

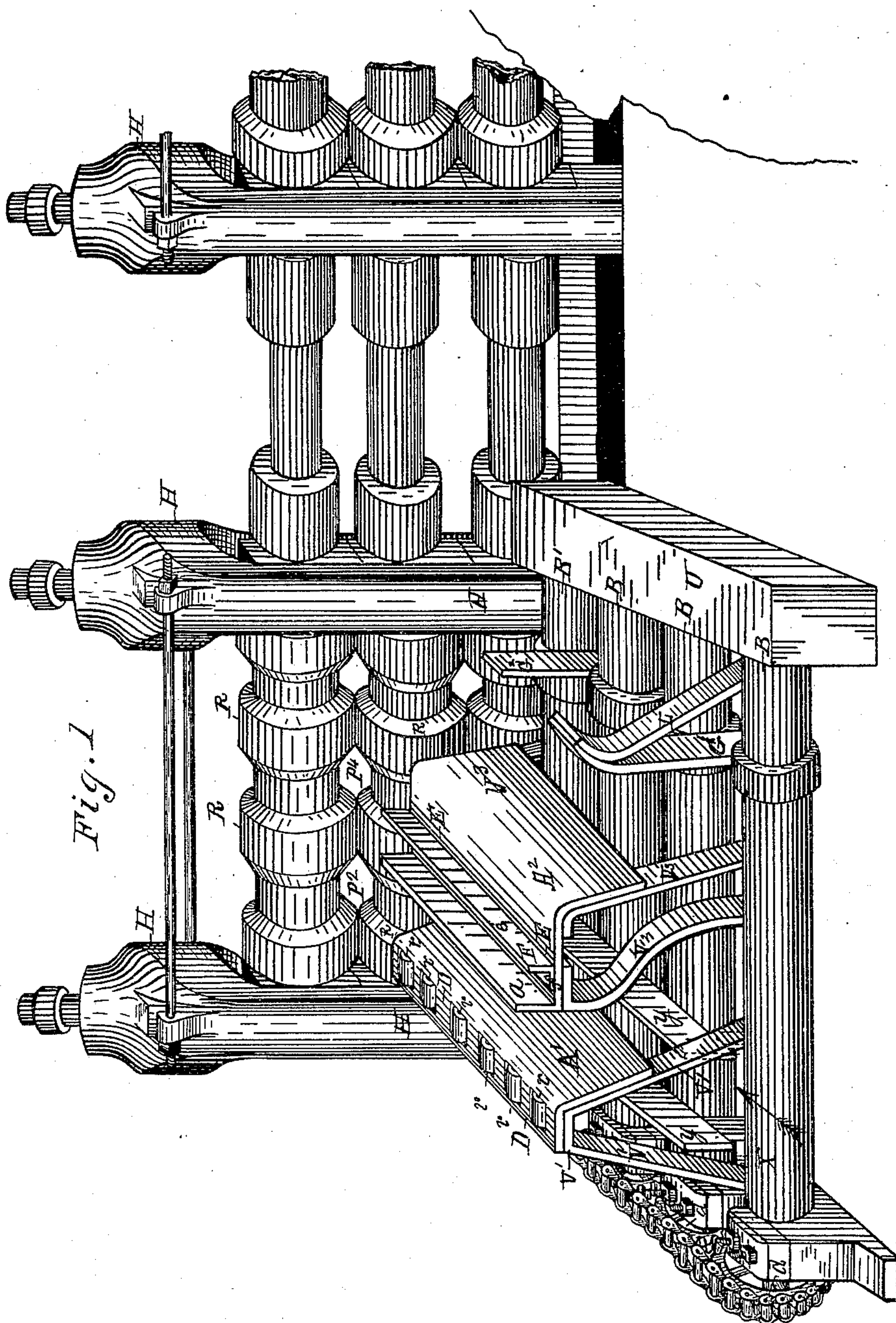
(No Model.)

