

J. M. PRICE & W. LEWIS.
ROLLING MILL APPARATUS.

No. 176,996.

Patented May 2, 1876.

Fig. 1.

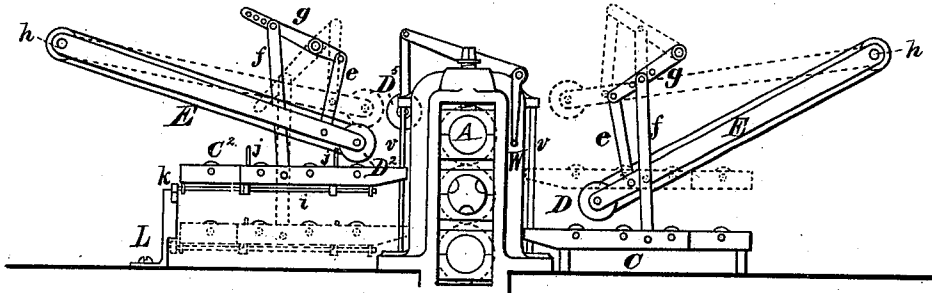
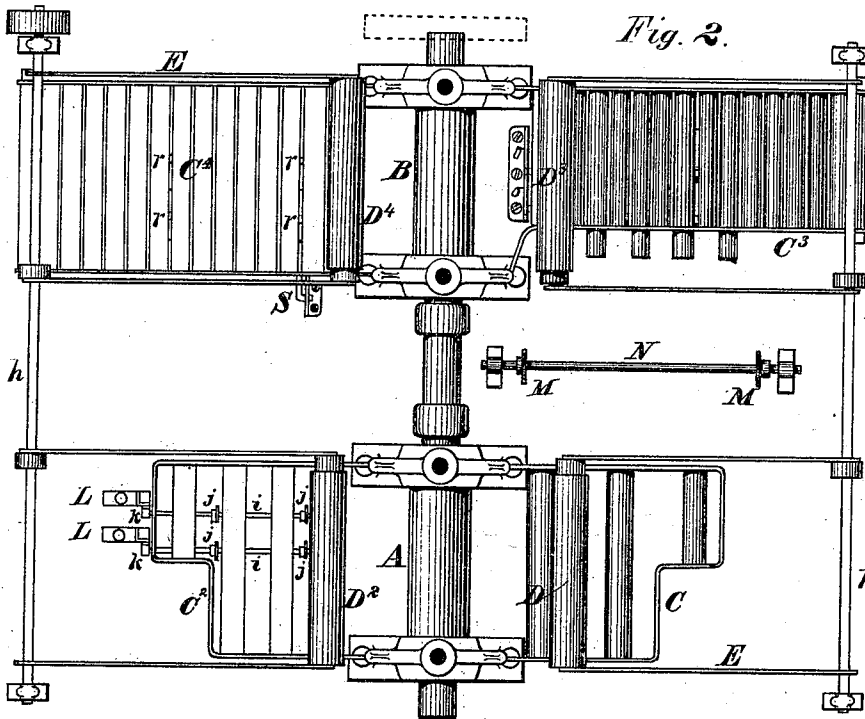


Fig. 2.



x.

Witnesses;

Edward H. Hill
Santiago Verdi

John M. Price, }
Wm. Lewis, } Inventors;

BY THEIR ATTY.
JAMES G. Arnold.

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Fig. 3.

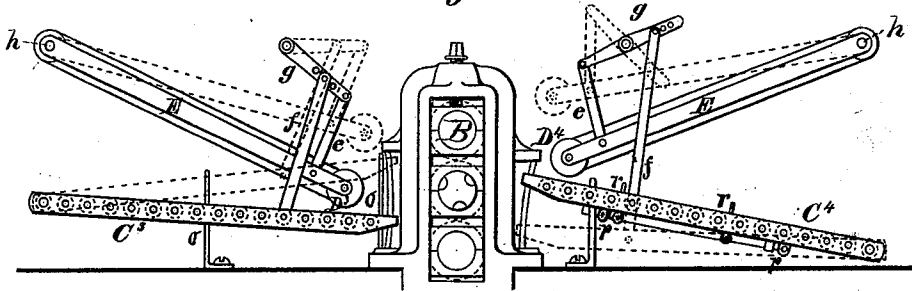


Fig. 4.

