No. 774,035. PATENTED NOV. 1, 1904.

W. BUNTON.

GUIDE FOR ROLLING MILLS.

APPLICATION FILED MAR. 17, 1903.

NO MODEL. 3 SHEETS—SHEET 1.

Fig. 1.

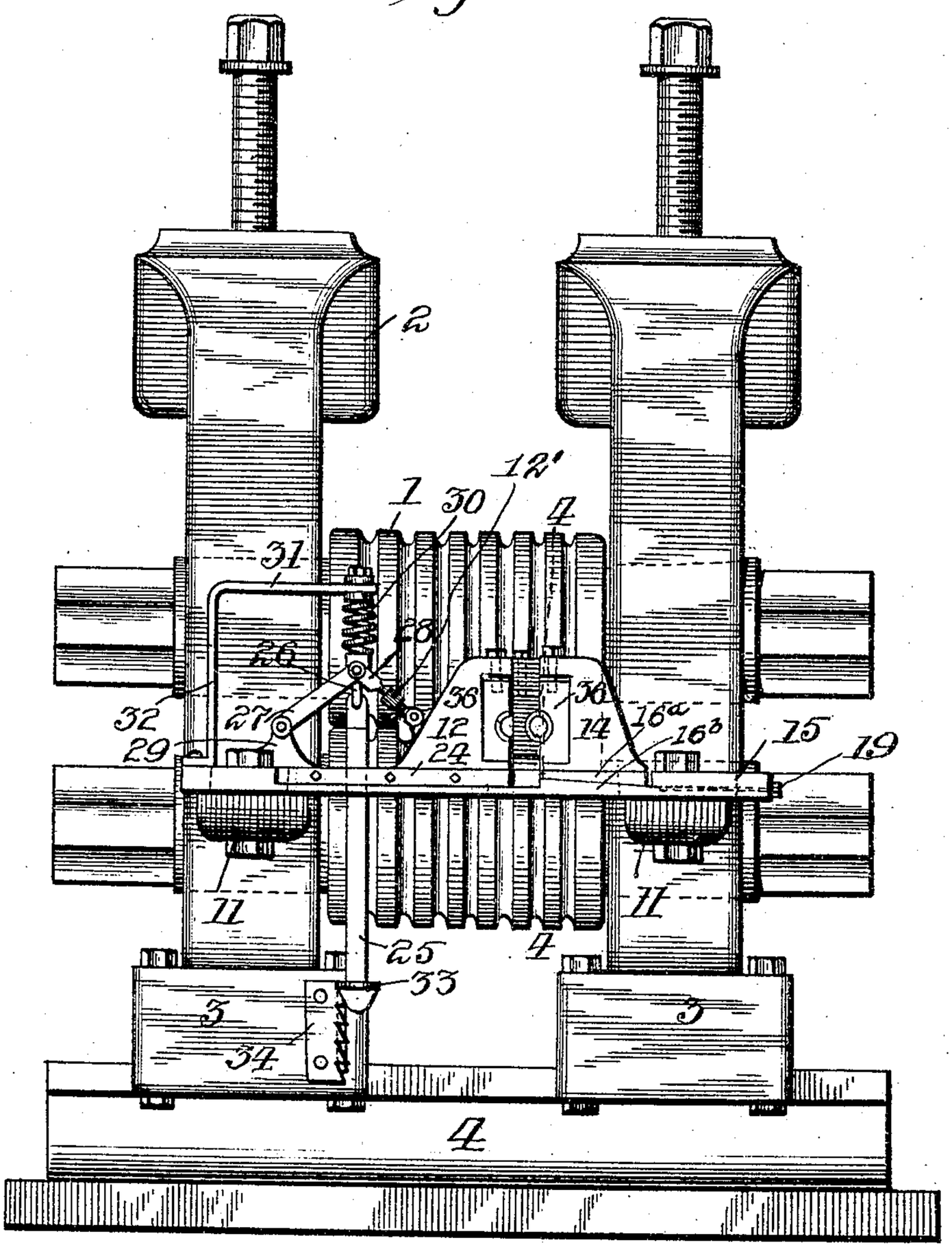
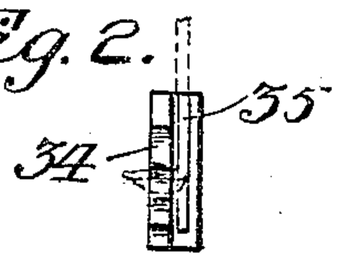


Fig. 2.



