(No Model.) 4 Sheets—Sheet 1.

R. W. HUNT.

FEEDING TABLE FOR ROLLING MILLS.

No. 348,216. Patented Aug. 31, 1886.

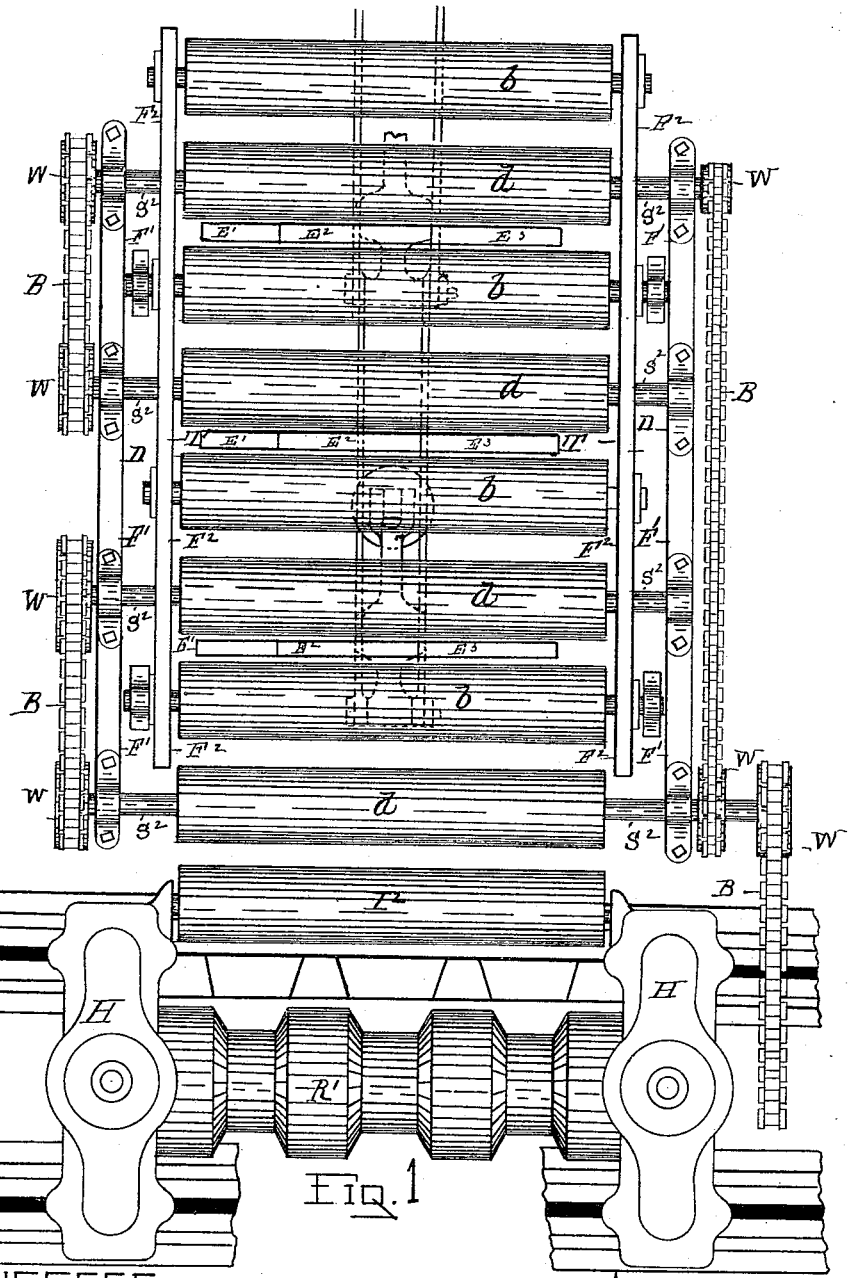

Fig. 1

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