J. T. LOWRY.

MACHINE FOR ROLLING HOOP IRON.

No. 184,396. Patented Nov. 14, 1876.

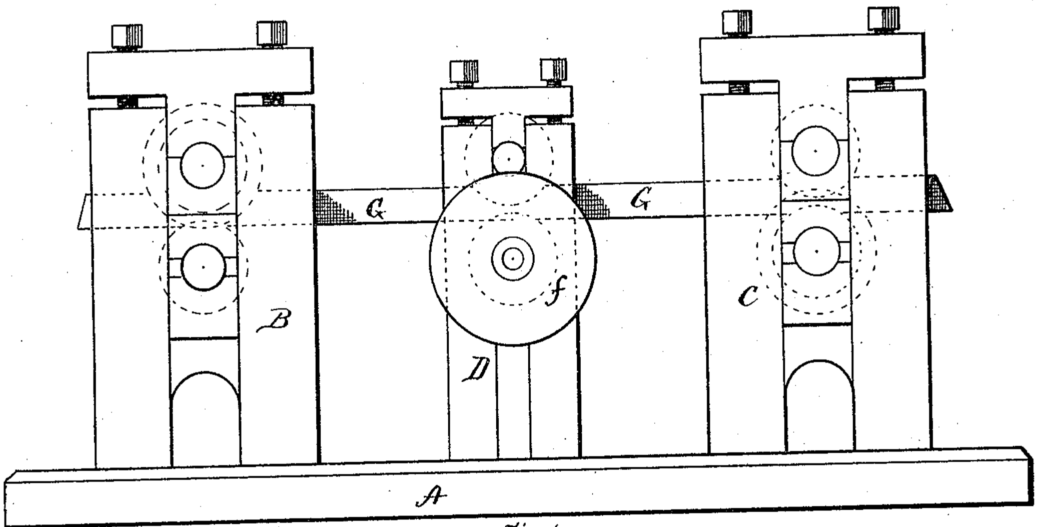

Fig. 1.

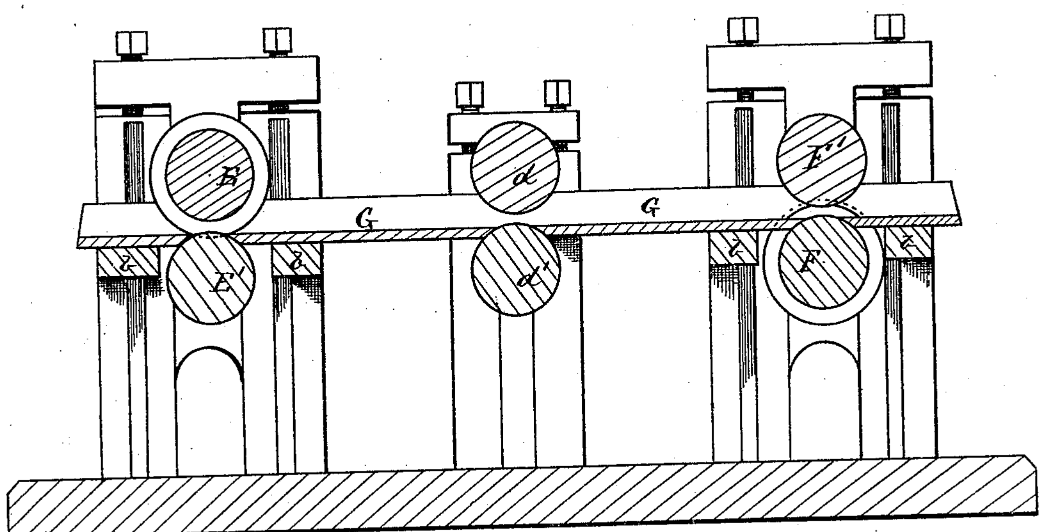

Fig. 2.

Witnesses

R C Wrenshall

L. C. Sitter.

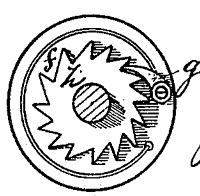

Fig. 3.

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JOSEPH T. LOWRY, OF SHARPSBURG, PENNSYLVANIA.

