

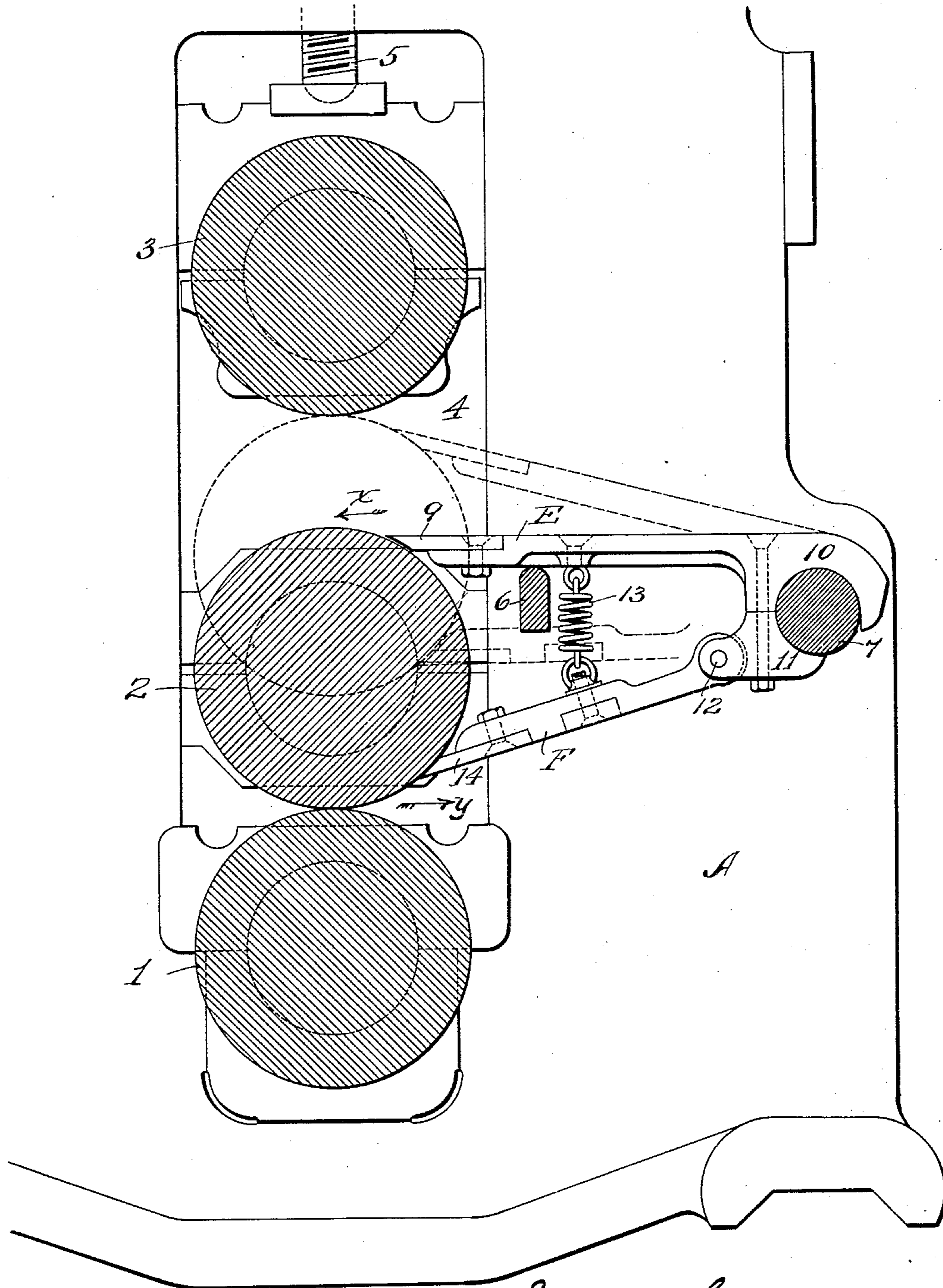
No. 685,760.

Patented Nov. 5, 1901.

S. M. GUSS.
ROLLING MILL GUIDE.

(Application filed Aug. 20, 1901.)

(No Model.)



Witnesses
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UNITED STATES PATENT OFFICE.

SAMUEL M. GUSS, OF READING, PENNSYLVANIA.

ROLLING-MILL GUIDE.

SPECIFICATION forming part of Letters Patent No. 685,760, dated November 5, 1901.

Application filed August 20, 1901. Serial No. 72,635. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL M. GUSS, a citizen of the United States of America, and a resident of Reading, in the county of Berks and State of Pennsylvania, have invented certain new and useful Improvements in Rolling-Mill Guides, of which the following is a specification.

