

(No Model.)

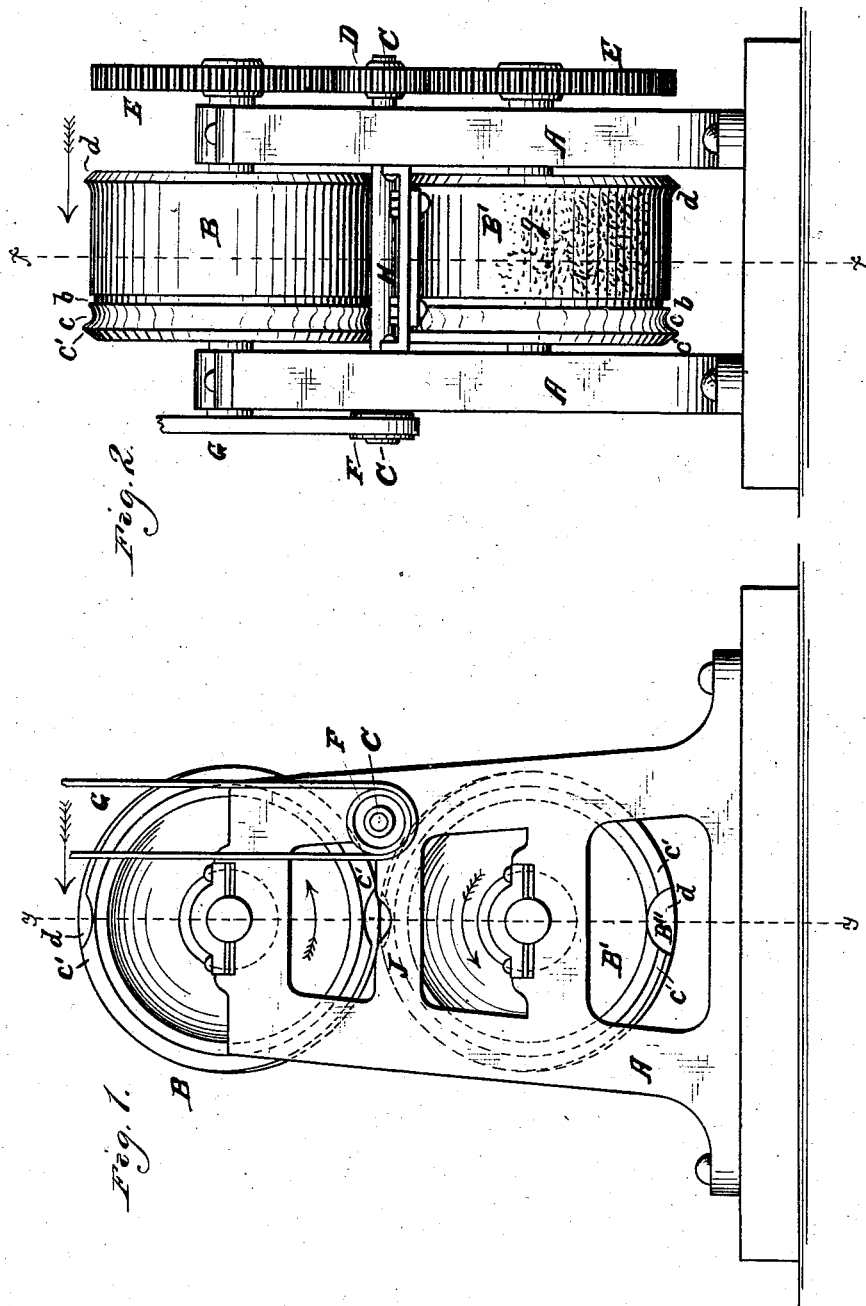
2 Sheets—Sheet 1.

J. T. HASTINGS

ROLLING MILL.

No. 260,196.

Patented June 27, 1882.



Witnesses.
Henry Frankfurter,
L. W. Nichols

Inventor.
James T. Hastings
per. F. F. Warner - his
Att. Torney.