2 Sheets—Sheet 1.

R. W. HUNT & M. M. SUPPES.
AUTOMATIC FEEDING TABLE FOR ROLLING MILLS.

No. 311,899.

Patented Feb. 10, 1885.



WITNESSES:

Stanley M. Holden.

Charles S. Brintnell

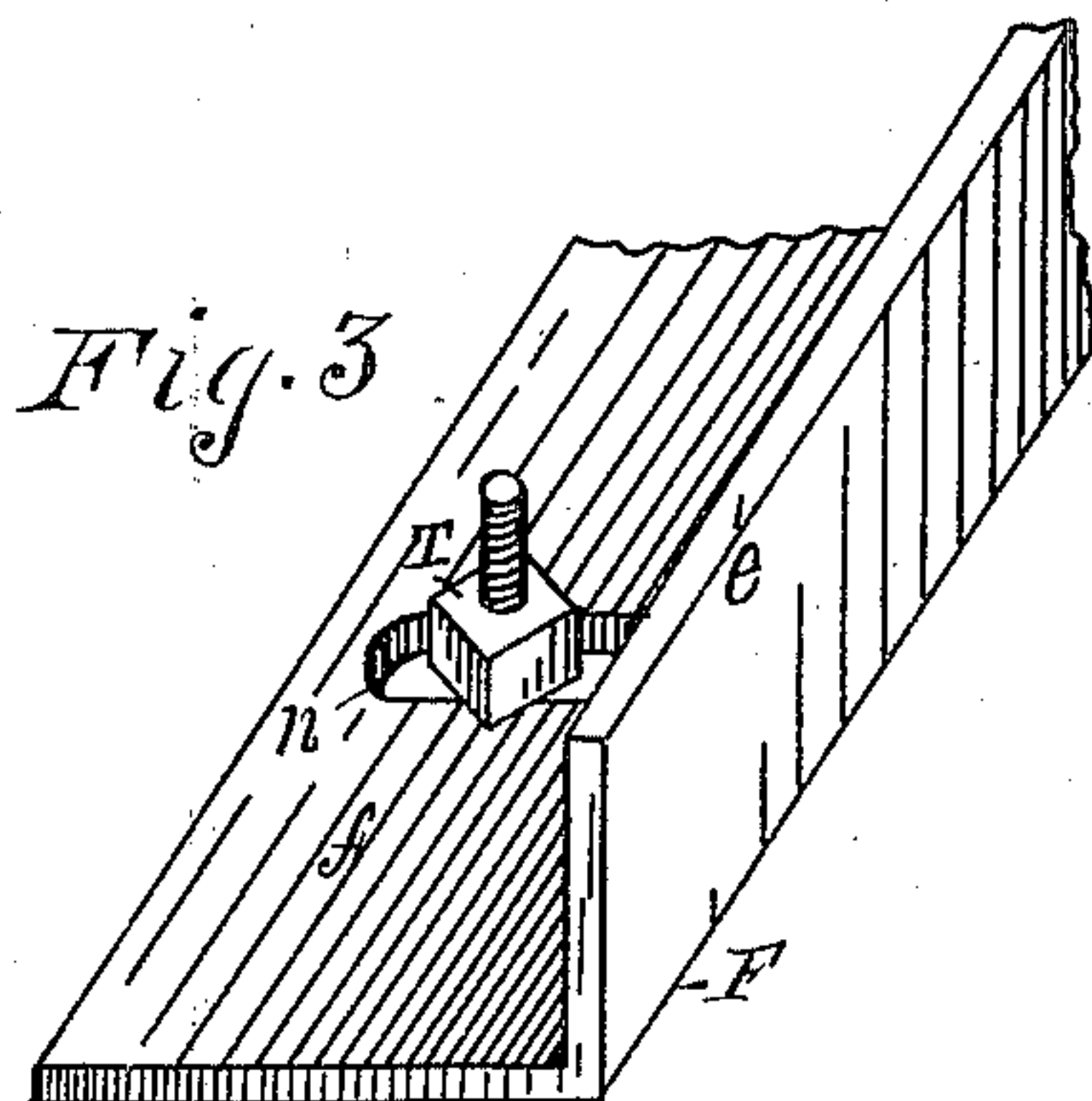
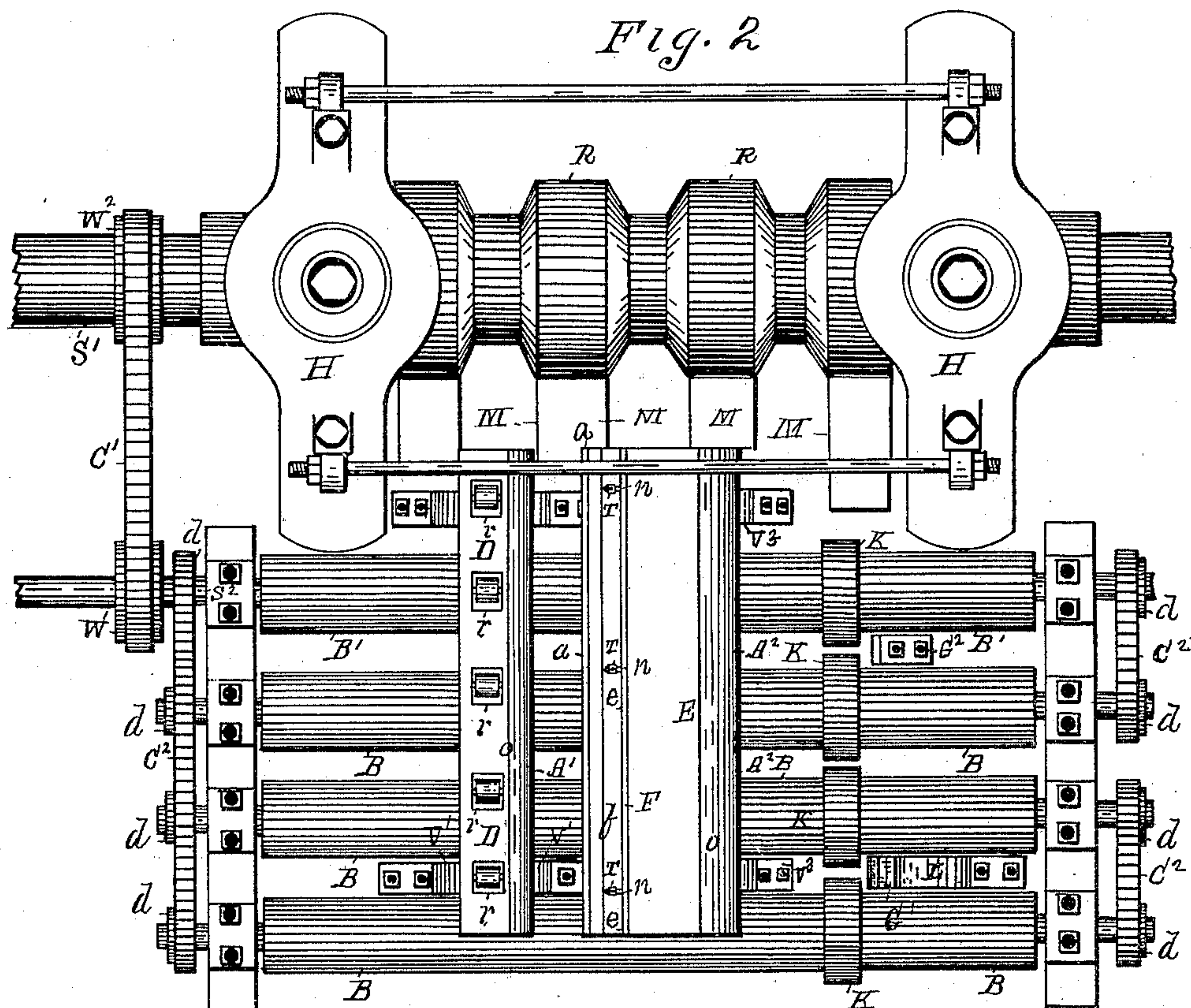
INVENTOR

Robert W. Hunt

Maximilian M. Suppes by
William E. Hagan ATTORNEY.