IMPROVEMENT IN MACHINES FOR ROLLING HOOP-IRON.

Specification forming part of Letters Patent No. **184,396**, dated November 14, 1876; application filed September 26, 1876.

To all whom it may concern:

Be it known that I, JOSEPH T. LOWRY, of Sharpsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Rolls and Conductors for Rolling Metal; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing, forming part of this specification, in which—

Figure 1 is a side elevation of rolls and conductors embodying my invention. Fig. 2 is a longitudinal vertical section of the same, and Fig. 3 is a detached view of the pulley of the feed-rolls.

Like letters refer to like parts wherever they occur.

My invention relates to the construction of rolls and conductors for rolling metal, more especially to what is termed hoop-iron; and consists, first, in combining with two or more pairs of work-rolls provided with suitable conductors, feed-rolls arranged in the conductors for receiving the metal from one pair of work-rolls and feeding it to the succeeding pair; and, secondly, in providing the driving-gear of the feed-rolls with relief mechanism, whereby the speed of the feed-rolls may adapt itself to the speed of the second pair of work-rolls.

I will now proceed to describe my invention, so that others skilled in the art to which it appertains may apply the same.

In the drawing, A indicates a suitable bed, on which are erected housings B C, two or more, according to the number of work-rolls, and intermediate housings D for a series of feed-rolls. E E′ F F′ represent work-rolls journaled in the housings B C, and which should be provided with the usual adjusting or tightening-down screws. These rolls, as illustrated, are the ordinary hooped rolls, tongued and grooved and arranged in the usual manner for continuous rolling—that is, with the tongues and grooves of the alternate pairs reversed. Secured to the housings are a series of rests or bearing-bars, *b b*, which support a series of conductors, G, which are arranged between the work-rolls. Interposed between the work-rolls, and moving in the conductors, are feed-rolls *d d′*, journaled in the housings D, one of said rolls being driven from the first pair of work-rolls by a belt and pulley or other suitable gearing. Each pair of rolls E E′, F F′, and *d d′* are geared in the usual manner, but in addition to the usual pinions one of the feed-rolls is provided with a loose pulley, *f*, carrying a spring-pawl, *g*, which engages with a ratchet, *h*, fast upon the shaft of the feed-roll, the whole mechanism being so arranged that the feed-rolls may be driven from the first pair of rolls, and yet will be free to run at a higher rate of speed than they are driven, so as to accommodate their speed to the speed of the succeeding work-rolls when necessary. This or similar construction is required, for the reason that the second and subsequent pairs of rolls are frequently run at a higher rate of speed than the first pairs, and if provision were not made against it the iron would be drawn and broken between the rolls.

The operation of my devices is as follows: The bar is conducted from the strain-rolls or furnace to the first pair of the series of work-rolls, through which it passes, and is pushed along the conductor until it enters the bite of the feed-rolls, which are driven from and move in unison with the first pair of rolls. The rolls *d d′* cause the bar to travel along in the conductor until its leading end is forced into the bite of the second pair of work-rolls, by which time its rear end will have escaped from the first pair of rolls. Now, as the second pair of rolls run at a much higher speed than the first pair, the feeding-rolls will have to accommodate themselves to the motion of the second pair during the time the bar remains in their bite, and this is accomplished by the loose pulley or relief mechanism. As soon as the bar escapes from the feed-rolls they will at once slack up to their former motion to receive the succeeding bar from the first pair of rolls. Instead of the pawl and ratchet, the well-known "crab" may be used, or any equivalent relief mechanism.

The advantages of my devices are, that a simple, effective, and practicable construction of continuous rolls is obtained, and the labor and number of hands necessary to operate the rolls is reduced.

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

1. The combination of two pairs of work-rolls, the intermediate conductors, and the interposed feed-rolls arranged in the conductors, substantially as and for the purpose specified.

2. The combination of two pairs of work-rolls adapted to run at different speeds, the interposed feed-rolls provided with relief mechanism, and suitable conductors, substantially as and for the purpose specified.

In testimony whereof, I, the said JOSEPH T. LOWRY, have hereunto set my hand.

JOSEPH T. LOWRY.

Witnesses:

F. W. RITTER, Jr.,

H. J. SCHULTZ.