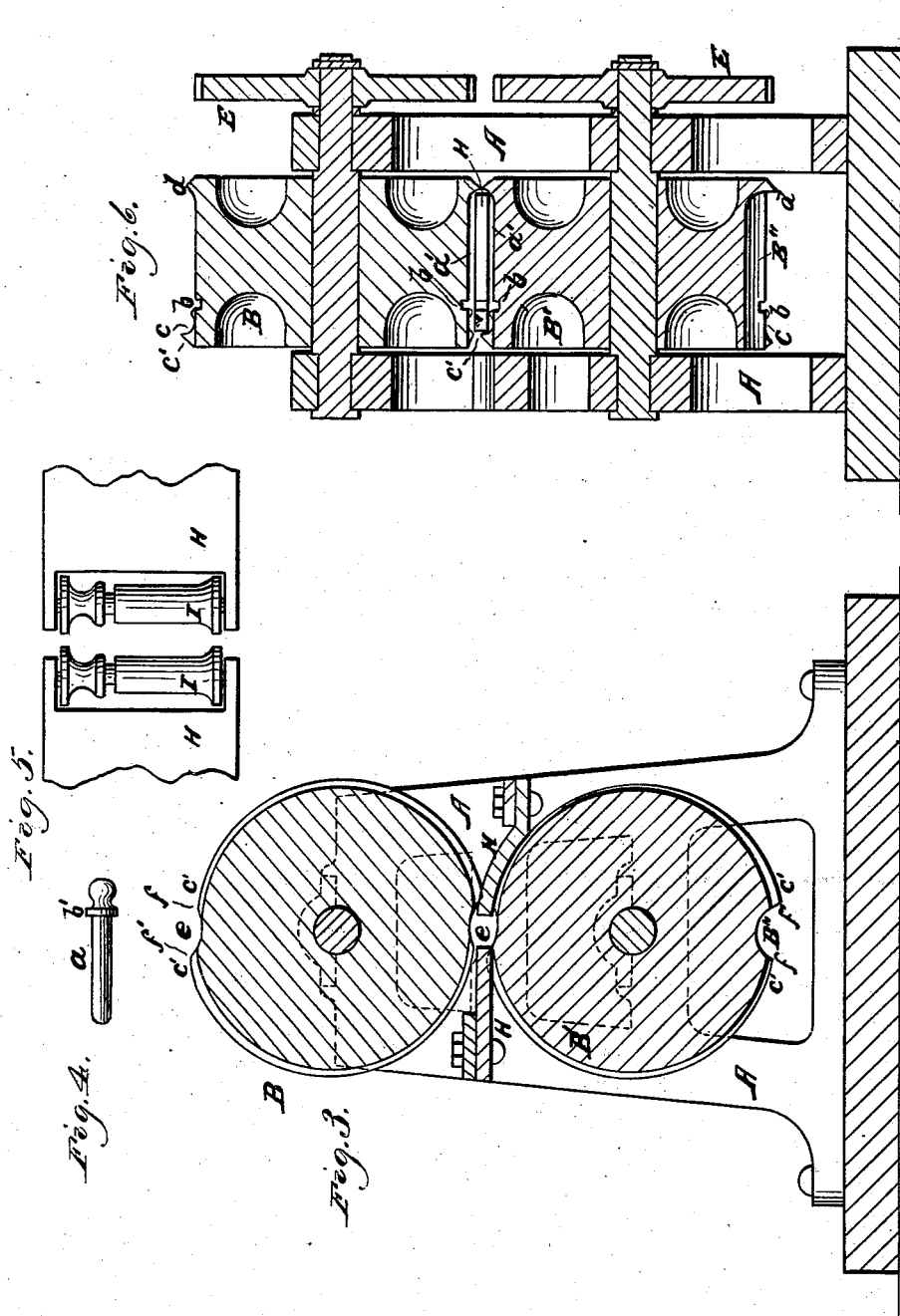
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UNITED STATES PATENT OFFICE.

JAMES T. HASTINGS, OF CHICAGO, ILLINOIS.

ROLLING-MILL.

SPECIFICATION forming part of Letters Patent No. 260,196, dated June 27, 1882.

Application filed August 12, 1881. (No model.)

To all whom it may concern:

Be it known that I, JAMES T. HASTINGS, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful
5 Improvements in Rolling-Mills, of which the following, in connection with the accompanying drawings, is a specification.

In the drawings, Figure 1 is a front view of a rolling mill or machine embodying my invention. Fig. 2 is a side view of the same. Fig. 3
10 is a vertical section in the plane of the line $x x$ of Fig. 2. Fig. 4 is a detail of one of the products capable of being made on the said machine. Fig. 5 is a detail or plan view of the
15 rollers which may be employed for holding the bar or rod and the blank cut therefrom while the forming-rolls are being rotated, and Fig. 6 is a cross-section in the plane of the line $y y$ of Fig. 1.

20 Like letters of reference indicate like parts.

A represents the frame of the machine. B B' are rolls or dies journaled in bearings in the frame.

25 C is the driving-shaft, and D is a pinion thereon.

E E are spur-wheels on the axles of the rolls B B', respectively.

