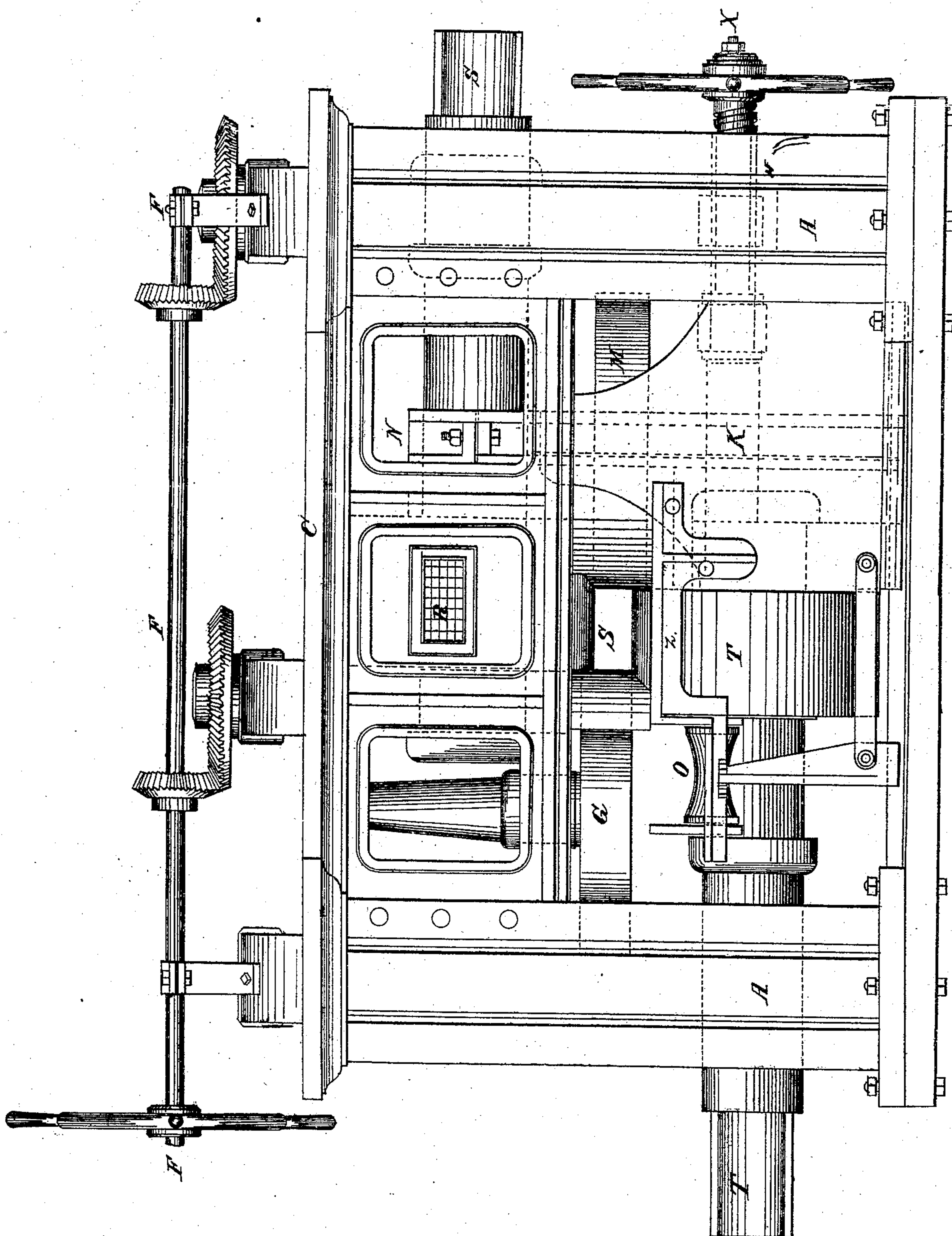


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MACHINE FOR ROLLING BAR IRON.

No. 9,673.

