

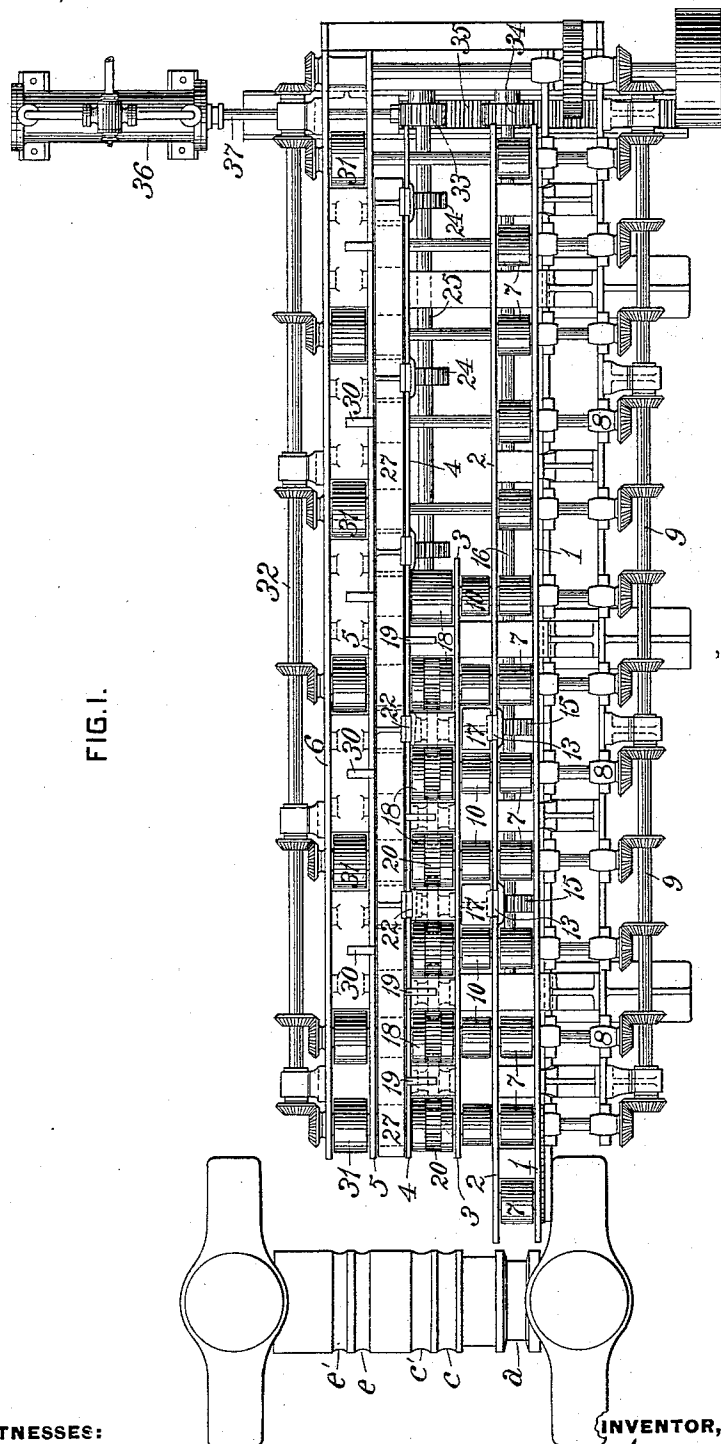
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3 Sheets—Sheet 1.

S. V. HUBER.
FEED TABLE FOR ROLLING MILLS.

No. 569,283.

Patented Oct. 13, 1896.



WITNESSES:

Chas. F. Miller.
J. E. Gaither

INVENTOR,

Seigmund V. Huber
by Saml. S. Wolcott

Att'y.

(No Model.)

