll H, by acting on the upright part of the flange 5 to

the left, presses, in the rotation of the shaft E', the said flanges over as in Fig. 7. The flange having been brought into the condition shown in Fig. 7, the elbow is then made
5 to pass over the anvil and between it and the periphery of the roll H, or it may be the roll F, to complete the locking of the flanges, as in Fig. 8.

Any desired number of elbows may be
10 brought into the condition Fig. 6 before bringing them into the condition Fig. 7.

I do not desire to limit my invention to the exact shape shown for the horn or for the anvil.

15 I claim—

1. In a machine for making sheet-metal elbows, a post and a frame in which it is pivoted, stands on said post and a handle to rotate the post, a reversible horn secured to one
20 or the other of said stands, and an anvil in said horn, combined with a shaft and a rotary seaming-tool on said shaft, substantially as described.

2. In a machine for making sheet-metal el-

bows, a post and a frame in which it is piv- 25
oted, stands on said post and a handle to rotate the post, a reversible horn secured to one or the other of said stands, and an anvil in said horn, combined with a shaft, a rotary seaming-tool on said shaft, and a gage-roll g', 30
substantially as described.

3. In a machine for the manufacture of sheet-metal elbows, a horn-support and a reversible horn having an anvil, combined with a closing device to cause a flange on one part 35
of the elbow to embrace a flange on the other part of the elbow, the reversal of the horn enabling both the convexed and the concaved edges of the blank to be interlocked, substantially as described. 40

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

DAVID A. RITCHIE.

Witnesses:

GEO. W. GREGORY,

E. J. BENNETT.