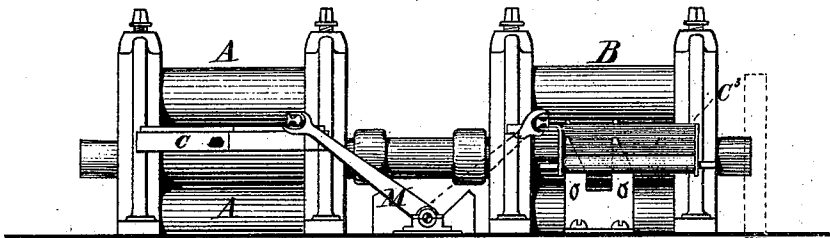
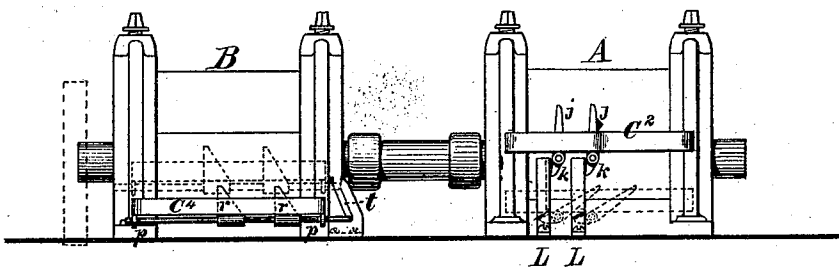


Fig. 5.



Witnesses:

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UNITED STATES PATENT OFFICE

JOHN M. PRICE, OF SYRACUSE, AND WILLIAM LEWIS, OF NEW YORK, N. Y.

IMPROVEMENT IN ROLLING-MILL APPARATUS.

Specification forming part of Letters Patent No. **176,996**, dated May 2, 1876; application filed March 1, 1876.

To all whom it may concern:

Be it known that we, JOHN M. PRICE, of Syracuse, in Onondaga county, and WM. LEWIS, of the city and county of New York, both of the State of New York, have invented certain Improvements in Attachments to Rolling-Mills, of which the following is a specification:

Our invention relates to the manipulation of the hot iron or steel in the process of rolling from the pile or ingot from the first pass to the last one, or finishing-groove, and is applicable to various kinds of work, as sheet, angle, girder, rafter, and T iron of various patterns, and more particularly to railroad-rails.

It is designed to greatly diminish the number of attendants necessary, and to do their work automatically, so that two men and a boy can do the work heretofore requiring ten men, and, by the use of independent feed-rollers above the receiving and delivering platforms, and acting in conjunction with them when they arrive at the proper position for delivery, to deliver the pile or ingot to the rolls, and, when the billet comes from the last pass of the first set of rolls, to transfer it quickly and accurately to the second set, to be fed and re-fed until finished.

In the accompanying drawings, Figure 1 is an end view of an ordinary three-high rail or girder mill, with attachments embodying our invention, as seen from *x*, Fig. 2. Fig. 2 is a plan of the same. Fig. 3 is an end view from the opposite end of the rolls from Fig. 1. Fig. 4 shows same parts as seen from the right of Fig. 2, and Fig. 5 shows same parts as seen from the left of Fig. 2.

The same letters indicate the same parts in all.

