F. C. BIGGERT, JR.

ROLLING MILL.

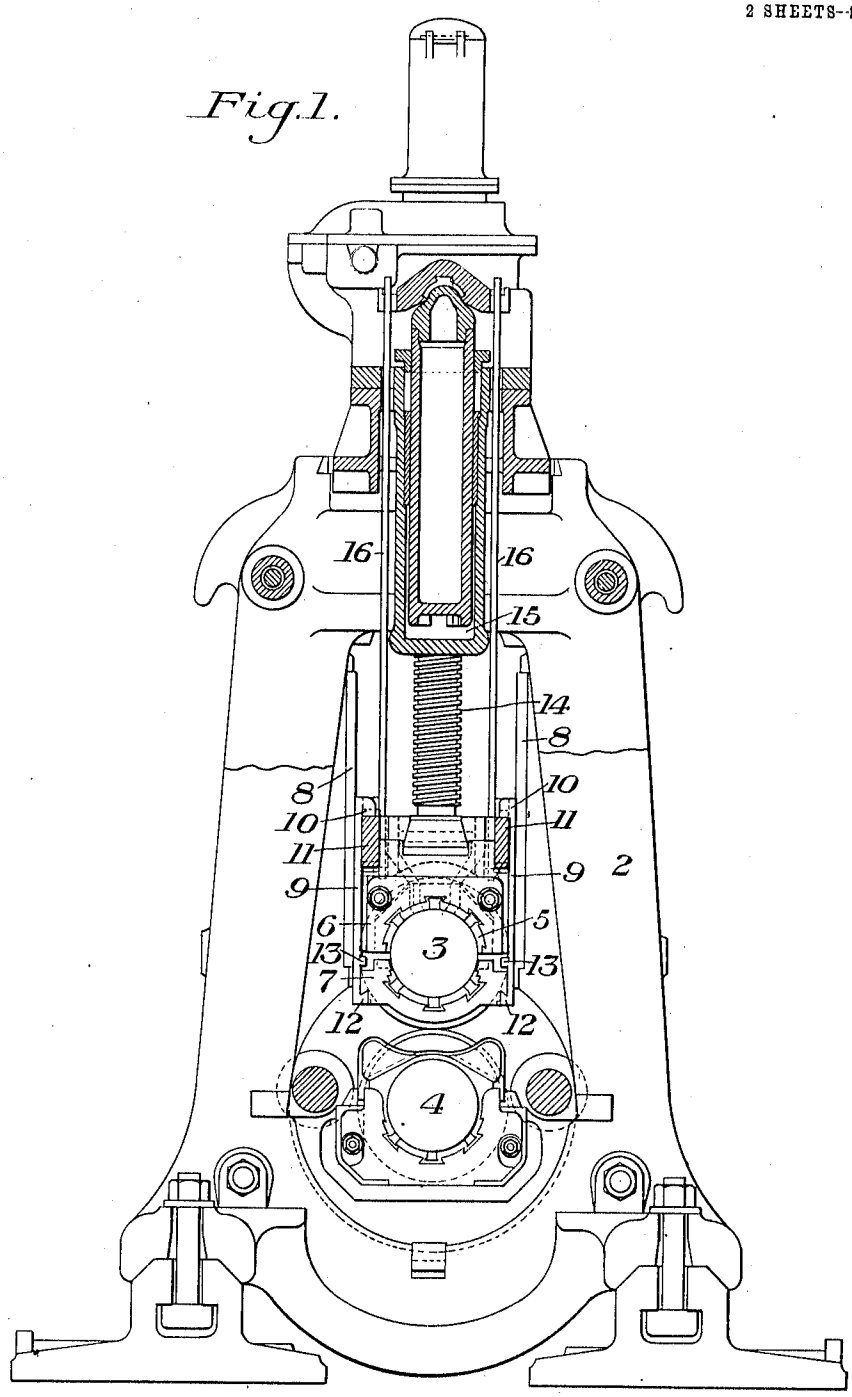
APPLICATION FILED MAY 13, 1910.

980,186.

Patented Jan. 3, 1911.

2 SHEETS--SHEET 1.

Fig. 1.



WITNESSES

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2 SHEETS—SHEET 2.

Fig. 4.

