

(No Model.)

2 Sheets—Sheet 1.

L. D. YORK.
ROLLING APPARATUS.

No. 528,200.

Patented Oct. 30, 1894.

Fig. 1.

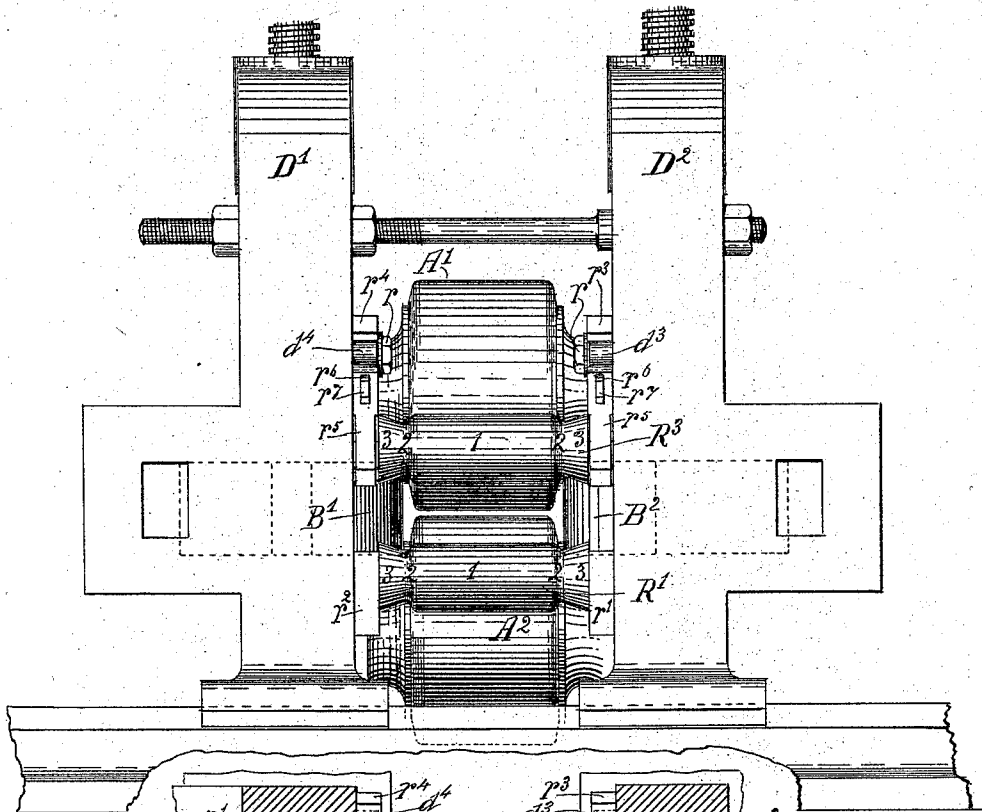
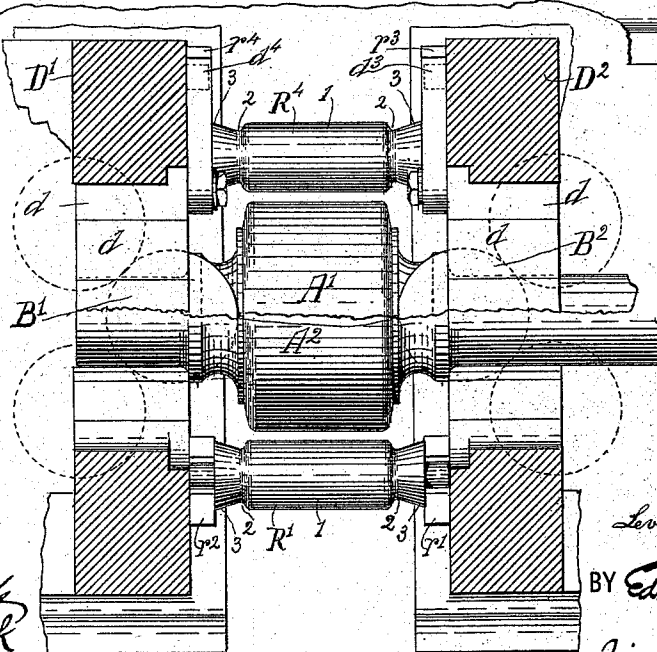


Fig. 2.