2 Sheets—Sheet 2.

Patented Feb. 10, 1885.



Stanley M. Holden.
Charles S. Brintnall

INVENTOR:
Robert W. Hunt
Maximillian M. Suppes by
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UNITED STATES PATENT OFFICE.

ROBERT W. HUNT AND MAXIMILLIAN M. SUPPES, OF TROY, NEW YORK;
SAID SUPPES ASSIGNOR OF ONE-SIXTH OF HIS RIGHT TO SAID HUNT.

AUTOMATIC FEEDING-TABLE FOR ROLLING-MILLS.

SPECIFICATION forming part of Letters Patent No. 311,899, dated February 10, 1885.

Application filed May 31, 1884. (No model.)

To all whom it may concern:

Be it known that we, ROBERT W. HUNT and MAXIMILLIAN M. SUPPES, both of the city of Troy, county of Rensselaer, and State of New York, have jointly invented a new and useful Improvement in Automatic Feed Mechanism for Rolling-Mills, of which the following is a specification.

Our invention relates to mechanism for automatically feeding rail-blooms to rolling-mills, and more particularly to that series of train-rolls that are termed "roughing-rolls;" and the object and purpose of our invention is to do by machinery what is ordinarily done by hand-labor.

Accompanying this specification to form a part of it there are two plates of drawings containing three figures, illustrating our invention as applied to the roughing-rolls of a "three-high train" with the same designation of parts by letter-reference used in all of them.

Of these illustrations, Figure 1 shows a perspective of the roughing-rolls of a three-high train and their connections, with our invention applied thereto. Fig. 2 shows a plan view of the same mechanism. Fig. 3 shows in part, as detached from the other mechanism and in larger proportion than shown in the other figures, a view of an adjustable guide-plate employed to regulate the width of what will be subsequently described as the adjustable edge of a receiving shelf or ledge.

The several parts of the mechanism thus illustrated are designated by letter-reference, and the function of the parts is described as follows:

The letters H indicate the housings of the rolls, and in which the bearings of the latter are placed.

The letters R designate the roughing-rolls of a train adapted to be connected by spiral gears and operated in the usual manner.

The letters B' and B designate a series of conveying-rollers, which are arranged parallel to each other, and so placed that their upper surfaces shall be on a line or nearly on a line with the bottom of the lower rail-bloom passes of the train where opposite the roughing-rolls. The inner one of these conveying-rollers and that indicated at B' has upon its shaft S² a sprocket gear-wheel, W', and the letter W² in-

dicates another sprocket gear-wheel on the main driving-shaft S', and the letter C' indicates a chain-belt connecting said sprocket-wheels, so as to communicate motion to said conveying-rollers that is parallel to that of the shaft from which power is derived.

The letters d designate sprocket-wheels on the shaft of said conveying-rollers B, and the letters C² indicate chain-belts connecting with said sprocket-gears, and by means of which parallel rotation is communicated from one to the others of said conveying-rollers, so that each of them revolves with its upper surface turning toward the train.

The letter D designates a receiving-platform, arranged opposite to the upper pass, P², of the train-rolls, and in such a position relatively to the latter that a rail-bloom or ingot coming from the said pass will be run out onto said platform by the expelling force of the train-rolls, with the edge of the bloom on one side overlapping the rounded edge of the platform, so that the bloom in the act of falling therefrom will turn onto its side to drop upon the conveying-rollers beneath in such a position. This platform is constructed with friction-rollers r, arranged in openings made in the platform at right angles to its sides, the function of which friction-rollers is to facilitate the movement of the rail-bloom in its passage over the platform, and which friction-rollers are not an indispensable part of the platform, for the latter can be used without them.

