(No Model.) 2 Sheets—Sheet 1.

F. H. TREAT.

BLOOM SHEAR TABLE AND CROP END CONVEYER.

No. 384,220. Patented June 5, 1888.

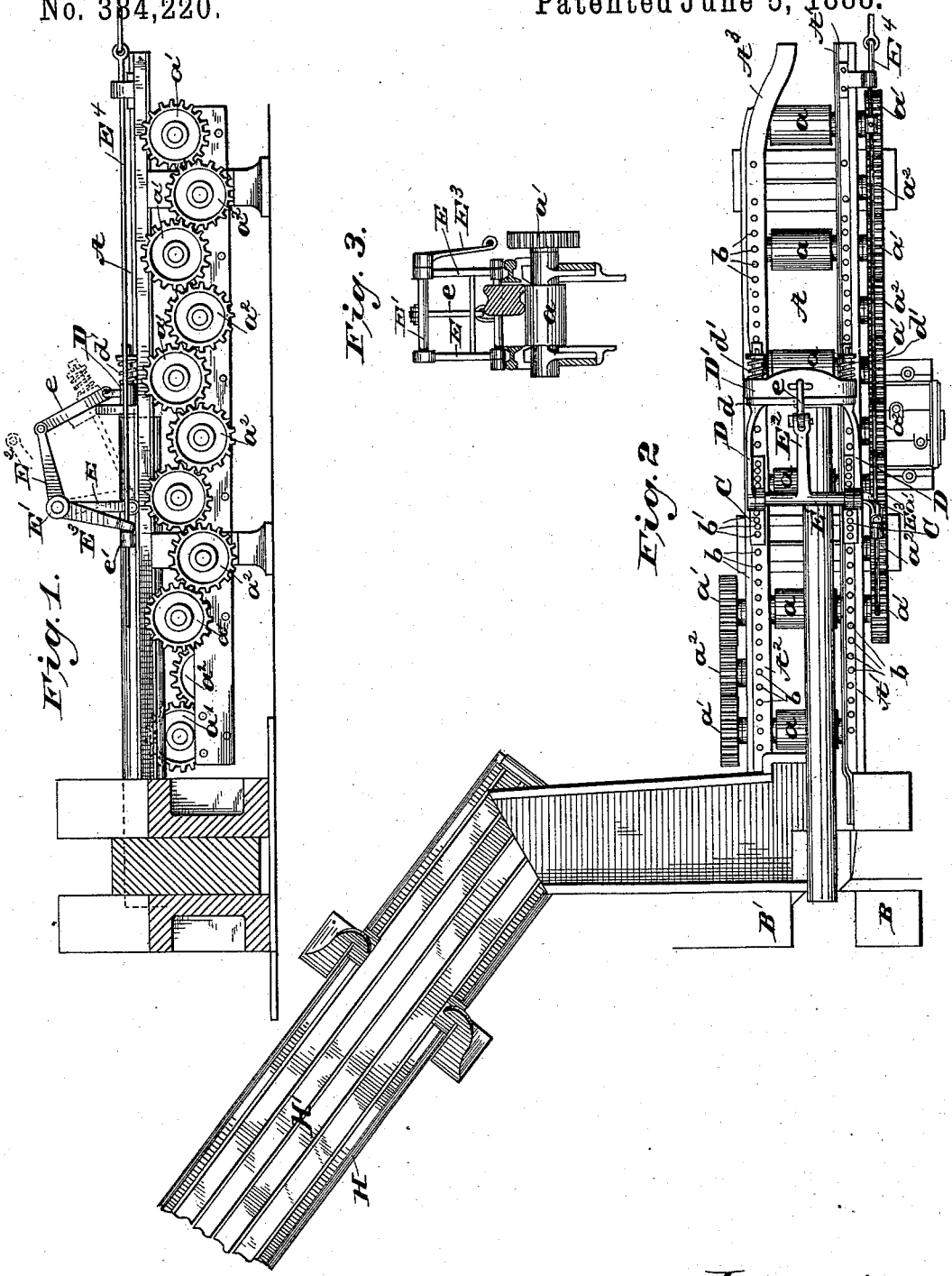

Fig. 1.

Fig. 3.

Fig. 2.

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(No Model.) 2 Sheets—Sheet 2.