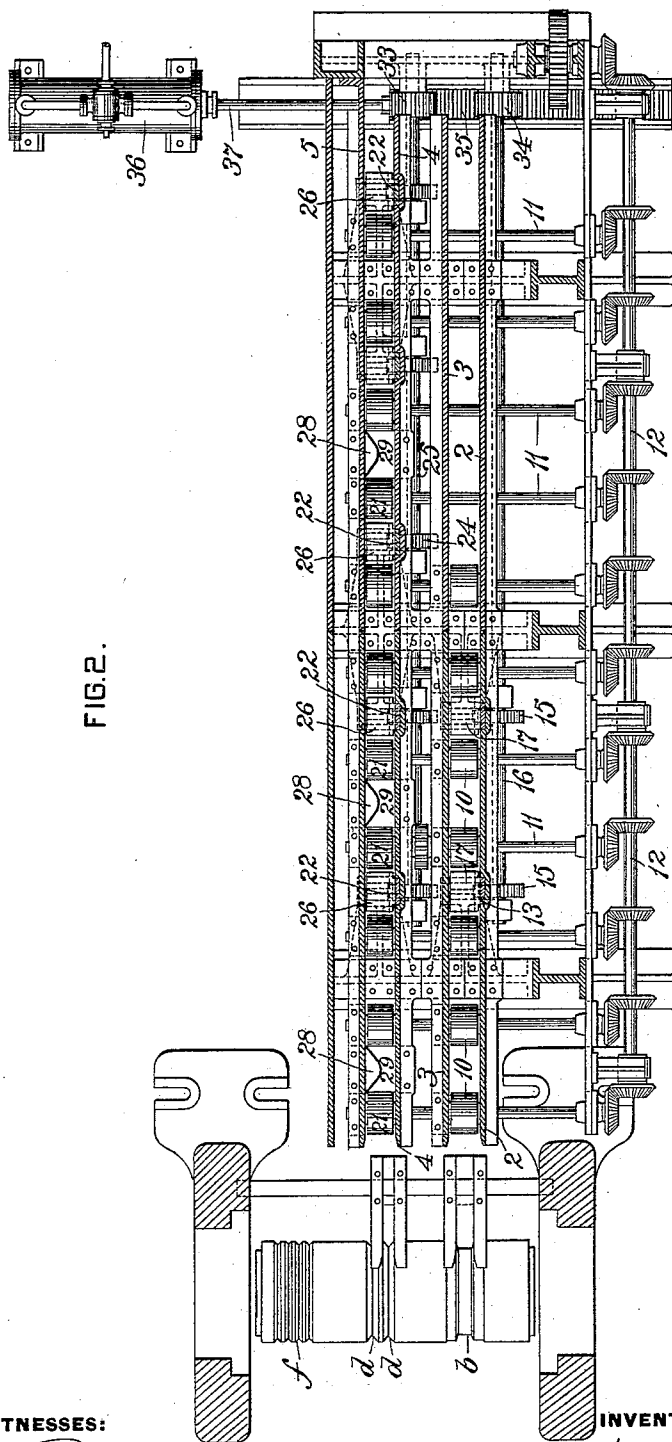
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FIG. 2.



WITNESSES:

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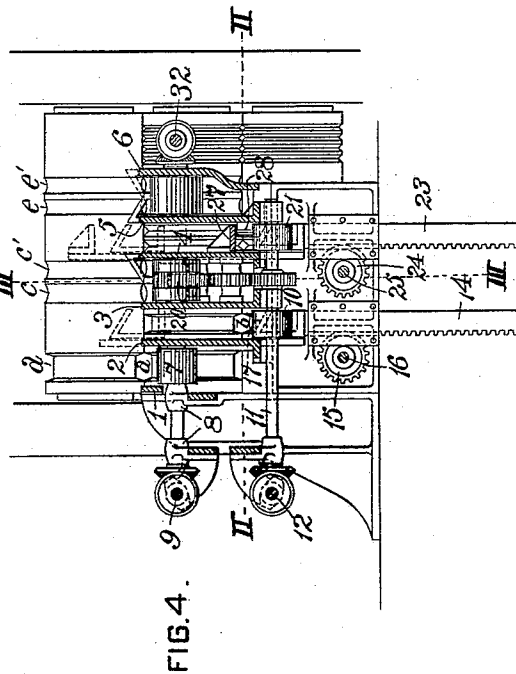
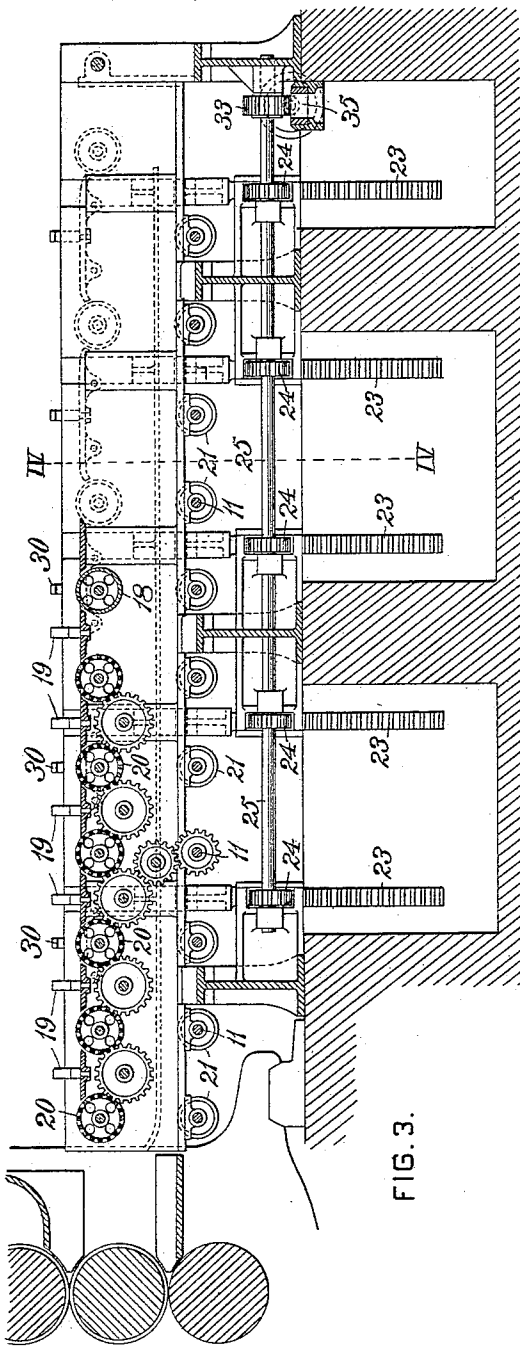
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UNITED STATES PATENT OFFICE.