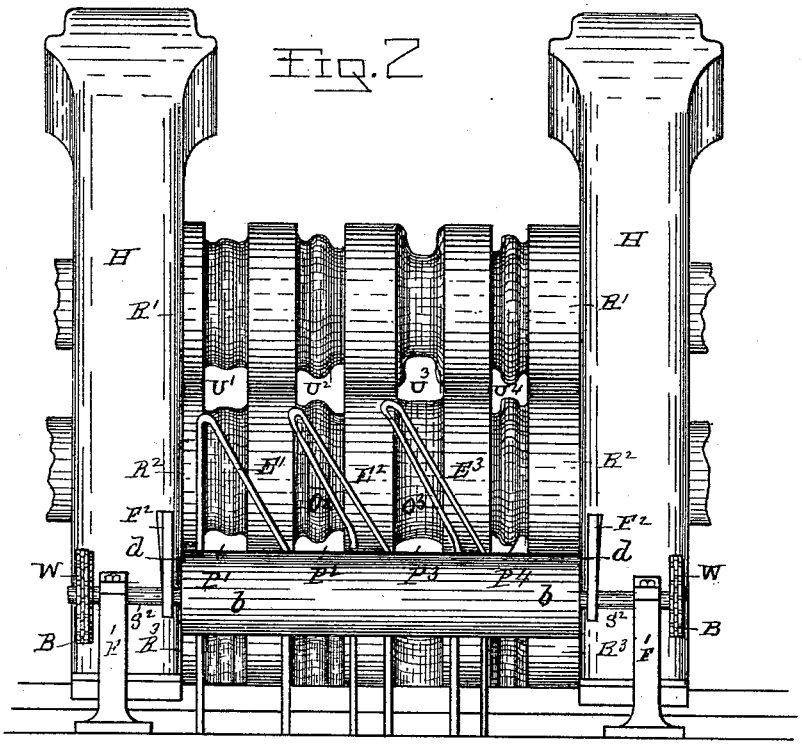
Fig. 2



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(No Model.) 4 Sheets—Sheet 3.

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FEEDING TABLE FOR ROLLING MILLS.