Witnesses,
E. H. Butler,
C. C. Potter

By H. C. Everett & Co.
Attorneys.

Inventor:
William Bunton

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NO MODEL. 3 SHEETS—SHEET 2.

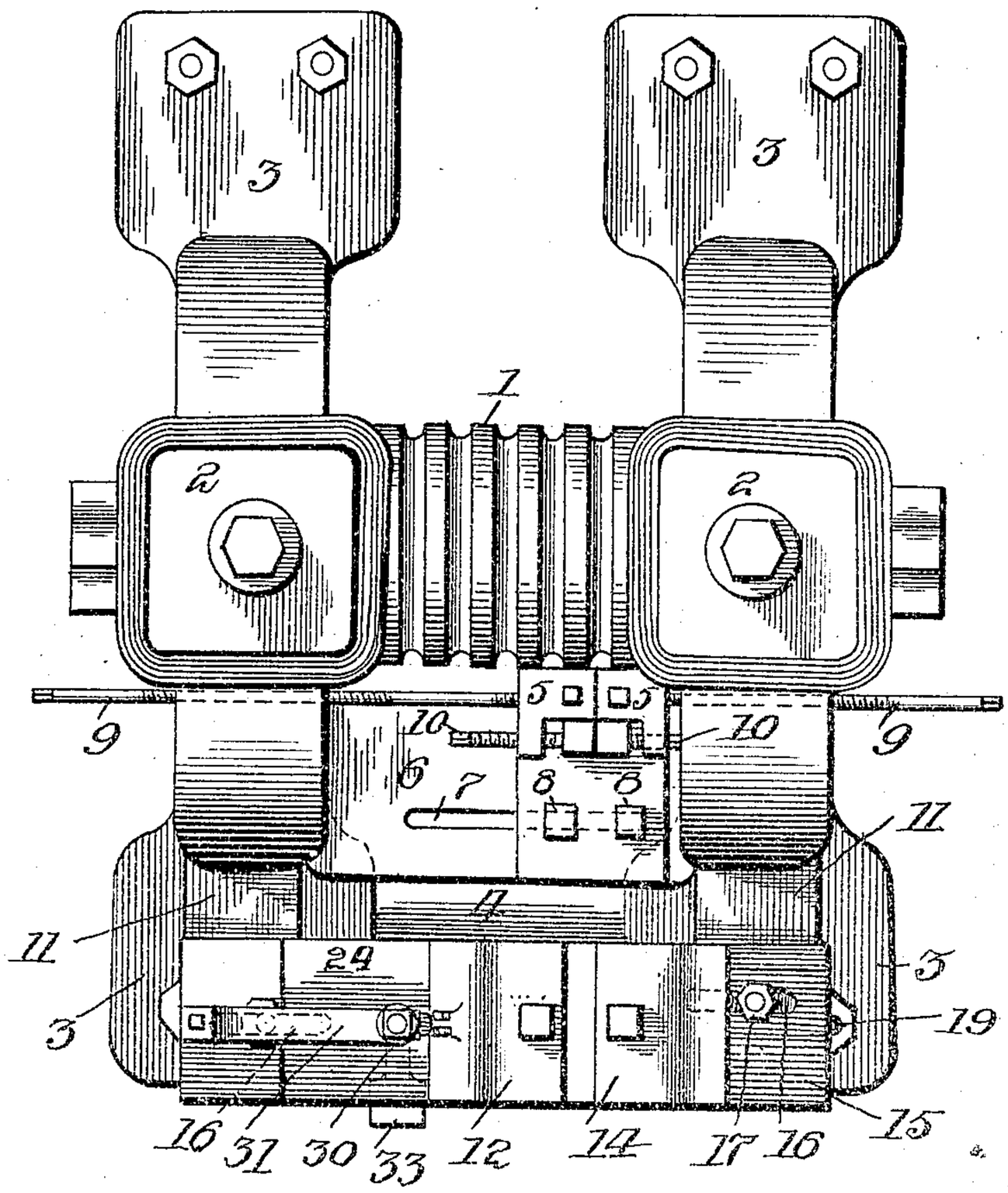

Fig. 3.

