

(No Model.)

2 Sheets—Sheet 1.

T. MORRISON.
AUTOMATIC STOP FOR ROLLING MILLS.

No. 512,207.

Patented Jan. 2, 1894.

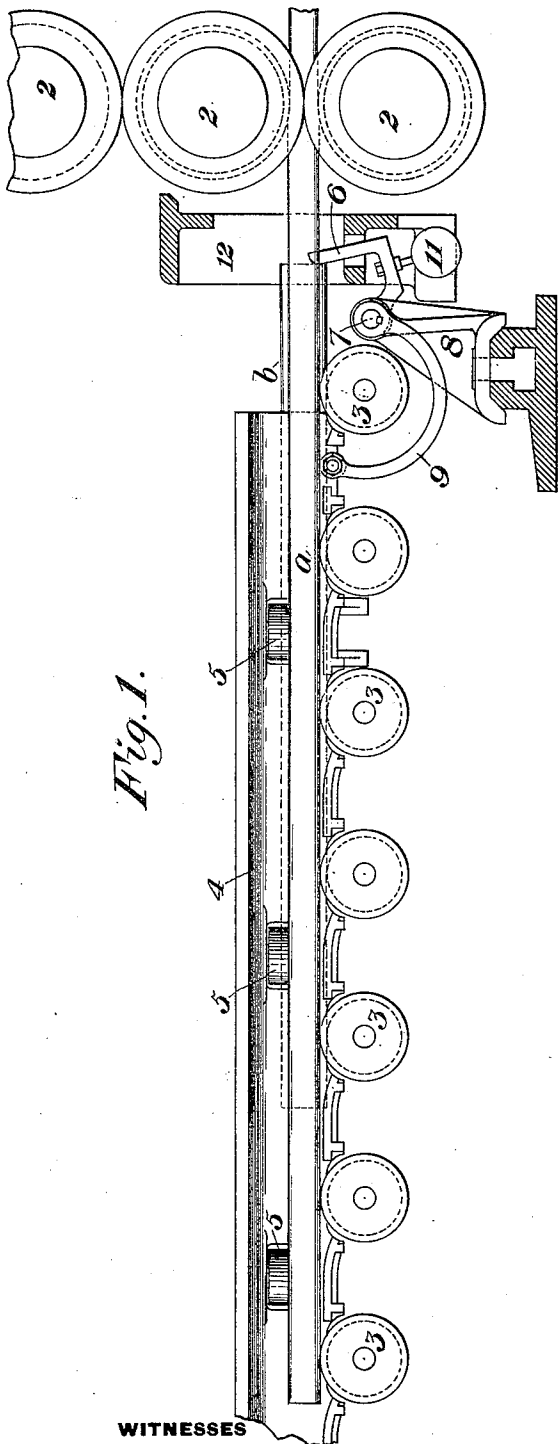


Fig. 1.