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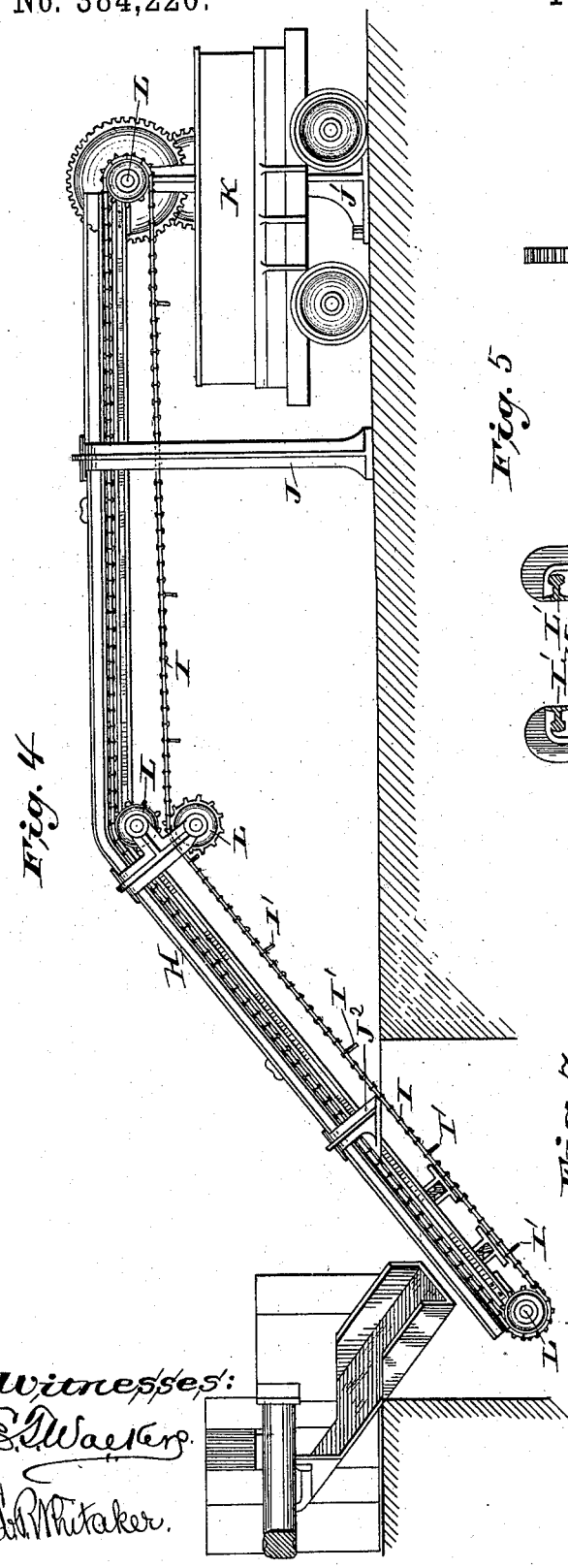

Fig. 4

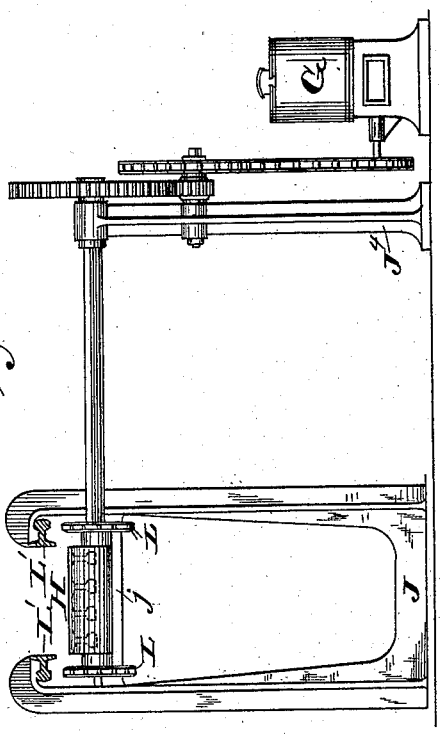

Fig. 5

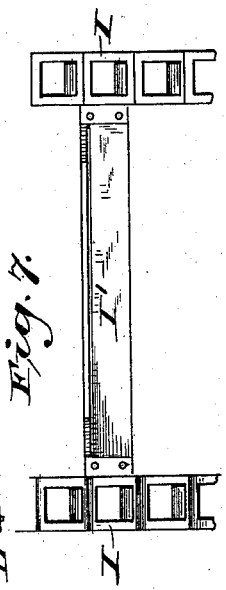

Fig. 7.