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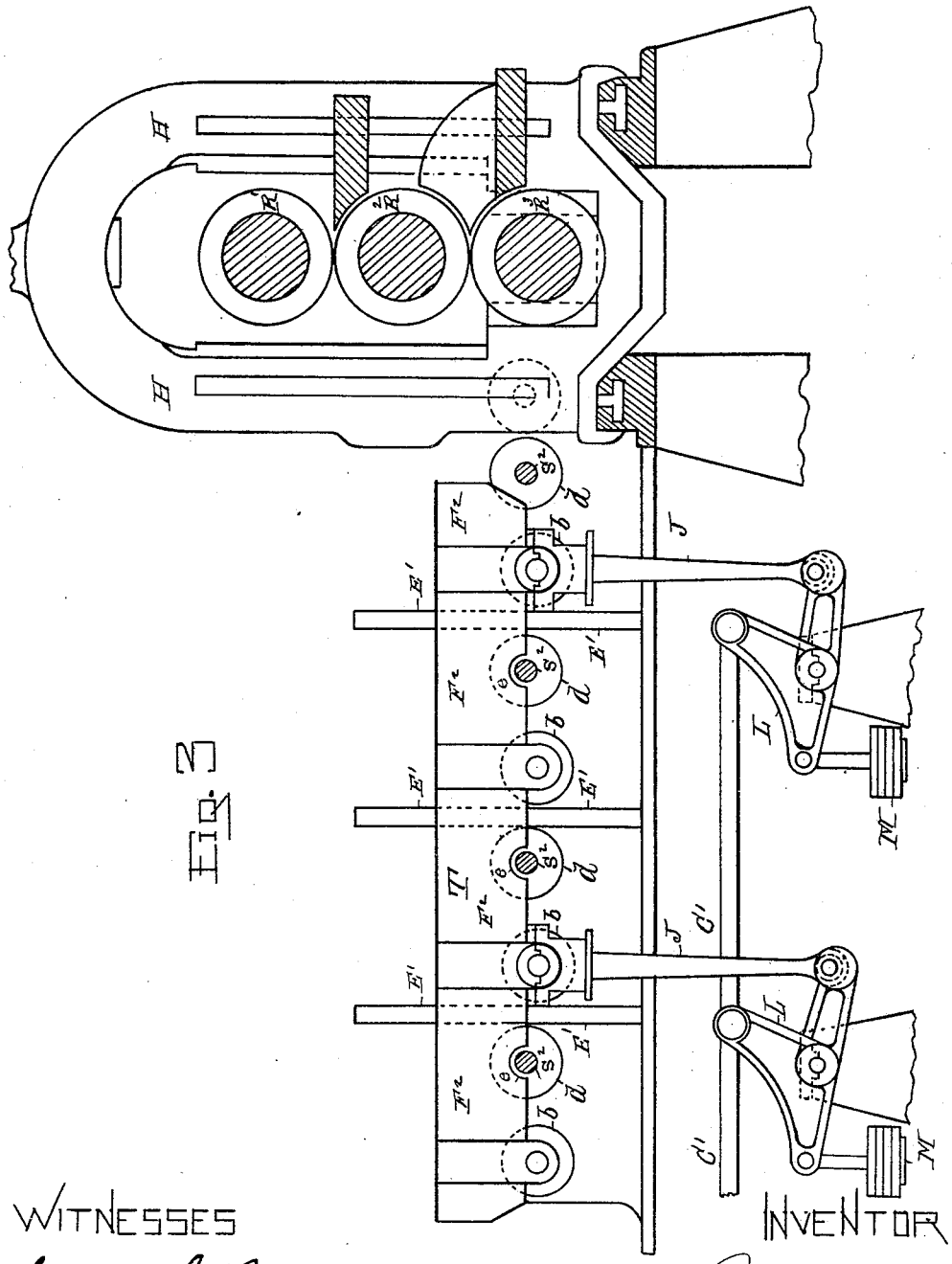

Fig. 2

WITNESSES

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(No Model.) 4 Sheets—Sheet 4.

R. W. HUNT.

FEEDING TABLE FOR ROLLING MILLS.