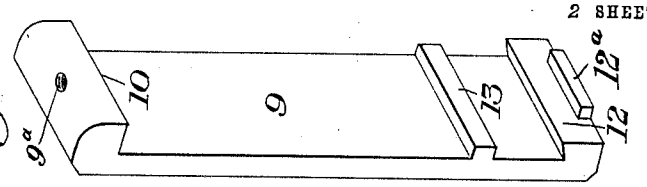


Fig. 3.

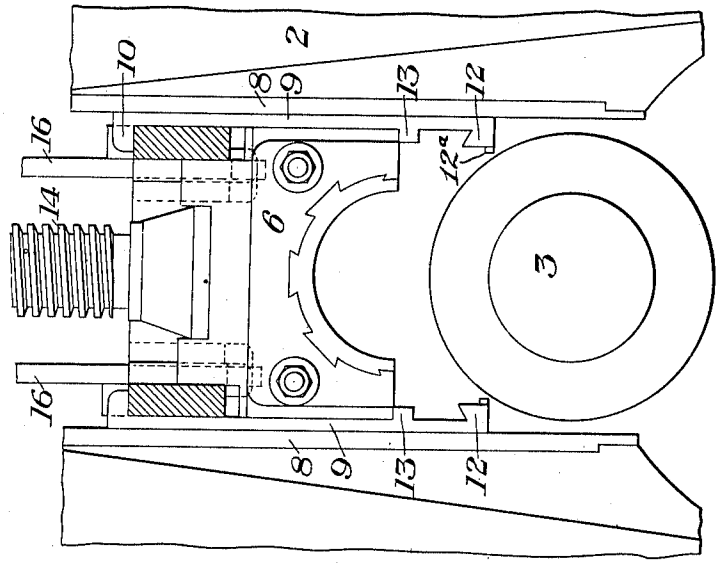
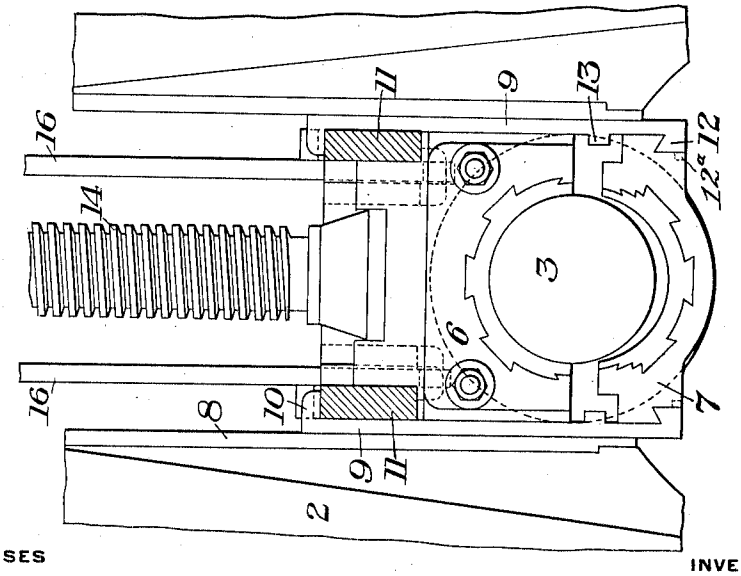


Fig. 2.



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UNITED STATES PATENT OFFICE.

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ROLLING-MILL.

980,186. Specification of Letters Patent. Patented Jan. 3, 1911.

Application filed May 13, 1910. Serial No. 561,194.

To all whom it may concern:

Be it known that I, FLORENCE C. BIGGERT, Jr., a resident of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Rolling-Mills, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is an end view partly in vertical section and partly broken away of a rolling mill embodying my invention; Figs. 2 and 3 are detail views partly in end elevation and partly in vertical section showing a portion of the mill with the parts in different positions; and Fig. 4 is a perspective view of one of the supplemental liners.

My invention has relation to rolling mills, and more particularly to means for properly supporting and guiding the upper vertically adjustable roll. In some forms of mills, particularly those mills in which the end rolls of the roll tables are journaled within the housings of the mill, there are difficulties in the way of extending the usual liners of the housing windows down sufficiently far to properly guide the movable upper roll. My invention provides means of novel and simple character for overcoming this difficulty and also for facilitating the removal and insertion of the rolls from the housings in changing the rolls of the mill.