WITNESSES:

J. V. Edwards
Wm. A. Pollock

INVENTOR

Levi D. York

BY *Edwin H. Brown*

his ATTORNEY

(No Model.)

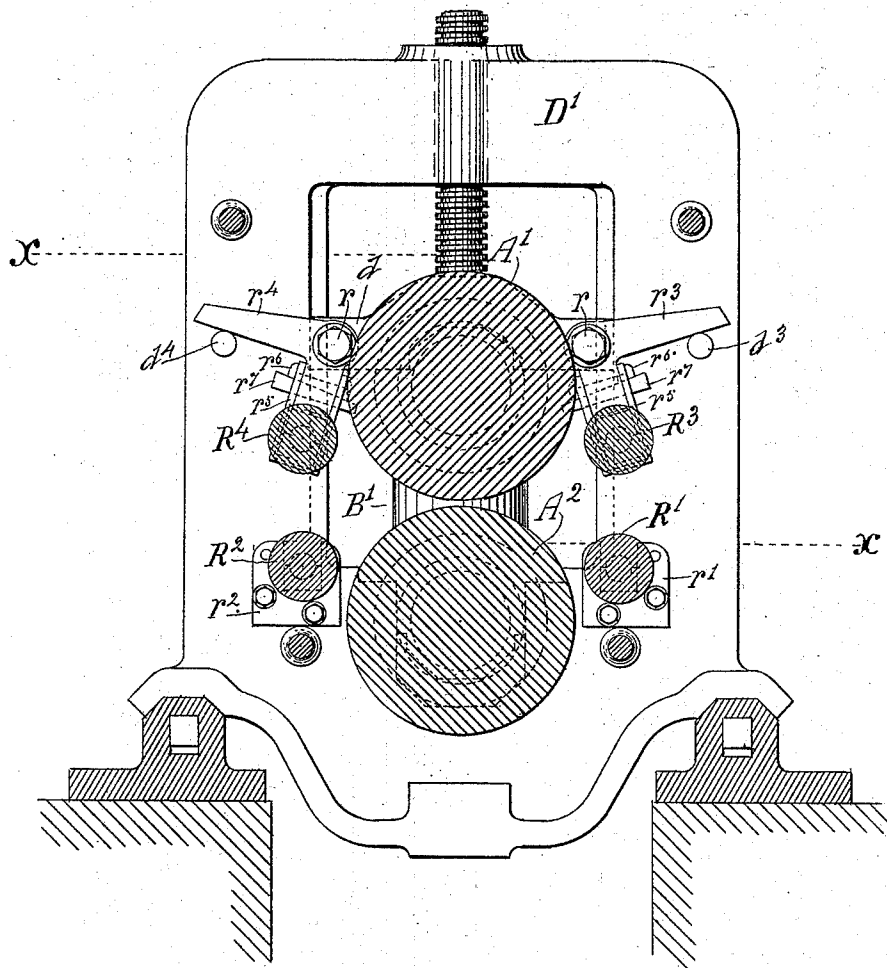
2 Sheets—Sheet 2.

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Fig. 3.



WITNESSES:

Wm A Pollock
S. V. Edmunds

INVENTOR

Levi D York

BY Edmund H. Brown
his ATTORNEY

UNITED STATES PATENT OFFICE.

LEVI D. YORK, OF PORTSMOUTH, OHIO, ASSIGNOR OF ONE-HALF TO JAMES EDWIN YORK, OF DULUTH, MINNESOTA.

ROLLING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 528,200, dated October 30, 1894.

Application filed January 19, 1894. Serial No. 497,457. (No model.)

To all whom it may concern:

Be it known that I, LEVI D. YORK, of Portsmouth, in the county of Scioto and State of Ohio, have invented a certain new and useful Improvement in Rolling Apparatus, of which the following is a specification.

My improvement is applicable to the rolling apparatus illustrated and described in United States Patent No. 410,724, which was issued on the 10th day of September, 1889, for an improvement invented by me.

I will describe an apparatus embodying my improvement, and then point out the novel features in the claims.

In the accompanying drawings, Figure 1 is a front view of an apparatus embodying my improvement. Fig. 2 is a sectional plan view of certain parts taken generally as indicated by the dotted line $x-x$, Fig. 3. Fig. 3 is a vertical section taken parallel with the side of the apparatus.

Similar letters and numerals of reference designate corresponding parts in all the figures.