Witnesses:
L. L. Bunton
C. E. Potter

Inventor:
William Bunton,
By A. C. Evarts & Co.
Attorneys.

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W. BUNTON.

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NO MODEL. 3 SHEETS—SHEET 3.

Fig. 5.

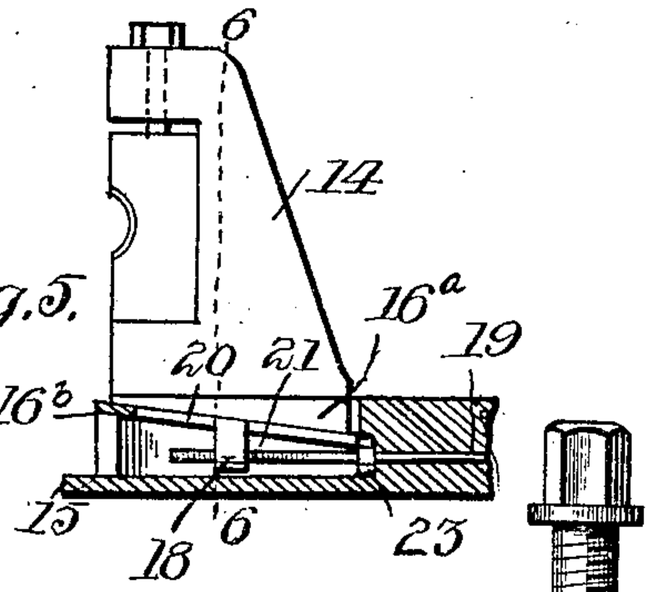


Fig. 6.