My invention relates particularly to three-high rolling-mills in which the middle roll is raised or lowered into contact with the upper or lower roll for lower or upper passes, respectively. It is customary in this class of mills to provide a guide-plate for the ingoing slab or bar on the upper pass which is movable with the middle roll.

The object of my invention is to provide in connection with this true or ingoing guide a false or outgoing guide such as has heretofore been employed to positively prevent any curling around the roll and to so arrange the combined guides that both will automatically adjust themselves to different working positions of the movable roll.

The invention is fully described in connection with the accompanying drawing, and the novel features are particularly pointed out in the claims.

The drawing is a cross-sectional elevation of a portion of a three-high rolling-mill having my invention applied thereto.

A represents the usual housings, between two of which the horizontal rolls 1, 2, and 3 are mounted in suitable boxes or bearings fitted to the window 4 of the housings. These boxes or bearings for the lower roll 1 are indicated in fixed position, while those for the middle and top rolls are slidable vertically, their position being controlled by the usual top regulating-screws 5 and the counterbalance mechanism for the rolls, as commonly provided. These features of the usual mill construction are the only ones necessary to the proper showing and description of my present invention, which, as stated, consists in the improved guide mechanism shown in connection therewith.

E represents the main or true guide, upon which the slab or bloom rests, as usual, while being moved into the horizontal rolls. When the middle roll is in lowered position, as indicated in full lines, the top surface of this

guide-plate is substantially horizontal and may rest upon a fixed support 6, adapted to support it without resting upon the middle roll. This guide E, as shown, is pivotally supported at its outer end upon a rest-bar 7, fixed between the housings parallel with the rolls, and is preferably made up, as usual, of a series of easily-handled independent sections arranged side by side. The inner ends of these sections, which contact with the roll, may be provided with removable wear-plates 9, and the outer pivoting ends 10 are preferably formed with a separable portion 11, bolted thereto, so as to rotatably engage the fixed rest-bar 7, yet permit the ready removal of any particular section. In connection with this true guide E for the ingoing slab or bar I provide a lower false guide F for the outgoing slab or bar between the middle and bottom rolls, the direction of the ingoing pass being indicated by the arrow x and of the outgoing pass by the arrow y . This false guide, as shown, may also be formed in sections and is pivoted at 12 to the separable end portion 11, already referred to, and is carried from the true guide E by a yielding connection comprising two or more coil-springs 13, attached at their opposite ends to the upper and lower guides, respectively, and adjusted in tension so as to slightly overbalance the weight of the lower or false guide and constantly hold the inner end 14 of the latter in contact with the movable roll in different positions of the latter. The full lines in the drawing indicate the lowered position of this movable middle roll, it being shown in contact with the relatively-fixed lower roll, and the raised position of the upper roll, regulated by the top adjusting-screws. In this position the upper or true guide E is in substantially horizontal position, as previously stated, suitable for a pass in the direction of the arrow x . A similar guide (not shown) may be provided on the opposite side of the rolls to serve as a false or safety guide for this pass, after which the middle roll is raised against the adjusted top roll—as indicated, for instance, by the dotted circle—for a lower pass in the direction of the arrow y . This upward movement of the middle roll raises the guide E to the position indicated in dotted lines, and the lower or false guide F is carried upward with

it, the springs 13 retaining its inner edge 14 in contact with the surface of the roll, so as to always be in position to prevent upward curling of the slab or bar on its return pass 5 y. The rest-bar 7 is located at a height corresponding with the center of the movable roll when in its middle or half-raised position, so that the guides E and F may most easily adapt themselves as permitted by the springs 10 13 to all possible positions of said roll, the extreme positions of the said guides being indicated by the full and dotted lines, respectively.

It is obvious that the lower guide F might 15 be pivoted directly upon the rest-bar 7, as is the guide E, instead of being pivoted at a point 12, as in the preferred construction, and that the latter may be otherwise considerably modified without departing from the spirit of 20 my invention. It is of course also applicable to a mill operating reversibly, whether two or three high.

What I claim is—

1. In a rolling-mill the combination with

the movable roll, of combined true and false 25 guide-plates for the latter movable therewith and adapted to adjust themselves to the different working positions of said roll substantially as set forth.

2. In a rolling-mill the combination with 30 the movable roll of a true guide-plate for said roll pivotally supported upon a fixed bearing, and a lower or false guide-plate adjustably carried by said true guide-plate substantially as set forth.

3. In a rolling-mill the combination with 35 the movable roll of a true guide-plate for said roll pivotally supported upon a fixed bearing, and a pivoted lower or safety guide-plate having an intermediate yielding or spring con- 40 nection with said true guide-plate substantially as set forth.

Signed by me at Reading, Pennsylvania,
this 12th day of August, 1901.

SAMUEL M. GUSS.

Witnesses:

W. G. STEWART,
D. M. STEWART.