A' , A^2 , B' , B^2 , designate rolls which together are adapted to roll a bar of desired shape. The rolls A' , A^2 are arranged one above the other with their axes in horizontal planes. The rolls B' , B^2 are arranged opposite one another with their axes in vertical planes and their peripheries adjacent to the sides of the rolls A' , A^2 .

In the present instance, the apparatus is adapted for the production of what are commonly known as I beams or girders, but it may be modified for making beams or girders of other shapes, as for instance, channel beams or T beams.

I prefer to support the rolls A' , A^2 , B' , B^2 , in the manner set forth in my previously mentioned patent, and as I do not wish now to claim anything new in the method of supporting them, I shall not take pains to illustrate or describe these means.

The frame may be made as set forth in my said patent. Therefore, it is only necessary for me to add that D' , D^2 , designate two side frames in which the journal boxes of the rolls A' , A^2 are arranged.

R' , R^2 , R^3 , R^4 , designate rollers which may all be of the same shape. The two lower roll-

ers, R' , R^2 are supported in stationary bearings r' , r^2 , provided on the side frames D' , D^2 . The other rollers R^3 , R^4 are supported in bearings arranged at the ends of levers r^3 , r^4 . These levers are elbow levers. They are fulcrumed to studs r which are affixed to straps or riders d which are fitted to housings formed in the side frames D' , D^2 , so as to be movable up and down within the housings. As usual these riders comprise or contact with the journal bearings for the upper roll A' . Hence the levers r^3 , r^4 will rise and fall with the upper roll A' . The rollers R^3 , R^4 are near the lower ends of one of the arms of the levers r^3 , r^4 . The upper arms of these levers co-act with pins or studs d^3 , d^4 projecting from the side frames D' , D^2 .

In order that the rollers may be adjusted up and down in these arms of the levers r^3 , r^4 which support them, such arms are provided with straps r^5 combined with gibs r^6 and keys r^7 , for holding the journal boxes of such rollers. By inserting different sized spacing pieces or liners between the journal boxes and the ends of the lever arms and using keys of different sizes, adjustments may be made in the position of the rollers R^3 , R^4 , relatively to the fulcrum of the levers r^3 , r^4 .

The shape of the rollers R' , R^2 , R^3 , R^4 is circular at all points. Their longitudinal shape may best be understood by reference to Figs. 1 and 2, where it will be seen that each has a cylindric body portion 1 having at each extremity a contracted neck 2 beyond which there is a flaring terminal portion 3.

In forming a beam or girder by means of this apparatus I contemplate that it will be passed between the rolls longitudinally first in one direction and then in the other, several times. In most of its passages between the rolls, the rollers R' , R^2 , R^3 , R^4 will have no operation upon it, but toward the completion of its reduction to the final form, the flanges become so widened or spread in places, particularly near the ends of the beam or girder, that they will reach the rollers R' , R^2 , R^3 , R^4 , and they will therefore be reduced to the proper dimensions. Preferably the ingot will be thick enough to insure the edges of the flanges throughout their length contacting with the rollers R' , R^2 , R^3 , R^4 at some

time before the completion of the beam or girder, as thus the parallelism of the edges will be insured.

It must be understood that the rollers R', R³, operate in connection with the main rolls when the beam, or girder, passes in one direction between the rollers, and that the rollers R², R⁴ operate upon the beam or girder when it passes in the reverse direction, between the rolls. The pins or studs d³, d⁴ prevent the rollers R³, R⁴ when in operation from being drawn by a beam or girder against the roll A'.

I wish to be distinctly understood in saying that I do not wish to limit myself to any particular form for the rolls R', R², R³, R⁴ or to any particular means for supporting the same.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In an apparatus for rolling metal, the combination with main reducing rolls, of sup-

plemental sizing rolls connected with the adjustable main rolls, and moving with them when they are adjusted, substantially as specified.

2. In an apparatus for rolling metal, the combination with main reducing rolls, of supplemental sizing rolls, which move in and out of action automatically, during the process of reducing the product to standard size, substantially as specified.

3. In an apparatus for rolling metal, the combination with rolls A', A², B', B², of suitable form, of supplemental rollers R', R², R³, R⁴, the rollers R³, R⁴ being movable with the roll A', substantially as specified.

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

LEVI D. YORK.

Witnesses:

ANTHONY GREF,
S. A. PALMER.