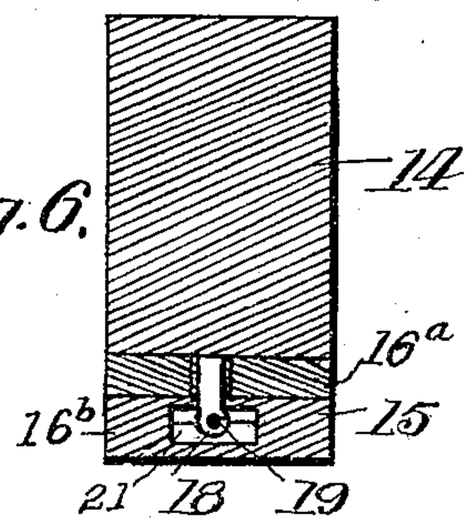
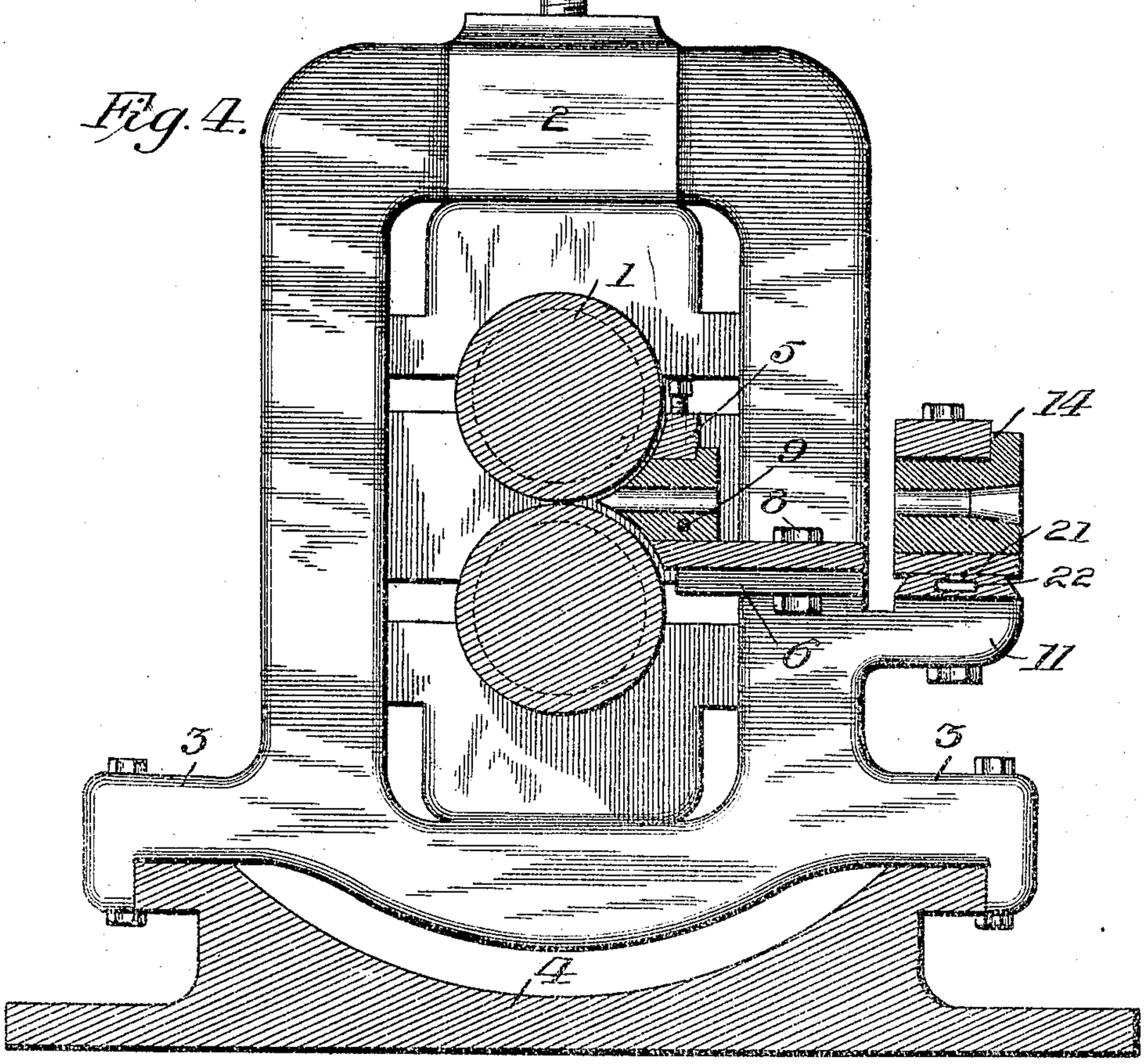


Fig. 4.



Witnesses:
H. H. Bunton
C. E. Potter.

Inventor:
William Bunton,
By H. C. Evert & Co.
Attorneys.

No. 774,035. Patented November 1, 1904.

UNITED STATES PATENT OFFICE.

WILLIAM BUNTON, OF MUNHALL, PENNSYLVANIA.

GUIDE FOR ROLLING-MILLS.

SPECIFICATION forming part of Letters Patent No. 774,035, dated November 1, 1904.

Application filed March 17, 1903. Serial No. 148,206. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM BUNTON, a citizen of the United States of America, residing at Munhall, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Guides for Rolling-Mills, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in guides for rolling-mills, and is particularly adapted to that class of mills known in the art as "merchant mills," employed for the purpose of rolling "rounds" or the like; and the primary object of my invention is to provide auxiliary or supplemental guides in addition to those now employed generally for the proper guidance of the piece into the pass between the rolls. With the single pair of guides now generally employed for this purpose it is necessary that these guides be adjusted exactly to the size to fit the piece, and consequently if a piece of uneven size is to be passed through the rolls it requires considerable exertion to force the same into the guides between the rolls and into the pass and perhaps the slackening of the guides to permit the entry of the piece, which guides must of course be again immediately tightened before allowing the piece to proceed through the pass in order to hold the piece true in the pass. With my invention this difficulty is obviated, as the piece to be rolled is first inserted into the auxiliary or supplement guides and guided into entry with the ordinary guides situated adjacent the passes between the rolls, the auxiliary or supplemental guides standing open in position to permit the ready insertion of the piece into the same and being quickly closed by mechanism so placed as to be in position for easy and rapid operation by the roller or other operator.