SIGMUND V. HUBER, OF YOUNGSTOWN, OHIO.

FEED-TABLE FOR ROLLING-MILLS.

SPECIFICATION forming part of Letters Patent No. 569,283, dated October 13, 1896.

Application filed June 6, 1896. Serial No. 594,476. (No model.)

To all whom it may concern:

Be it known that I, SIGMUND V. HUBER, a citizen of the United States, residing at Youngstown, in the county of Mahoning and State of Ohio, have invented or discovered certain new and useful Improvements in Feed-Tables for Rolling-Mills, of which improvements the following is a specification.

The invention described herein has for its object a construction of feed-table for rolling-mills for the reduction of billets to merchant bar or wire rod; and it consists, generally stated, in a construction or arrangement of delivery-rolls, receiving boxes or troughs, and interposed mechanism between the receiving and delivery parts whereby an axial rotation of the article being rolled may be effected while being transferred from the receiving to the delivery mechanism.

The invention is hereinafter more fully described and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is a top plan view of my improved rolling-mill. Fig. 2 is a sectional plan view, the plane of section being indicated by the line of section II II, Fig. 4. Fig. 3 is a sectional elevation, the plane of section being indicated by the line III III, Fig. 4; and Fig. 4 is a transverse sectional elevation, the plane of section being indicated by the line IV IV, Fig. 3.

In the practice of my invention I arrange in front of a stand of three-high rolls a suitable framework or foundation, which supports the operating parts of the feed mechanism. On this framework are secured metal plates 1, 2, 3, 4, 5, and 6, so arranged with reference to the passes through the rolls as to form lateral guides for the article being rolled as it is being received from the rolls. For example, the walls or plates 1 and 2 are arranged on opposite sides of the pass *a* of the rolls, the plates 2 and 3 on opposite sides of the pass *b*, the plates 3 and 4 on opposite sides of the double pass *c*, the plates 4 and 5 on opposite sides of the double pass *d*, and the plates 5 and 6 on opposite sides of the double pass *e*, as clearly shown in Fig. 4. Between the walls or plates 1 and 2 are mounted the rollers 7, the shafts of said rollers being mounted in the plates 1 and 2 and in outside bearings 8, and are provided at their

outer ends with suitable bevel-pinions adapted to intermesh with corresponding pinions on the driving-shaft 9. These rollers are arranged and rotated in such direction as to feed the billet into and through the pass *a* of the rolls. By suitable mechanism, preferably such as is described in an application of even date herewith, the article is dropped down on the opposite side of the rolls and returned through a pass *b* between the middle and lower rolls. Between the walls 2 and 3 are arranged the receiving-rolls 10, which are mounted upon shafts 11, driven by the power-shaft 12 through the medium of suitable beveled gearing.

As shown in Fig 1, the wall 2 is counter-sunk at suitable intervals, forming a guide recess or groove for the vertical slides 13, which are connected at their lower ends to rack-bars 14, adapted to intermesh with pinions 15 on the shafts 16. These vertical slides 13 are arranged intermediate between the feed-rollers 12 and have attached thereto downwardly-inclined plates 17. When the slides are at their lower position, these inclines 17 are below the line of feed of the bar passing through the pass *b*, as shown in Fig. 4. After the article has passed entirely out of the bite of the rolls the shaft 16 is rotated by mechanism hereinafter described, thereby raising the slides and with them the inclines 17, so as to lift the article off the feed-rollers and above the wall 3, which retains the articles on the inclines during the upward movement of the latter. As soon as the inclines pass above the wall 3 the article will slide off of the inclines onto one or the other of the grooves in the feed-rollers 18, dependent upon which one of the passes *c* *c'* of the rolls the article is to be fed through.

In order to insure the article dropping into the proper groove of the feed-rollers 18, brackets 19 are provided and detachably secured to one of the walls 3 or 4, dependent upon which pass *c* or *c'* is to be used. As shown in Fig. 4, the brackets 19 are arranged over the pass *c'*, so that the article sliding from the inclines 17 will drop into the groove in the feed-roller 18 in line with the pass *c*.