The letter A' designates an apron, the upper edge of which joins said platform D, and therefrom it descends on an angle that is abruptly obtuse to said platform. The function of this apron is to give direction to the falling rail-bloom, so that it shall strike on its side when it reaches the conveying-rollers, and, if desired, this apron may have greater or less vertical depth than is shown provided the standards which support it and the platform D are continued downwardly in the same manner. By making the apron quite narrow and locating a standard centrally, having the same incline as the other standards, the same result may be had.

The letter V' indicates standards that support the combined platform and apron, and these standards on the apron side of the plat-

form are made to incline outwardly as they descend on the same angle as the apron, so that after the falling rail-bloom has passed the apron it is still guided by the standards.

5 If desired, a central standard having the same form as those at the ends may be used.

The letter E designates a receiving shelf or ledge, having the turned-up edge *a*, and F an adjustable plate-edge, being made with the flange *f*, formed at right angles to the upright edge *e*.

The letter *n* indicates cross-slots made in the flange of the plate F, and T indicates set-screws arranged in the bottom of the shelf or ledge, and by means of which the width of the latter may be varied by the lateral movement and adjustment of the plate F on the said shelf or ledge. As the function of the shelf or ledge is the same, whether made wider or narrower, the adjustable plate F is not an indispensable part of it. This receiving shelf or ledge is arranged with its receiving end opposite the upper pass, P¹, of the rolls, and so placed with reference to the latter that a rail-bloom or ingot being expelled from that pass will be run out onto said shelf or ledge, so as to overlap the latter on its rounded edge, to turn onto its side in falling therefrom, and in its descent as it falls being guided by the apron A² and its standard-supports to strike on its side upon the conveying-rollers B.

The letter A² indicates an apron that connects on its upper edge with the rounded edge of the receiving ledge or shelf, and this apron extends downwardly on an angle that is abruptly obtuse to said shelf or ledge.

The letters V² designate curved standards, arranged at each end of said shelf or ledge, and V³ inclined standards at each end of said apron A². The function of the inclined standards is to guide the falling rail-bloom or ingot, and the function of the curve made in the standards V² is to allow the passage laterally of the rail-bloom coming from off the platform D to a point underneath the ledge E that is opposite the lower middle pass of the roughing-rolls, and the combined function of the said standards V² and V³ is to support the said shelf or ledge and its combined apron.

50 The letters G¹ and G² indicate two standard-guides, that are arranged between the conveying-rollers nearly opposite to the outer side of the lower corner-pass of the roughing-rolls.

The letters *d* indicate the bearings of the conveying-rollers; U, a screen used to cover the sprocket-gears and chain-belts at the ends of the rollers B, and *y y* two guide-plates, opposite the sides of the first lower pass.

The operation of the combined parts thus illustrated and described is as follows: A rail-bloom or ingot being deposited on the conveying-rollers B from the buggy is, by the conveying-rollers from the point indicated at X and in the direction of the arrow shown thereat, carried into and through the first lower (corner) pass of the train-rolls between the plates *y*. This rail-bloom being returned from the