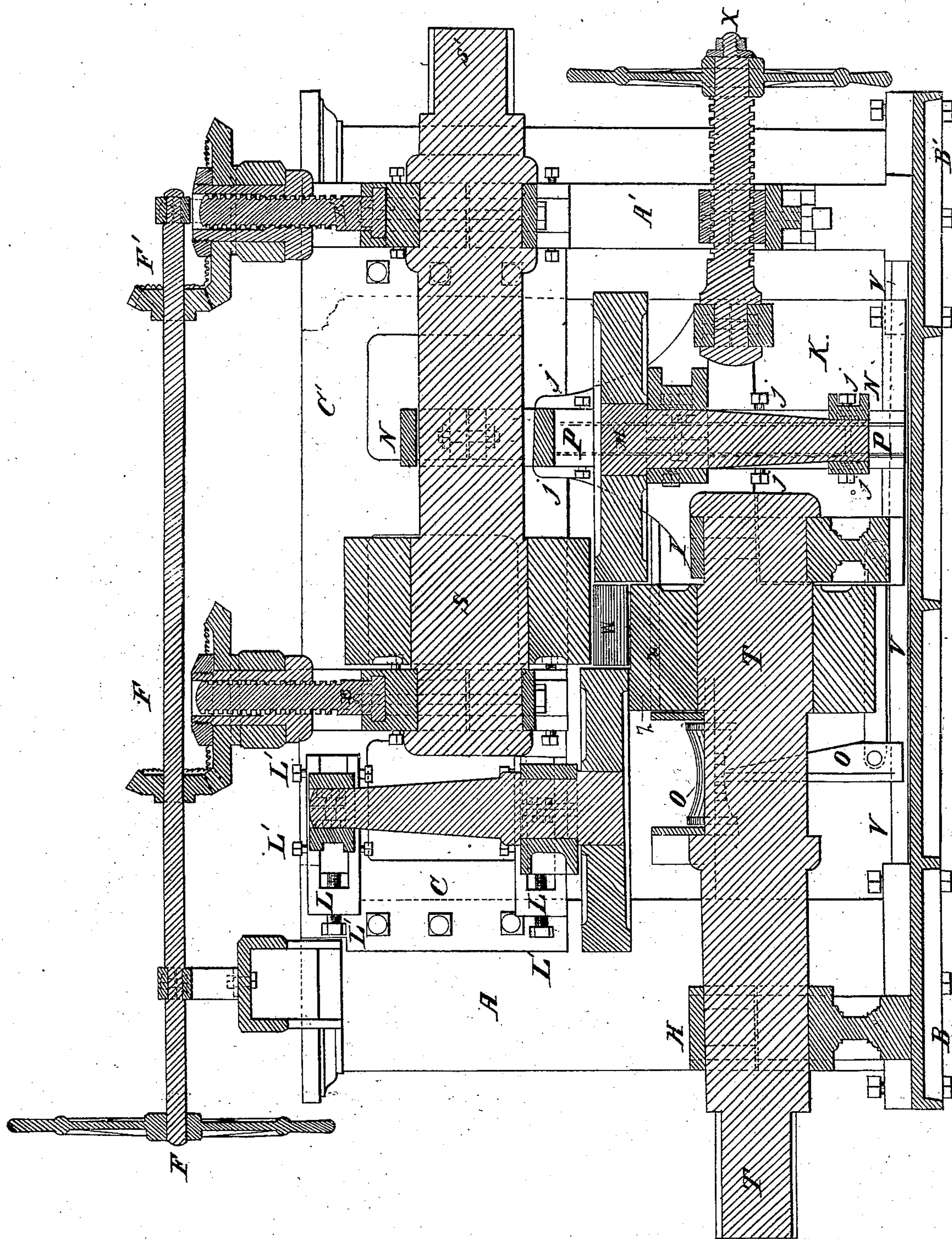
Patented Apr. 19, 1853.



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UNITED STATES PATENT OFFICE.

J. T. HARTUPEE AND A. ALEXANDER, OF PITTSBURGH, PENNSYLVANIA.

MACHINE FOR ROLLING BAR-IRON.

Specification of Letters Patent No. 9,673, dated April 19, 1853.

To all whom it may concern:

Be it known that we, JAMES T. HARTUPEE and ABRAM ALEXANDER, both of the city of Pittsburgh, county of Allegheny, and State of Pennsylvania, have invented a Machine for Rolling Bar-Iron; and we do declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, No. 1 being an elevation, and No. 2 a section, of the machine.