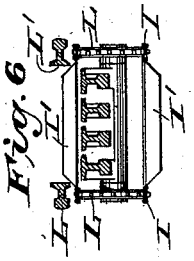

Fig. 6

Witnesses:
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UNITED STATES PATENT OFFICE.

FRANCIS H. TREAT, OF JOLIET, ILLINOIS, ASSIGNOR OF TWO-THIRDS TO HORACE S. SMITH AND CHARLES PETTIGREW, BOTH OF SAME PLACE.

BLOOM-SHEAR TABLE AND CROP-END CONVEYER.

SPECIFICATION forming part of Letters Patent No. 384,220, dated June 5, 1888.

Application filed June 21, 1887. Serial No. 242,083. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS H. TREAT, a citizen of the United States, residing at Joliet, in the county of Will and State of Illinois, have invented certain new and useful Improvements in Rolling-Mills; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to rolling-mills, and though the devices which constitute my present invention are more particularly designed for use in that class of rolling-mills in which the feeding and transfer of the bloom and rail are effected by mechanical means, they may be used in any other mill where their use may be found advantageous.

My said invention consists in certain improved constructions connected with the bloom-shears, and one form in which I have contemplated embodying my invention is shown in the drawings, and my said invention is fully disclosed in the accompanying specification and claims.

Figure 1 is a view in elevation of a bloom-shear table with a part of the shearing mechanism in section. Fig. 2 is a top or plan view of the devices shown in Fig. 1, showing also my crop-end conveyer and the chute discharging onto the same. Fig. 3 is a transverse section of the bloom-shear table. Fig. 4 is a side elevation of the crop-end conveyer, showing its connection with the bloom-shear. Fig. 5 is an end view of said conveyer. Fig. 6 is a section of the same. Fig. 7 is a view of a part of the conveyer-chain.

In the drawings, A is the bloom or intermediate shear-table, upon which the bloom lies and is gaged for length and cut off before being delivered to the roughing-rolls. The rollers *a a* are provided with gear-wheels *a'*, and these are connected in a well-known way by idler-wheels a^2, so that the rollers all move in the same direction. These rollers are actuated from any preferred source. A′ and A^2 are two guide-bars located at each side of the shear-table, and prevent the bloom from being forced from the table by the action of the shear or from any other cause. The shear-table is considerably wider than a single bloom, as shown in the drawings, for a purpose hereinafter set forth, and the guide bar or rail A^2 is bent inward at A^3 to guide the bloom onto the table of the roughing-rolls in such a position that it is delivered in the proper manner to the first roughing-pass. The guide-rails A′ and A^2 are provided with perforations or openings *b b*. Upon these guides are two bearing-plates, C C, also provided with perforations or openings *b′ b′*. These plates are secured to the rails A A by bolts passing through the perforations or openings therein and through the openings in the rails. In the bearings of these plates are pivoted two arms, D D, near the opposite ends. These arms are shouldered, as at *d d*, and beyond these shoulders and resting against them is a cross-head, D′, connecting the arms. This cross-head is held against these shoulders by springs *d′ d′*, which are in turn held in position upon the arms by nuts or rings and cotters, or by any other preferred means.

The cross-head D′ rests normally upon the top of the guide-rails A A′ and constitutes a stop for the shear-table, arresting the bloom when it comes in contact therewith in its onward movement upon the table. The springs cushion the blow, and thus enable the bloom to be arrested without a shock or injurious jar.

In order to provide a means for raising the stop when it is desired to permit the bloom to move forward to the roughing-table, I place upon the bearing-plates two uprights, E E. In the upper ends of these uprights I pivot the rock-shaft E′. This shaft is provided with an arm, E^2, and this arm is connected with the cross-head D′ by a link, *e*. To the outer end of the rock-shaft is attached an actuating-arm, E^3, and the lower end of this arm receives a rod, E^4, which is connected in any preferred manner with an operating-lever upon the platform above the roughing-rolls, placing the stop in control of the lever-man located thereon. The stop can be adjusted to the point desired by the perforations or openings through the guide-rails and the bearing-plates, and an adjustable collar, *e′*, upon the rod E^4 permits the proper

adjustment of the rod to be made to correspond to the adjustment of the stop.

B is the movable and B′ the stationary shear-blade. It will be seen that as the bloom is fed forward onto the shear-table it will lie upon the same between the shear-blades and adjacent to the guide-rail A′. As the blade B is put in motion, both blades cut into the bloom and that portion of the bloom which lies upon the shear-table will be forced toward the guide-rail A^2, and when the bloom shall have been completely separated by the shear-blades the bloom upon the table will lie in close proximity to the guide-rail A^2, the table being of such width as to permit the necessary movement of the bloom without forcing it heavily against the guide-rail. In the forward movement of the bloom the same will come in contact with the bend A^3 in the rail A, and be guided and delivered onto the roughing-table in the proper position.