30 The wheels E E are arranged to be engaged and driven by the pinion D when the latter is rotated. By these means the rolls B B', as is obvious, will be rotated in opposite directions. F is a driving-pulley on the shaft C, and G is a driving-belt on the pulley F. The working
35 faces or perimeters of the rolls B B' are so formed that when arranged together or nearly together or when they are tangent to each other, or nearly so, as indicated in the drawings, a space will be included between them
40 which will correspond to the outline of a vertical central sectional representation of the product to be produced by the rolls; and this space will extend crosswise of the rolls, as indicated in Fig. 6. For example, let it be understood that the rolls B B' are adapted to
45 make the well-known form of coupling-pins shown at a , Fig. 4. Then the space at the tangent point of the rolls will correspond to the said pin in form, as shown at a' , Fig. 6. In
50 other words, to adapt the rolls B B' to make the pin a , I sink in the rolls a groove, b , corresponding in depth to the distance the collar

b' on the pin extends from the stem or body of the pin, and near the groove b , I sink a shallow groove, c , and between this groove and one side of the roll I raise a rib or cutter, 55
 c' , the part between said cutter or rib and the groove c being so formed as to make the head of the pin. On the other edge of the rolls I raise the rib or flange d of such shape as to form the tip or end of the pin. In order that the bar or
60 rod from which the pins are to be made may be fed in between the rolls B B', I cut away a small portion of the ribs or cutters $c' c'$, as shown at $e e$. The flanges $d d$ will serve also as stops to prevent the rods or blanks from
65 being fed in too far. It will now be perceived that if a rod or blank of red-hot iron be fed in between the rolls B B' and there held during the rotation of the rolls, it will be rotated on its axis as the rolls move in opposite direc-
70 tions, it being understood that the rolls, after being rotated a little way, begin to pinch the blank, as their diameters increase slightly more and more, until the pins are completed—in other words, the rolls are slightly cam-shaped
75 or eccentric. The cutters $c' c'$ are also slightly eccentric, being comparatively low at their forward ends, or where they first meet the rod or blank, as shown at $f f$, and higher at their other
80 ends, as shown at $f' f'$. By this means the parts $c' c'$ operate as cutters or shears and cut or pinch off the completed pin from the blank-rod. To better insure the rotation of the blank or unfinished pin between the rolls I raise burrs
85 g on a part of the face of each roll. The remaining or smooth parts of the faces of the rolls will smooth down the roughness on the pin produced by the said burrs. By the time the pin is finished it drops into a depression, B'', extending across the face of the lower roll, and,
90 being carried around therein, drops out as soon as it is in a position to be acted upon by gravity.

It is to be understood that when the blank is fed up to the flanges $d d$ its diameter should be such that no injury will result to the ma- 95
chine after the grooves b and c have been filled; but it is not essential that the blank should be pushed in until it strikes the flanges $d d$, as a blank of greater diameter than would then be proper may be fed in only partly across the
100 rolls, as the latter will tend to draw the metal out to or toward those flanges.

H H are plates rigidly attached to the frame A, and the ends of which are far enough apart and so arranged as to allow the blank-rod to be fed into the machine in the manner described.

5 The function of these plates is to hold the blank-rod and unfinished pin in place until the rolls have performed their work. Rollers I I may be journaled in these plates, as indicated in Fig. 5.

J is a rest or guide for the blank-rod, but is
10 not absolutely essential, it being understood that the rolls B B', when properly set to receive the rods, will indicate when it is to be fed in.

It will also be perceived that the rolls B B' may be of such diameter as to admit of their
15 being adapted to operate upon two or more blanks before the completion of one revolution.

The rolls may also be of such width as to operate upon two or more blanks at the same time—that is to say, to cut off and roll more than

20 one pin at each insertion of the blank-rod. An interspace, *a'*, remains at the place of feeding

during the rotation of the rolls or from the time of feeding until the completion of the product. In stating that the rolls B B' are rotated in opposite directions, I have reference to the fact 25 that they move in opposite directions upon the blank or at the place of feeding.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is— 30

The combination of the eccentric rolls B and B', having therein the grooves *b* and *c*, and the depression B'', and provided with the eccentric cutters *c' c'*, and the flanges *d d*, the rollers I I grooved to correspond to the rolls B and B', 35 the frame A, and rotating gearing, all adapted and arranged for operation together, substantially as and for the purposes specified.

JAMES T. HASTINGS.

Witnesses:

HENRY FRANKFURTER,
F. F. WARNER.