We give the name of expanding bar roll to a combination of four rolls having their axles movable so as to expand or contract the space comprised between their faces, and by thus doing, render it equally appropriate for the fabrication of different sized bar iron.

In the present drawings the expanding bar roll can be contracted so as to manufacture bars $\frac{1}{2}$ by $\frac{1}{8}$ of one inch, and can be expanded so as to receive a lump of $32\frac{1}{2}$ inches of section.

In this specification we shall not endeavor to point out the great advantage that the contracting and expanding bar roll will offer over other bar rolls, such as the saving of labor, economy of setting up and keeping in working order, &c. A single glance at the drawings will show how this machinery can be repaired, piece by piece, as they wear out, with little expense or trouble. We shall confine ourselves to a description of our drawings.

A, A, housers; B, B, bottom plate; C, C, frame work, connecting the two housers; E, E, screens and pillow blocks to raise and let down the horizontal top roll S; F, F, F, gearing and hand wheel to work the screens E, E; S, horizontal top roll fixed or movable; G, vertical roll kept always in contact with the side of the top horizontal roll S, and the face of the bottom horizontal roll T, by the slots L, L, and their set screws; T, horizontal bottom roll having one of its ends sliding in a fixed pillow block H, and the other end resting in a pillow-block I, of the frame K; M, vertical roll fixed in a yoke N, N, which can slide up or down in the slots P, P, of the frame K; the yoke N, N, is suspended on the top of horizontal roll S, so as to keep the side of the vertical roll M, always in contact with the face of the horizontal roll S; K, sliding frame movable on the V slide V, V. This frame has a vertical

slot P, for the yoke N, N, to slide up and down in with the vertical roll M; and by means of the set screws j, j, j, j , the face of the vertical roll M, can be always kept in contact with the side of the bottom horizontal roll T; X, screw and hand wheel to shift the frame K backward and forward and with it the bottom horizontal roll T, and the vertical roll M; O, two friction rolls and their frames (shifting on the slide V, with the frame K) to bring back the red hot bar from the rear to the front of the movable bench Z; W, a red hot bar engaged in the rolls; R, (on the elevation) an indicator, having a graduated surface and a double sliding motion behind the frame, and connected with the head N, of the yoke N, N, so as to point out the exact opening of the length and height of the rolls.

By this simple and ingenious little device the thickness, the width, as well as the section of the bar that you are manufacturing is always presented to the eyes of the workmen recorded in inches and parts.

Movement of the machine.—The two horizontal rolls S and T are driven by the coupling muffs S' and T' like other rolls. The two vertical rolls G and M act as friction rolls, or if necessary are driven by gearings. The machine is now set to receive a lump, or pile, or bar 8 inches wide by 4 inches thick; when we want to diminish the size (vertically,) we let down the roll S, by turning the hand wheel F. The roll S by being let down causes the yoke N and the vertical roll M to slide in the slot P, and the relative position of the two rolls M and S is not changed, though the space between the four faces is reduced in height. Now if it is the width (horizontally) we want to reduce, we turn the hand wheel X, when the frame K, the yoke N, the vertical roll M, and the horizontal roll T, will be shifted to the left of the machine, and the space between the faces of the four rolls will be reduced in length (width of the bar). In this last movement the yoke N has slid on the horizontal top roll S. The combination of these two movements enables us to make any sized bar in this bench of rolls.

What we claim as our invention and desire to secure by Letters Patent, is—

The combination and arrangement of the two parallel horizontal rollers S, T, with the two vertical rollers G, M, in such a manner that by raising or lowering the upper roller

S, (to form a thicker or a thinner bar,) one
of the vertical rollers will be raised or low-
ered with it, and at the same time the pe-
ripheries of all the rollers be kept in contact
5 and in their proper relative positions with
each other; and also in such a manner that
by moving the lower horizontal roller T,
endwise in its bearings, (to make a narrower
or a broader bar,) the aforesaid vertical
10 roller will be moved laterally with the said

lower horizontal roller, while at the same
time the peripheries of all the rollers will
be kept in contact and in proper relative po-
sitions with each other substantially as here-
in set forth.

JAMES T. HARTUPEE.
ABRAM ALEXANDER.

Witnesses:

JNO. MAJOR,
DANIEL ARMSTRONG.