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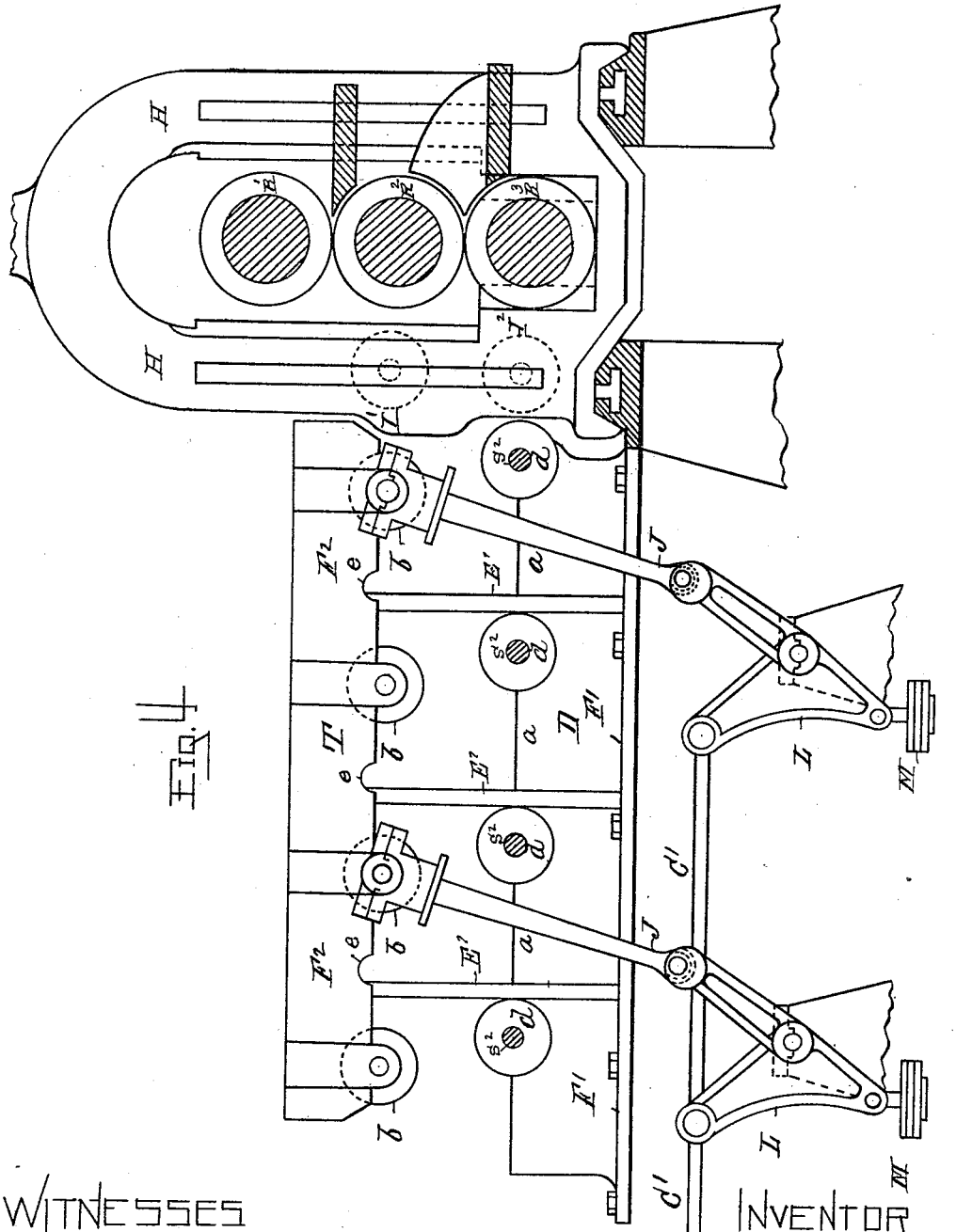

FIG. 4.

WITNESSES

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UNITED STATES PATENT OFFICE.

ROBERT W. HUNT, OF TROY, NEW YORK.

FEEDING-TABLE FOR ROLLING-MILLS.

SPECIFICATION forming part of Letters Patent No. 348,216, dated August 31, 1886.

Application filed April 28, 1886. Serial No. 200,414. (No model.)

To all whom it may concern:

Be it known that I, ROBERT W. HUNT, of the city of Troy, county of Rensselaer, State of New York, have invented new and useful Improvements in Feeding-Platforms for Rolling-Mills, of which the following is a specification.

My invention relates to that class of apparatus which is used in connection with rolling-mills for manipulating the blooms that are being formed into rails, the object of my invention being to accomplish by a mechanical means the transfer from the delivery side of the upper passes of the train a bloom coming therefrom, and to turn it upon its side when being transferred from one of the upper to one of the lower passes to meet the shaping condition of the latter, and also to deliver it to one of the lower passes.

My invention consists (as will be more fully detailed hereinafter in connection with its illustration and set forth in the claims) in the combination, with a receiving and delivering platform that is composed of a series of rollers arranged to be opposite the bottom of the lower passes of the train and parallel with the latter, and being actuated to turn with their upper surfaces moving toward the train, and only movable in such rotation, of turning studs having curved surfaces and being projected upwardly between the rollers of said platform, and a movable table constructed with a frame and having rollers mounted to turn therein when a bloom is run out thereon, said table being actuated to rise and stop opposite the upper passes of the train to receive a bloom or partly-formed rail coming therefrom, and then actuated to descend so that the rollers of said table shall alternatingly pass between the rollers of the platform to deliver a bloom thereon, the upwardly-projected studs being arranged to pass between the rollers of both the platform and table and to so engage with the descending bloom as to turn it upon its side when it is being deposited on the platform, which delivers it to that one of the lower passes of the train to which the bloom is opposite.