WITNESSES

M. B. Corwin
H. M. Corwin

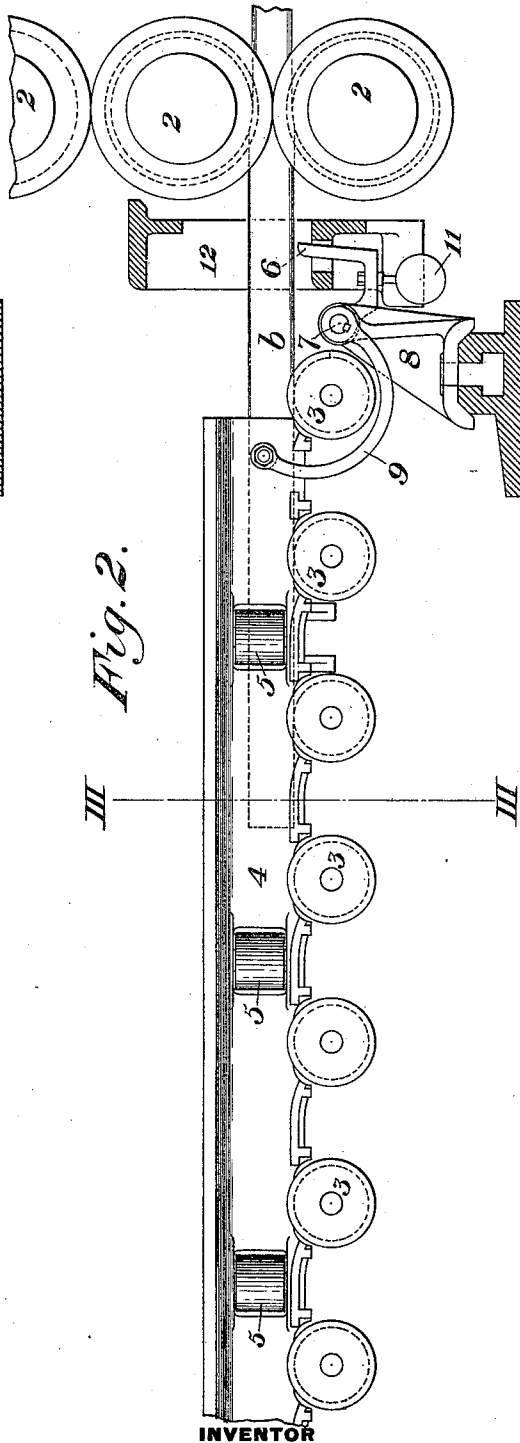


Fig. 2.

INVENTOR

Thomas Morrison
by his Attorneys
W. B. Russell & Sons

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Fig. 3.

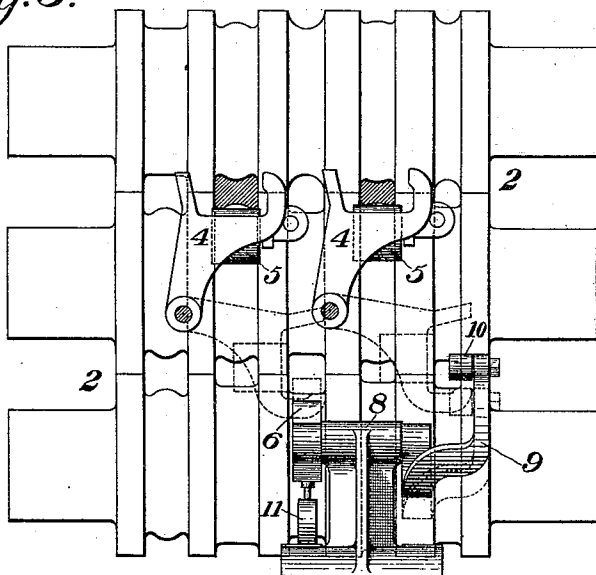
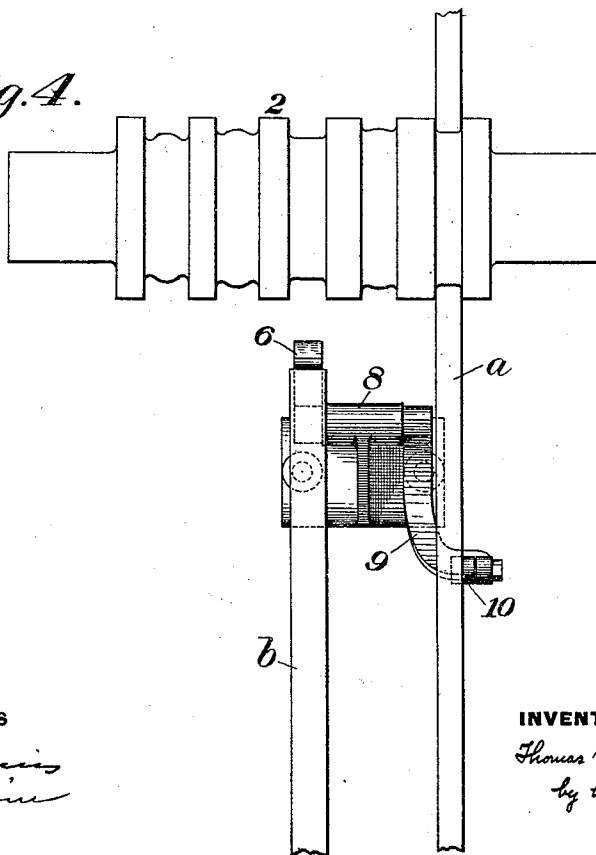


Fig. 4.



WITNESSES

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H. M. Convis

INVENTOR

Thomas Morrison
by his Attorney
W. B. Bartlett & Sons

UNITED STATES PATENT OFFICE.

THOMAS MORRISON, OF DUQUESNE, PENNSYLVANIA.

AUTOMATIC STOP FOR ROLLING-MILLS.