My invention will be hereinafter more specifically described and then particularly pointed out in the appended claims, and in describing the invention in detail reference will be had to the accompanying drawings, forming a part of this application, wherein like numerals of reference will be employed for designating like parts throughout the different views, in which—

Figure 1 is a front elevation of a rolling-mill with my improved guides attached thereto, showing the same in the open position. Fig. 2 is a detached plan view of the rack for holding the movable auxiliary or supplemental guide in the closed position. Fig. 3 is a top plan view of the mill with the guides in position. Fig. 4 is a transverse vertical sectional view on the line 4 4 of Fig. 1. Fig. 5 is a side elevation of one of the auxiliary or supplemental guide members, partly in section. Fig. 6 is a transverse sectional view taken on the line 6 6 of Fig. 5.

In the drawings employed for illustrating my invention the rolls 1, the housings 2, pillow-blocks 3, and supporting-piece or base-plate 4 are of the ordinary construction and are shown merely for the purpose of clearly illustrating the invention. As in the present practice of rolling I employ the guides 5, situated closely adjacent to the passes between the rolls, these guides being adjustably mounted on the plate 6, provided with a slot 7, in which the bolts 8 may be adjusted, whereby to move the guides 5 to different positions on the plate 6 to aline with different passes of the rolls, the jaws 5 being also adjustable by adjusting-screws 9 9 10 10, as is now generally employed. In addition to these guides placed adjacent to the passes I employ a set of auxiliary or supplemental guides, which are adjustably mounted on the outwardly-extending brackets 11, secured to the housings. These guides, like the guides placed adjacent to the rolls, embody two members, one of which has lateral movement in order to permit the opening of the guides, if desired, to insert the piece therein.

The auxiliary or supplemental guides 12 14 are supported upon a plate 15, adjustably mounted on the brackets 11, which is accomplished by providing the plate 15 with oblong slots 16, through which and through the brackets 11 are passed bolts 17. This manner of mounting the plate 15 permits the adjustment of the plate longitudinally, whereby to bring the opening or pass between the guides 12 14 in alinement with a desired pass of the rolls.

The upper face of the plate 15 is cut away, and the guide member 12 is carried on a slide member or plate 24, which is mounted in the cut-away portion of the plate to be moved therein. The guide member 14 carries a depending lug 18, which rides, when the guide member 14 is shifted, in a slot 20, provided in the wedge member 16^b of the plate 15 and in a recess 21 in the said wedge member 16^b. The wedge member 16^b is carried on the plate 15, and the lower face of the base 16^a of the guide member 14 is inclined reversely to the upper face of the wedge member 16^b, so as to fit thereon, as seen in Figs. 1 and 5. The lug 18 has a threaded opening near its lower end into which engages the threaded portion of an adjusting-screw 19, inserted through one end of the plate 15. In order to cause the screw 19 to move the guide member in or out, according to the direction of rotation of the screw, and consequently slightly elevate or lower the guide member 14 as it is shifted, I provide on this screw 19 a nut 23, which works, when the screw is rotated, in a recess provided therefor in the plate 15. (See Fig. 5.)

The slide member 24, as stated, carries the guide member 12, and this slide member 24 and the plate 15 are slotted to permit the passage therethrough of the treadle-lever 25, pivotally connected at its upper end to the eye 26, carried by the pivot-pin of the toggle-levers 27 and 28, respectively. The toggle-lever 28 is pivotally connected to the guide member 12, while the toggle-lever 27 is pivotally connected to the lug 29, carried by the plate 15. These toggle-levers have connected thereto one end of the stiff coil-spring 30, the other end of which is attached to the horizontal arm 31 of an angular-shaped bracket, the vertical arm 32 of which is affixed to the plate 15 at one end thereof.

To provide for a greater or less pressure by the guide 12, I provide a turnbuckle 12′ on the toggle-lever 28, whereby the lever may be lengthened or shortened. This turnbuckle 12′ allows lateral adjustment of the guide 12 to receive a larger or smaller piece between the guides.