The nature of my invention will be best understood by reference to the drawings, in which I have shown the preferred embodiment thereof and which will now be described, it being premised, however, that various changes may be made without departing from the spirit and scope of my invention, as defined in the appended claims.

In the drawings, the numeral 2 designates the housings of the mill, 3 the upper vertically adjustable roll, and 4 the lower roll. The upper roll is supported and journaled at its ends in carriers, provided with suitable bearings 5, and divided into upper and lower sections 6 and 7, there being a slight clearance between the upper and lower sections, as shown in Figs. 1 and 2.

8 designates the usual liners for the housing windows, and 9 are supplemental liners which are interposed laterally between the liners 8 and the roll carriers. These supplemental liners have hooked portions 10 at their upper ends which engage the usual balancing beams 11 and also have hooked portions 12, at their lower ends which have a supporting engagement with a lug or projection on the lower section 7 of the roll carrier. The supplemental liners 12 may also be formed with projections 12^a, (see Fig. 4) which engage recesses in the roll carrier 7 (as indicated in dotted lines in Fig. 2) to prevent endwise movement of said section. Each supplemental liner also has an inward projection 13, which normally projects into the clearance space between the upper and lower sections 6 and 7, and which is arranged upon upward movement of the liners to have a lifting engagement with the upper section 6.

The liners 9 may be provided with suitable means to facilitate their handling, such as the threaded hole 9^a, shown in the upper end thereof, in Fig. 4, which is designed to be engaged by a screw eye.

14 designates the usual holding-down screw for the upper roll, and 15 a power cylinder of any well known or suitable character for balancing the top roll, and which has its piston connected with the balancing beams 11, by means of the hangers 16.

The supplemental liners permit the upper roll to be moved down, so far as may be necessary, since they may be extended downwardly to any desired distance while the distance to which the regular liners can be carried down is limited by the construction of the mill.

In removing the upper roll from the housing, power is shut off from the cylinder 15, thereby allowing the balancing beams 11 to fall, and permitting the supplemental liners and the lower sections 7 to move downwardly to the position shown in Fig. 2. In this position, the lower sections 7 can be readily removed. Power is then again admitted to the cylinder, and the screw 14 is actuated to raise the balancing beams, the supplemental liners, and the upper carrier sections 6 entirely away from the rolls and into the position shown in Fig. 3, the lugs 13 of the supplemental liners exerting a lifting action on the upper carrier sections 6. The roll can now be readily removed in the usual manner.

The advantages of my invention will be apparent to those skilled in the art, since it provides a simple and efficient guide and

support for the upper adjustable roll and also greatly facilitates the removal of the roll in the manner described.

I claim:

1. In a rolling mill, the combination with a vertically adjustable upper roll and means for adjusting the same, of a divided carrier for said roll, and supplemental liners engaging and supporting the lower section of the carrier and having means for exerting a lifting action on the upper section of the carrier, substantially as described.

2. In a rolling mill, the combination with a vertically adjustable upper roll, means for adjusting the same and balancing beams, of a divided carrier for the roll, and supplemental liners having a supporting engagement with the balancing beams and also having a supporting engagement with the lower section of the divided carrier, said liners also having means for exerting a lifting action on the upper section of the divided carrier, substantially as described.

3. In a rolling mill, the combination with a roll housing having the usual liners, a vertically movable roll, adjusting means therefor and balancing beams, of a divided roll carrier, supplemental liner members interposed between the roll carrier and the usual liners of the roll housing windows, said supplemental liners being supported from the balancing beams and having a normal supporting engagement with the lower section of the roll carrier and also having means for exerting a lifting action on the upper section of the roll carrier, substantially as described.

4. In a rolling mill, the combination with a vertically movable roll having divided carriers, of depending supporting members having a normal supporting engagement with the lower sections of the divided carriers, and means whereby said members may be disengaged from said lower sections and caused to exert a lifting action on the upper carrier section, substantially as described.

In testimony whereof, I have hereunto set my hand.

FLORENCE C. BIGGERT, JR.

Witnesses:
H. M. CORWIN,
GEO. H. PARMELEE.