H is the crop-end conveyer. The bed or bottom H′ is composed, preferably, of narrow pieces placed a slight distance apart, but may be made in one piece of a single plate or narrow plates joined. The end of the conveyer nearest to the bloom-shear is inclined downward, so as to pass below the bloom-shear and to receive the croppings therefrom or from the delivery end of a chute arranged to receive the croppings from the shearing mechanism. The other end of the conveyer extends to the point at which it is desired to have the croppings delivered, and I preferably provide a car, K, to receive them. The conveyer may be supported in the position desired in any preferred manner. In the drawings I have shown the outer end supported by standards J J′ and cross-bars *j*. The inner inclined end is supported by short standards J^2 in a similar manner. At one side of the standard J′ is a standard, J^4, which supports the outer end of the main operating-shaft and its actuating mechanism. The croppings or crop ends are received and conveyed upon the bed of the conveyer by an endless conveyer-chain formed of two drive-chains, I, of any preferred construction, and cross-bars I′, of angle-iron or similar material, attached at both ends to the chains. The conveyer is provided at each side with sprocket-wheels L, which engage with the chains. These sprocket-wheels are supported on shafts mounted in brackets attached to the bed of the conveyer or to its supporting-standards. At the sides of the conveyer above the chains are located side bars or guides I′ of any preferred construction. The conveyer-chain is made to move slowly, but generally with sufficient speed to carry one cropping from under the shear mechanism or chute before another is delivered thereto. In this instance I have shown the crop-end conveyer as operated by an engine, G; but it may be operated by connection from other parts of the plant, if desired. It will be seen that the bed and side bars are shown as being constructed of rail-road-rails, the product of the mill; but these parts may be made of any other material.

It is apparent that the conveyer, if desired, may have the end nearest to the bloom-shear located horizontally and run beneath the level of the floor of the mill without the incline, or have said incline at its outer end.

I do not limit myself to the exact construction of the various parts, as these may be generally modified without departing from the spirit of my invention.

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

1. The combination, with a bloom-shear, of a table provided with two guide-rails, the movable part of the shear moving from one guide-rail toward the other, the said guide-rails being located farther apart than the width of the bloom, substantially as described.

2. The combination, with a bloom shear and table, of a hinged adjustable bloom-stop, substantially as described.

3. The combination, with a bloom-shear and a table provided with feeding-rollers, of two guide-rails located farther apart than the width of the bloom, one of said rails at the end of the table opposite the shear being provided with an inward bend reducing the distance between the guides to about the width of a bloom, substantially as described.

4. The combination, with a bloom-shear and bloom-table provided with feeding-rollers and provided with guiding-rails, of a bloom-stop mounted on and adjustably secured to said rails, substantially as described.

5. The combination, with a bloom-shear table provided with guiding-rails, of a hinged bloom-stop adjustably secured to the said guide-rails, substantially as described.

6. The combination, with a bloom-shear table provided with guiding-rails, of adjustable bearing-plates mounted on said guide-rails, and a bloom-stop hinged or pivoted upon said bearing-plates, substantially as described.

7. A bloom-stop for a shear-table, consisting of bearing-plates, arms pivoted to said plates, and a yielding cross-head connecting said arms.

8. A bloom-stop for a shear-table, consisting of bearing-plates provided with uprights or standards, arms pivoted to said plates, a cross-head connecting said arms, a rock-shaft mounted in the said standards, having an arm connected by a link to the cross-head, and an actuating-arm, substantially as described.

9. The combination, with a bloom-shear, of a crop-end conveyer, substantially as described.

10. The combination, with a bloom-shear, of a crop-end conveyer consisting of a bed, conveyer-chain, guide-rails, and operative mechanism, substantially as described.

11. The combination, with a bloom-shear, of a delivery-chute located beneath the same,

and an endless-chain conveyer extending beneath the delivery end of said chute, substantially as described.

12. A crop-end conveyer consisting of a bed having sprocket-wheels on each side of the same, an endless conveyer-chain consisting of two drive-chains and connecting cross-bars, and guiding-rails above and projecting over the conveyer-chain, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

FRANCIS H. TREAT.

Witnesses:
F. A. JACKSON,
F. S. PACKARD.