My invention also consists in the sub-combination of the parts illustrated and described where they perform specific functions, as will be specified in the claims.

Accompanying this specification, to form a part of it, there are four plates of drawings containing four figures illustrating my invention, with the same designation of parts by letter-reference used in all of them.

Of these illustrations Figure 1 is a plan view of the mechanism containing my invention and shown as being arranged in front of one of the sections of a three-high train, and with the movable table illustrated as down and with its rollers between those of the platform. Fig. 2 is a front elevation of a section of a train with my invention shown as applied thereto, and with the movable table shown as down and a little below the platform. Fig. 3 shows the train-rolls in vertical section and the movable table and platform in side elevation, the table being illustrated as down opposite the lower passes of that part of the train represented. Fig. 4 also shows the rolls of the train in vertical section, the movable table and platform in side elevation, but with the movable table illustrated as raised up in a receiving position opposite the upper passes.

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 that part of the train represented; R′, the upper rolls; R^2, the middle rolls, and R^3 the lower rolls.

The letters U′, U^2, U^3, and U^4 indicate the upper passes, and P′, P^2, P^3, and P^4 the lower passes.

The letters D indicate a platform consisting of a series of rollers, *d*, having bearings for their shafts S^2 in the frame F′. The shafts of these rollers *d* are provided with sprocket-wheels W, which connect by chain-belts B to receive power, by which they are actuated to rotate with their upper surfaces turning toward the train. These rollers *d* are arranged in the frame F′, so as to leave the spaces *a* between them, the purpose of which spaces will be subsequently described herein.

The letter I′ indicates an idler-roller arranged parallel to the train, with its upper surface in a line or nearly in a line with the bottom of the upper passes of the train and immediately in front of the latter.

The letter I^2 indicates another idler-roller

that is arranged to have its upper surface on a line or nearly on a line with the bottom surface of the lower passes of that part of the train which is illustrated.

The letter T designates a movable table having a frame, F^2, and this table is constructed with a series of rollers, *b*, having their shaft-bearings in said frame. This frame F^2 is made narrower than the frame F' of the platform D, so that the frame of the movable table may pass down inside of the frame of the platform, with the rollers of this table so arranged in its frame as to be over the spaces *a*, between the rollers *d* of the platform. Thus constructed, when the movable table descends its rollers pass alternatingly between those of the platform D, with the frame of the movable table resting on the shafts S^2 of the platform by means of recesses *e*, made in the under surface of the sides of the movable table-frame. This table T is adapted to be raised by means of the connecting-rod C', the angular turn-levers L, and the pivoted rods J, which connect one arm of each of said levers with the table, and by the return reciprocation of the connecting-rod C' and the counterpoise M the table is caused to descend. When the table is raised, it stops at a point which brings the upper surface of its rollers on a line or nearly on a line with the bottom of the upper passes, and when the table T is actuated to descend it stops in its descent at a point a little below the rollers of the platform D. When the table T is raised, as shown at Fig. 4, a bloom or partly-formed rail coming from an upper pass is run out onto the table by the expelling force of the rolls, the rollers *b* turning to facilitate its reception thereon, and when the table descends to a point a little below the surface of the rollers of the platform it is by the latter moved forward to that one of the lower passes to which the bloom is opposite.

