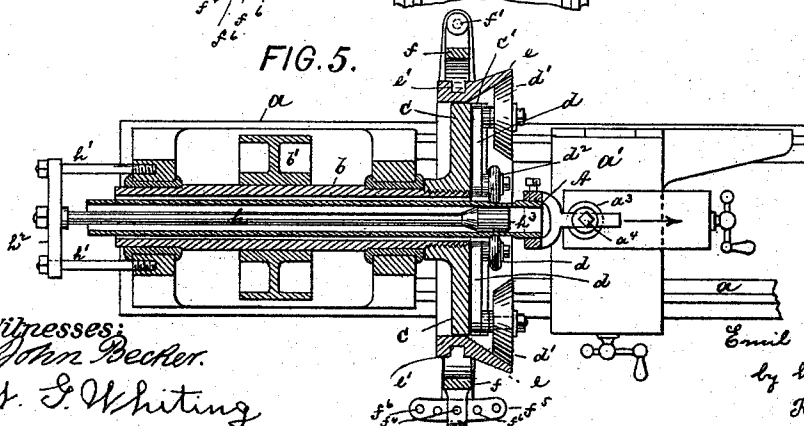
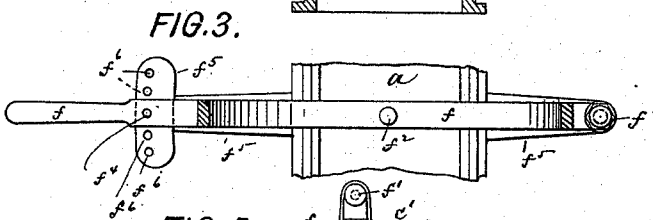
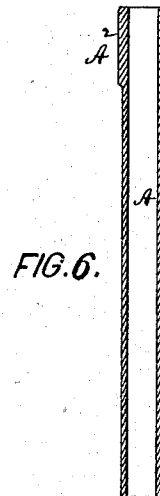
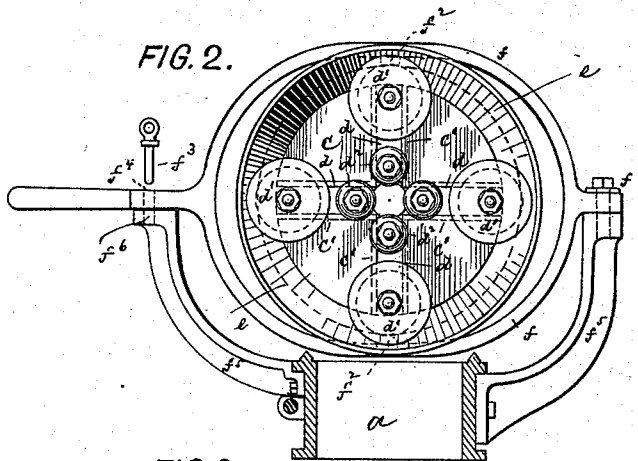
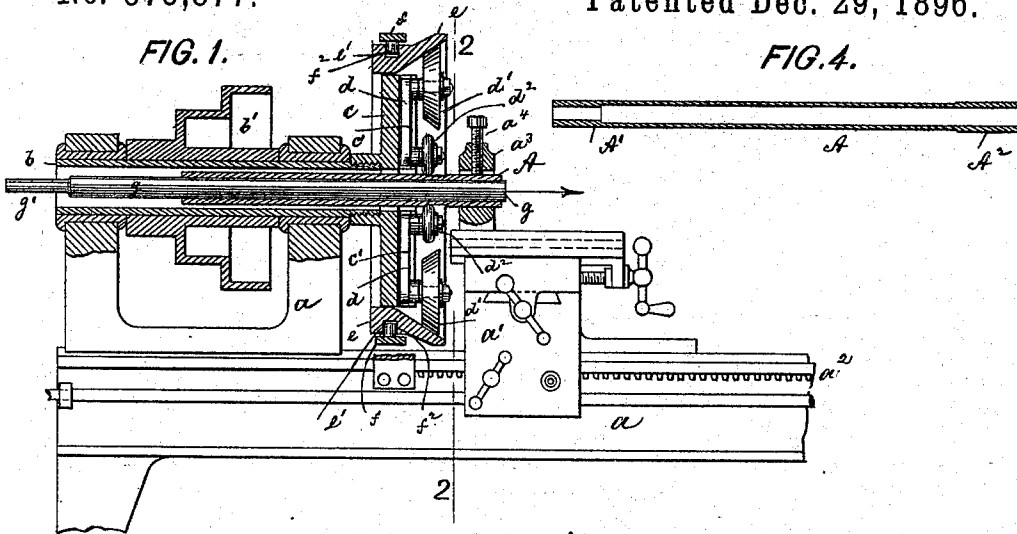


E. F. HOLMGREN.
MACHINE FOR ROLLING METAL TUBES.

Patented Dec. 29, 1896.



Inventor:

Emil F. Holmgren
by his attorneys
Roeder & Briesen

Witnesses:
John Becker.
H. G. Whiting

UNITED STATES PATENT OFFICE.