other side of the train-rolls through the upper pass, P², runs out on the platform D, with its edge, where adjacent, overhanging the rounded edge of the platform. Soon as released from the train-rolls the bloom turns over on the rounded edge of the platform to fall therefrom, being guided in its descent by the apron A¹, so as to strike on its side upon the conveying-rollers B, by which it is returned to the train through the lower middle pass, moving between the guides M. When the rail-bloom is returned from the opposite side of the train through the upper middle pass, P⁴, frontwardly, it runs out on the receiving-shelf E, and as expelled by the rolls it is (by the plate F when used or by the upturned edge *a* of the shelf) so guided as to overhang on its outer edge the rounded edge of the said shelf or ledge. When released from the train-rolls, it turns on the rounded edge *o* of the shelf in the act of falling, and on its side descends upon the conveying-rollers and the collars arranged thereon, (indicated at K,) and in which position it is returned to the train through the lower corner-pass of the train. When falling, the rail-bloom is guided in its descent by the standards V³ and the guides G¹ and G². Both of these latter guides are, to a certain extent, elastic, and that indicated at G¹ being made with a backing leaf-spring, L, and the purpose of this elasticity is that they may receive the impetus of the rail-bloom when thrown against them, so as to prevent its being jammed by the blow, and to prevent its rebound, which would be liable to throw it over and from off its side. The upturned edge *a* of the shelf or ledge, while it acts to guide the bloom descending on the latter, also serves as a guide in directing the rail-bloom coming from off the platform D from turning over too far in its descent.

We are aware that an inclined slideway has been used for the gradual descent of a partially-rolled rail-bloom from the last upper pass of the roughing-rolls to the first lower pass of the middle series of rolls of a train. In the mechanism herein shown the rail-bloom coming from the upper pass is not received on an incline, but on a platform or shelf from which the rail-bloom slides to fall, being guided in its descent by the apron, to keep it on its side as it strikes upon the rollers B.

While we have shown the conveying-rollers B actuated by power from the main driving-shaft of the train, they may be operated independently of the latter, if desired.

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

1. In an automatic-feed mechanism for a rolling-mill, the combination of the receiving-platform D, the inclined apron A¹, and the conveying-rollers B¹ and B, the said parts being constructed to operate and arranged relatively to the train-rolls substantially in the manner as and for the purposes set forth.

2. In an automatic-feed mechanism for a

rolling-mill, the combination of the receiving-shelf E, made with an upcast plate-edge e, the inclined apron A², and the conveying-rollers B and B', the said parts being constructed to
5 operate and arranged relatively to the train-rolls substantially in the manner as and for the purposes set forth.

3. In an automatic-feed mechanism for a rolling-mill, the combination of the receiving-
10 platform D, the inclined apron A', the curved standard-guide V², and the conveying-rollers B and B', the said parts being constructed to operate and arranged relatively to the train-rolls substantially in the manner as and for
15 the purposes set forth.

4. In an automatic-feed mechanism for a rolling-mill, the combination of the receiving-platform D, the abruptly-inclined apron A', the curved standard-guide V³, the upwardly-
20 projecting plate a, and the conveying-rollers B and B', the said parts being constructed to operate and arranged relatively to the train-rolls substantially in the manner as and for the purposes set forth.

25 5. In an automatic-feed mechanism for a rolling-mill, the combination of the receiving shelf or ledge E, the adjustable plate F, made with the upturned edge e, the inclined apron A², and the conveying-rollers B and B', the
30 said parts being constructed to operate and

arranged relatively to the train-rolls substantially in the manner as and for the purposes set forth.

6. In an automatic-feed mechanism for a rolling-mill, the combination of the receiving
35 shelf or ledge E, made with the turned-up edge a, the inclined apron A², the elastic guide-standards G' and G², and the conveying-rollers B and B', the said parts being constructed to operate and arranged relatively to
40 the train-rolls substantially in the manner as and for the purposes set forth.

7. In an automatic-feed mechanism for a rolling-mill, the combination of the conveying-rollers B and B', constructed to be operated as
45 shown, the platform D, the apron A', the ledge or shelf E, made with the upturned edge a, the apron A², the standard-guides V', V², and V³, and G' and G², with the said parts constructed to operate and arranged with reference to the
50 train-rolls as shown and described.

Signed at Troy, New York, this 19th day of May, 1884, and in the presence of the two witnesses whose names are hereto written.

ROBERT W. HUNT.

MAXIMILLIAN M. SUPPES.

Witnesses:

CHARLES S. BRINTNALL,

STANLEY M. HOLDEN.