The letters E', E^2, and E^3 designate three series of turning and guide studs that are upwardly projected between the rollers of the platform, and which are also so arranged that when the table descends these studs will project up between the rollers of the latter. The studs of each series are arranged to be parallel with each other on a line drawn at right angles to the train. The studs of each series are of an A form, with their sides having an incline from the upper pass, from whence the bloom comes, toward the bottom pass, at which the bloom is to be again returned to the train, one side of the studs serving to turn the bloom in its descent on the table and the opposite sides of each of the adjacent series of studs serving as guides for the return of the bloom to the rolls. The series of studs E' engage with the bloom coming from the upper pass, U', and turn it on its side as it descends on the table T, so that the latter will deliver it on the platform D, where it will be opposite the lower pass, P^2, while the sides O^2 of the adjacent series of studs, E^2, serve as guides, when the bloom so delivered is acted upon by the platform-rollers to return it to the train. The series of turning and guide studs E^2 engage with the bloom coming from the upper pass, U^2, as it descends on the table T, to turn the bloom on its side in its descent and deliver it on the platform D, where it will be opposite the lower pass, P^3, the sides O^3 of the adjacent series of studs E^3 serving as guides for the bloom when being returned to the train by the rollers of the platform D. The turning and guide studs of the series E^3 engage with the partly-formed rail or bloom coming from the upper pass, U^3, as it descends on the table T, to turn it upon its side, so as to bring it opposite the lower pass, P^4, when delivered upon the rollers of the platform D, that return it to the train.

While I have thus described my invention as applied to rail-trains, it may be used for handling blooms of any kind requiring a like manipulation. If desired, the table T and platform D may be operated close up to the train, and the idler-rollers I' and I^2 dispensed with.

As the platform D, made with the spaces *a* between the rollers thereof, when combined with the table T, actuated to rise and descend, so that when down its rollers are alternatingly between the rollers of the platform and a little below them, would perform the same function connectedly, whether the bloom or partly-formed rail was turned or guided by the studs which I illustrate and describe or some other mechanism; hence I do not limit my invention of the combined movable table and a platform, as I show them to be constructed and arranged to operate to their combination with the said studs.

I am aware that a table provided with rollers adapted to be raised and to descend so as to be operated in connection with the upper and lower passes of a train is not new, broadly considered.

I am also aware that a roller-platform provided with studs or guides and arranged opposite the lower passes of a train is shown and described in Letters Patent granted to me February, 10, 1885, No. 311,899.

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

1. In a feeding attachment to a rolling-mill, the combination of a roller-platform arranged opposite the lower passes of one side of the train and with the platform-rollers actuated to rotate with their upper surfaces turning toward the train, and a roller-table adapted to be raised so as to come opposite the upper passes of the train above said roller-platform, and also actuated reciprocatingly to descend, so that the rollers of the table will pass alternatingly between the rollers of the platform, and to a point a little below the latter, substantially in the manner as and for the purposes set forth.

2. In a feeding attachment to a rolling-mill, the combination of a roller-platform arranged opposite the lower passes of one side of the train, with the platform-rollers actuated to rotate with their upper surfaces turning toward the train, and a roller-table adapted to be raised so as to come opposite the upper passes of the train above said platform, and also actuated to reciprocatingly descend, so that the rollers of said table will alternatingly pass between the rollers of said platform to a point a little below the latter, and turning and guide studs projected upwardly between the rollers of said platform, so as to pass between the rollers of the descending table, substantially as and for the purposes set forth.

3. In a feeding attachment to a rolling-mill, the combination of the platform D, made substantially as described, the table T, made and arranged to be operated substantially as described, and the series of guide-studs E' E^2 E^3, arranged with reference to said platform-rollers and table-rollers, substantially as and for the purposes set forth.

4. In a feeding attachment to a rolling-mill, the combination, with the platform D and table T, made and arranged to operate substantially as described, of the idler-roller I', as and for the purposes set forth.

5. In a feeding attachment to a rolling-mill, the combination, with the platform D and the table T, made and arranged to operate substantially as described, of the idler-roller I^2, as and for the purposes set forth.

Signed at Troy, New York, this 27th day of February, 1886, and in the presence of the two witnesses whose names are hereto written.

ROBERT W. HUNT.

Witnesses:
A. W. WICKES,
W. E. HAGAN.