The treadle-lever 25 carries a treadle-plate 33 on its lower end, and affixed to one of the pillow-blocks 3 is a rack 34, a spring 35 being placed back of the said rack to lie normally in engagement with the edge of the treadle-lever plate 33, this spring, however, being of considerably less tension than the spring 30.

The guide member 12 is forced toward the guide member 14 by down pressure on the treadle-plate 33, thus pulling down on the upper ends of the toggle-levers and causing the same to force the guide member 12 toward the guide member 14. The guide members are held in this closed position by engaging the plate 33 in one of the notches or teeth of the rack 34, and as soon as the piece of material passing through the auxiliary or supplemental guides has cleared the same the guide member 12, it being held by the toggle-lever 28, will have the tendency to further close, which will permit the spring 35 to force the treadle-plate 33 out of engagement with the rack 34, due to the upward pull on the treadle-lever 25 being relieved by the clearance of the piece from the guides, and as the spring 35 disengages the treadle from the rack the spring 30 returns the treadle-lever to the elevated position, retracting the guide member 12, so as to open the guides for the insertion of another piece.

Each guide member is provided with grooved clamping-jaws 36, adjustably secured therein, whereby they may be readily renewed when worn. By the employment of these auxiliary or supplemental guides the piece is readily grasped and held for easy insertion into the guides 5, giving the operator considerably more control over the piece and enabling him to insure the proper insertion of the piece into the pass between the rolls. Should the piece encountered be of uneven size, it will be observed that the employment of the auxiliary or supplemental guides will enable the operator to bring the piece into alinement with the guides 5 and hold the same in such a manner that it may be more readily forced through guides 5 into the path of the rolls. In the present showing of my invention as illustrated in Figs. 1 and 3 the supplemental or auxiliary guides are shown as adjustable only to a limited number of the passes between the rolls, which ordinarily is sufficient; but it is apparent that when it is desired to have a range of adjustment that will permit of the said supplemental or auxiliary guides being employed with any or all of the various passes between the rolls the plate 15 will be made long enough to permit of the lengthening of slots 16 therein to permit of the desired adjustment.

I may in practice dispense with the feature of elevating the supplemental guide 14; but I prefer to have this slight elevating of the one guide, as by this means I am enabled to grip the piece and hold same firmly without requiring the "binding" of the supplemental or auxiliary guides on the piece. The elevation of this guide 14 is intended to be but very slight, as it requires but a small movement to accomplish the result set forth.

It will be noted that I may employ a much shorter guide than the one illustrated in my drawings, said guide 5 being aided by my improved guide in receiving the piece to be rolled or formed.

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

1. The combination with the housings, the rolls and the guides supported from the housings adjacent to the passes between the rolls,

of brackets carried by the housings, a plate adjustably supported on said brackets, auxiliary or supplemental guides adjustably supported on said plate, and means for opening or closing said auxiliary or supplemental guides, substantially as described.

2. In combination with the housings, rolls therein and the guides supported from the housings in front of the roll-passes, of independently-adjustable auxiliary or supplemental guides supported from the housings in front of the first-mentioned guides, and means including spring-retracting toggle-levers and a treadle for actuating one of the auxiliary or supplemental guides to open and close the same, substantially as described.

3. The combination with the housings of a rolling-mill, of brackets carried by said housings, a supporting-plate adjustably mounted on said brackets, auxiliary or supplemental guides adjustably supported on said plate, one of said guides being movable laterally on said plate, and means connected to said laterally-movable guide for operating the same, substantially as described.

4. The combination with the housings, the rolls, and the guides supported from the housings adjacent to the passes between the rolls, of brackets carried by the housings, a plate adjustably mounted on said brackets, supplemental guides slidably mounted on said plate, a screw for moving one of said guides, and an independent means for operating the other guide.

5. In combination with the housings, the rolls, and the guides supported from the housings adjacent to the passes between the rolls, an adjustably-mounted plate, supplemental guides mounted on said plate, a screw for operating one of said last-named guides, a toggle-lever operatively connected with the other guide, and a spring-retracted treadle-lever extending through said plate and being connected with said toggle-lever, substantially as and for the purpose specified.

In testimony whereof I affix my signature in the presence of two witnesses.

WILLIAM BUNTON.

Witnesses:
A. M. WILSON,
E. E. POTTER.