EMIL F. HOLMGREN, OF BROOKLYN, NEW YORK, ASSIGNOR TO THE SEAM-
LESS STRUCTURAL TUBE COMPANY, OF NEW YORK, N. Y.

MACHINE FOR ROLLING METAL TUBES.

SPECIFICATION forming part of Letters Patent No. 573,877, dated December 29, 1896.

Application filed March 19, 1896. Serial No. 583,873. (No model.)

To all whom it may concern:

Be it known that I, EMIL F. HOLMGREN, of Brooklyn, Kings county, New York, have invented an Improved Machine for Rolling
5 Metal Tubes, of which the following is a specification.

This invention relates to a machine for rolling metal tubes so as to decrease their thickness and to form on them, if desired, inwardly-
10 extending swells or reinforced sections.

The object of the invention is to construct a machine by which the rolling action may be evenly performed and by which the degree of reduction of the work may be controlled with
15 great accuracy.

In the accompanying drawings, Figure 1 is a vertical longitudinal section, partly in side view, of my improved machine for rolling metal tubes. Fig. 2 is a vertical cross-section
20 on line 2-2, Fig. 1, with the mandrel and tube removed; Fig. 3, a detail of the shifting lever *f*; Fig. 4, a longitudinal section of a tube rolled out by the machine; Fig. 5, a sectional plan of a modification of the machine, and
25 Fig. 6 a longitudinal section of a tube rolled out by the modified machine.

The letter *a* represents the frame of the machine, having a slide-rest *a'*, which is reciprocated by means of a rack *a²* in the ordinary or suitable manner.
30

b' is the power-pulley keyed to the tubular spindle *b*, which revolves in bearings of the machine. The spindle *b* carries on its end a head *c*, which is made in the form of a disk
35 with four (more or less) radial slots *c'*. Within these slots are guided the radially-movable slides *d*, that carry near their outer end a contact-roller *d'* and at their inner end a working or reducing roll *d²*.

The head *c* is embraced by a flaring ring *e*, adapted to engage the beveled edges of the rollers *d'*.

It is clear that when the ring *e* is projected over the rollers *d'* to a greater or less extent
45 the slides *d* will be correspondingly moved inward to cause the rolls *d²* to approach each other to any desired degree. The ring *e* is moved by means of a shifting lever *f*, pivoted at *f'* to an arm *f²* of the machine-frame. The
50 lever *f* is provided with a pair of pins *f³*, engaging a circumferential groove *e'* of ring *e*.

Thus by shifting the lever any desired movement may be imparted to the ring, as will be readily understood. A locking-pin *f³*, engaging a perforation *f⁴* of the lever and any one
55 of a number of perforations *f⁵* of the bracket *f⁵*, serves to lock the lever, and consequently the ring *e* and slides *d*, in any of their working positions.

The operation of the machine will be readily
60 understood. The tube *A* to be reduced and containing the movable mandrel *g* is clamped to the tool-post *a³* of the slide-rest *a'* by means of the clamp-screw *a⁴*. The lever *f* is now shifted until the rolls *d²* bite into the tube *A*
65 to the desired extent. Motion being imparted to the slide-rest *a'* and to the pulley *b'*, the tube *A* will be drawn through the rolls *d²* of the revolving head *c* and will thus be reduced to the desired thickness. If it is desired to
70 form inwardly-extending swells *A'* on the tube *A*, the mandrel *g* is correspondingly reduced, as at *g'*, when the displaced metal will be crowded inward to form the swell. The end
75 *A²* of the tube indicates its original thickness where it has been clamped to the tool-post and has consequently not been acted upon by the rolls. This end may be either cut off or it may be subjected to the reducing process in the same machine by reversing the tube.
80

In Fig. 5 the construction is the same as that previously described, excepting that a fixed mandrel *h* is substituted for the movable mandrel *g*. The mandrel *h* is secured to the machine-frame at its rear end by bolts
85 *h'* and cross-piece *h²*, while it is provided at its front end and between the rolls *d²* with a bulb *h³*. The work *A*, being drawn forward between the mandrel and rolls, will be reduced to the desired extent.
90

It will be seen that my machine may be readily adjusted to reduce differently-sized tubes or to reduce tubes to different degrees of thickness. The machine works quickly and accurately and produces superior results.
95

What I claim is—

1. In a machine for rolling metal tubes the combination of a revoluble head with radially-movable slides, reducing-rolls and contact-rollers secured to opposite ends of the slides,
100 a mandrel extending between the reducing-rolls, a flaring ring engaging the contact-rolls,

ers, and means for shifting such ring, substantially as specified.

2. In a machine for rolling metal tubes the combination of a revoluble head with radially-movable slides, reducing-rolls and contact-rollers secured to opposite ends of the slides, a grooved and flaring ring engaging the contact-rollers, a shifting lever having pins that

engage the grooved ring, and means for locking the shifting lever in position, substantially as specified.

EMIL F. HOLMGREN.

Witnesses:

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