A A are the first set, or roughing-rolls; B B, the second set, or finishing-rolls. C is the first platform, made in the usual way, and provided with any suitable mechanism to raise it to receive the pile or ingot from and to lower it to position to be fed into the rolls A A. C² is a similar platform on the other side of the rolls A A, which is raised to feed and lowered to receive, in the usual manner. Above the platform C is hung the feed-roller D, in a frame, E, which is connected to C by the rods *e f* and

lever *g*, in such a manner that, when the platform C is raised to receive the piece from the rolls A, the feed-roller D is raised up out of the way; and when the platform C is lowered to place, the feed-roller D is brought down to bear on the piece, and, receiving motion from shaft *h*, the roller D feeds the piece promptly into the rolls A A, the attendant having given the proper turn to the piece or billet while the platform C was descending. The platform C² is provided with a similarly-driven feed-roller, D², which is so connected to the platform C² by its connecting mechanism that, when said platform C² is down in position to receive the piece, the feed-roller D² is raised out of the way; and when said platform is raised to position to deliver, the roller D² is brought down on top of the piece, and feeds it into the rolls. This platform C² is also provided with two rods or shafts, *i i*, on which are four dogs, *j j j j*, and at their ends two arms, *k k*, which, when the platform is raised, hit the inclines on the lower parts of standards L L, (see Fig. 5,) and turn the shafts *i i* partially, causing the dogs *j j j j* to rise and move the piece on the rollers in platform C² to the right place before the feed-roller bears on it; the upper parts of the standards L L being straight, the dogs are moved only during the first part of the movement of platform C², and, as the platform descends, the said dogs turn back of their own weight, falling below the surface of the rollers in platform C², out of the way, the attendant having given the turn that the work may require while the platform was ascending. When the billet comes from the last pass of the rolls A A, the arms M M stand ready to receive it, as in Fig. 4, and, being turned with their shaft N, (by any suitable mechanism,) carry or transfer the billet to the projecting rollers of platform C³, which is raised to receive it, so that its feed-roller D³ shall be up out of the way. The platform C³ and arms then descend together, and, as they arrive in place, the feed-roller D³ bears on, and delivers the billet to the rolls B B, it being turned the usual quarter-turn by the arms M M in the transfer. The platform C³ is made narrow, so that the projecting rollers may be in the right position for the first pass of rolls B B; and the stationary inclines

o o, Figs. 3 and 4, are so placed below the frame of said platform *C*³ that, as it is lowered after receiving the piece from the rolls *B B*, the piece shall hit the sloping sides of the inclines *o o*, and be moved on said platform *C*³ sidewise to the next pass. The platform *C*⁴ is provided with slides *p p*, carrying the dogs *r r*, Figs. 2, 3, and 5, so arranged as to be moved by the arm *S*, Fig. 2, in the slot *t*, Fig. 5, sidewise altogether during the first part of the rise of the platform *C*⁴, so as to move the piece on it to position for the next pass before the feed-roller *D*⁴ meets it, which it does on coming to place, and feed it into the rolls *B B*. The platforms *C*³ and *C*⁴ are pivoted at their outer ends, and are provided with a suitable mechanism to raise and lower them to the necessary positions for operation with the feed-rollers *D*³ *D*⁴, which are connected to each of said platforms in the same way as the feed-rollers *D* *D*² are to the platforms *C* *C*² of the other set of rolls *A A*. At *D*⁵, Fig. 1, is shown an arrangement adapting our invention to boiler-plate mill work, the driven feed-roller sliding in boxes on the rods *v v*, and operated by lever *W*.

We claim—

1. The driven feed-rollers *D* *D*², operating

on the top of the billet, pile, or ingot, in combination with the supporting-rollers in the platforms, when constructed and operating substantially as and for the purposes set forth.

2. The swinging feed-rollers *D* *D*² *D*³ *D*⁴ and the platforms *C* *C*² *C*³ *C*⁴, so connected by the levers *g* and rods *e f*, or similar mechanism, that when each of the platforms receives the billet, pile, or ingot from the rolls the feed-roller shall be raised up out of the way, and when moved to position for entering the rolls the feed-roller is made to bear on top of the piece and feed it to the rolls, substantially as described.

3. The dogs *j j j j* and *r r r r*, operated by the moving platforms *C*² *C*⁴ and standing-pieces *L L* and *t*, in combination, as set forth.

4. The receiving and transferring arms *M M*, in combination with the two sets of rolls *A A* and *B B*, as and for the purposes described.

Witness our hands this 1st day of February, 1876.

JOHN M. PRICE.
WM. LEWIS.

Witnesses:

SANTIAGO VERDI,
J. G. ARNOLD.