If the article is to be fed through the pass *c'*, the brackets or bridges 19 will be reversed, so as to cover the groove in the roll 18 in line

with the pass *c* and form a practical continuation of the incline 17 when the latter is raised. As shown in Figs. 1 and 4, the feed-rollers 18 are formed on opposite sides of the gear-wheel 20, which is rotated, through the medium of suitable interposed idlers, by one of the shafts 11 in such direction as to feed the article into the pass *c* or *c'*. On the opposite side of the reducing-rolls the article is received by suitable mechanism and dropped down with a slight lateral movement, so as to be received through the pass *d* by the rollers 21, arranged on the shafts 11 between the walls 4 and 5. The wall 4 is provided with guide-grooves similar to those in the wall 3 for the reception of vertical slides 22, which are connected at their lower ends to rack-bars 23, adapted to intermesh with pinions 24 on the shaft 25. On the slides 22 are attached inclines 26 at such points that when the inclines are at their lower position the inclines will be below the line of movement of an article passing through pass *d*, as clearly shown in Fig. 4. As the article has been considerably reduced by the time it is acted on by the pass *d*, and is therefore liable to bend and twist, it is preferred to secure to the slides 22 retaining plates or blocks 27 in such position upon the slides that when the latter are in their lower position the retaining-blocks will be just above a horizontal plane passing through the pass *d* of the reducing-rolls. These retaining-plates will prevent any material vertical bending or twisting of the bar; but its lateral bending is prevented by means of horizontally-curved blocks 28, attached by means of plates 29 to the walls 4 and 5 intermediate of the vertical slides, as clearly shown in Figs. 2 and 4. After the article has passed out of groove *d* the slides 23 are raised, thereby lifting the article, which is prevented from moving off the inclines 26 by the vertical wall 5, until the inclines are above said wall, whereupon the article will slide off into one or the other of the passes *e* or *e'*, dependent upon the position of the bridges or brackets 30. These bridges or brackets are similar to the bridges or brackets 19 and are designed to insure the dropping of the article onto the feed-rollers 31 in line with the proper pass *e* or *e'*. As the article drops from the inclines it is received by feed-rollers 31, mounted on suitable shafts and rotated, through suitable interposed gearing, by the power-shaft 32 in such direction as to feed the article resting thereon into one or the other of the passes *e* or *e'*. On the opposite side of the reducing-rolls the article is received by suitable mechanism, lowered and shifted a short distance laterally, and fed into one or the other of the passes *f*. On the rear ends of shafts 16 and 25 are secured gear-wheels 33 and 34, adapted to in-

termesh with a rack-bar 35, arranged in suitable guides at the rear end of the feed-table and reciprocated back and forth within said guides by means of a fluid-pressure cylinder 36, whose piston is connected by the rod 37 to the rack-bar. 65

It is characteristic of my improved feed-table that the bar is automatically received and returned to the reducing-rolls, the only non-automatic operation being the vertical movement of the slides, whereby the article is raised from a position in rear of one pass up to a position in front of the returning pass. It is also characteristic of my improvement that the movement of an article by one portion of the feed-table is not dependent upon nor in any way affects the movement of an article by any other portion of the feed-table, so that it is possible for a series of articles to be in the course of reduction in each of the several passes described simultaneously. 75 80

I claim herein as my invention—

1. A feed-table for rolling-mills having in combination a series of delivery-rollers arranged in certain vertical and horizontal planes, a series of receiving-rollers arranged in different vertical and horizontal planes, and mechanism for lifting an article from the receiving-rollers and shifting it laterally onto the delivery-rollers, substantially as set forth. 85 90

2. A feed-table for rolling-mills, having in combination a series of delivery-rollers having two or more grooves, a series of receiving-rollers arranged in a plane below the delivery-rollers, a mechanism for lifting an article from the receiving-rollers and depositing it on the delivery-rollers, and bridges for directing the article into the proper groove in the delivery-rollers, substantially as set forth. 95 100

3. A feed-table for rolling-mills, having in combination a series of receiving-rollers, a series of delivery-rollers arranged in a plane above the receiving-rollers, and vertical slides provided with plates downwardly inclined toward the delivery-rollers, whereby an article may be raised from the receiving-rollers and moved laterally onto the delivery-rollers, substantially as set forth. 105 110

4. A feed-table for rolling-mills, having in combination a series of receiving-rollers, a series of delivery-rollers, vertical slides provided with downwardly-inclined plates, and with retaining-plates above the inclined plates, and curved blocks intermediate of the slides, substantially as set forth. 115

In testimony whereof I have hereunto set my hand.

SIGMUND V. HUBER.

Witnesses:

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F. E. GAITHER.