SPECIFICATION forming part of Letters Patent No. 512,207, dated January 2, 1894.

Application filed July 8, 1893. Serial No. 479,881. (No model.)

To all whom it may concern:

Be it known that I, THOMAS MORRISON, of Duquesne, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Automatic Stops for Rolling-Mills, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation, partly in section, of a feed-table provided with my improved stop. Fig. 2 is a similar view, with the stop released from operative position. Fig. 3 is a cross-section on the line III—III of Fig. 2; and Fig. 4 is a partial plan view.

My invention relates to the feeding-in of metal to rolling mills, and is designed to automatically detain one bar on the feed-table while a second bar is passing through another pass of the rolls, and to release the stopped piece as soon as the other has passed through the rolls, thus allowing several pieces to be worked at the same time.

In the drawings, in which similar numerals and letters indicate corresponding parts, 2 represents the rolls of a three-high mill, having the usual passes therein, and 3 the feed-rollers arranged to carry the metal to the lower set of passes.

4, 4, are swinging feed troughs arranged to receive the metal from the upper passes and deposit it upon the lower rollers 3. The sides of these troughs are slotted as shown to allow the rollers 3 to enter the same and receive the bar when the troughs are swung downwardly as in Figs. 1 and 2, and in the bottom of the troughs are suitable friction rollers 5.

Between the end roller 3 and the rolls is pivoted a swinging stop 6, which is carried at one end of a shaft 7, supported in a bearing-block 8 bolted to the shoes of the rolls. Projecting rearwardly from the other end of the shaft 7, is a curved arm 9, carrying at its end a friction roller 10. The stop is provided with a counterweight 11, and is directly in line with the third pass of the rolls, while the roller 10 is in line with the fifth pass, as shown in Fig. 3.

The cage 12 of the rolls is slotted to allow the stop to work therethrough, and the action is as follows:—The troughs having each received the metal issuing from the upper passes, are swung downwardly and deposit the

metal upon the positively-driven feed-rollers 3 in line with the third and fifth passes. The rollers 3 then carry the metal toward these passes, but the bar *a* in front of the fifth pass, resting upon the friction roller 10, depresses the arm 9 and raises the stop through the cage in front of the third pass. The bar *b* in front of this pass is therefore detained by the stop until the other bar passes through the rolls, when the counterweight depresses the stop and the bar at once enters the third pass and issues upon driven feed rollers, which at the time are carrying the metal from the fifth pass to another mill in line with the first. By the time that the metal has issued from the third pass, the other piece has left the feed-rollers, which are then raised and reversed to carry the piece thereon back through the fourth upper pass shown in Fig. 3, it being received in the trough which has been swung upwardly for that purpose. At the same time that the driven feed-rollers raise the metal from the third to the fourth pass, they also carry another piece from the first to the second pass, from which it is received upon the other trough 4. The troughs are then swung downwardly and the operation repeated.

The advantages of the device are apparent, since the capacity of the mill is greatly increased as several pieces are worked at once, the one piece being automatically detained until the other has passed through the rolls, so that the feed-rollers upon the opposite side will be clear of the one piece when the other is raised to the pass above. No additional labor is required as the stop is operated by the metal itself and the device is simple, easily applied, and very effective.

Many variations in the form and arrangement of the troughs, feed-rollers, &c., will suggest themselves to those skilled in the art, without departure from my invention as defined in the claims, since I consider myself the first to use an automatic stop in connection with rolling-mills.

I claim as my invention—

1. In a rolling-mill, the combination with an automatic stop, of means for operating said stop when arranged to be acted upon by the metal being rolled; substantially as described.
2. A pivoted stop for rolling-mills having

an operating arm normally in the path of the metal passing through the rolls; substantially as described.

3. The combination with a rolling-mill, of
5 an automatic stop pivotally supported in front of the same, and having an operating arm normally in line with a pass of the rolls, substantially as described.

4. The combination with a rolling-mill, of
10 a shaft carrying a stop in line with one of its passes, and having a projecting arm in line with another pass; substantially as described.

5. The combination with a rolling-mill, of a shaft carrying a counterweighted stop in line with one of its passes, and having a pro- 15
jecting arm carrying a friction roller in line with another pass; substantially as described.

In testimony whereof I have hereunto set my hand.

THOMAS MORRISON.

Witnesses:

GEO. B. MOTHERAL,
H. M. CORWIN.