

(No Model.)

2 Sheets—Sheet 1.

C. FORSTER & B. WEAVER.

MILL FOR ROLLING IRON.

No. 253,595.

Patented Feb. 14, 1882.

Fig 1

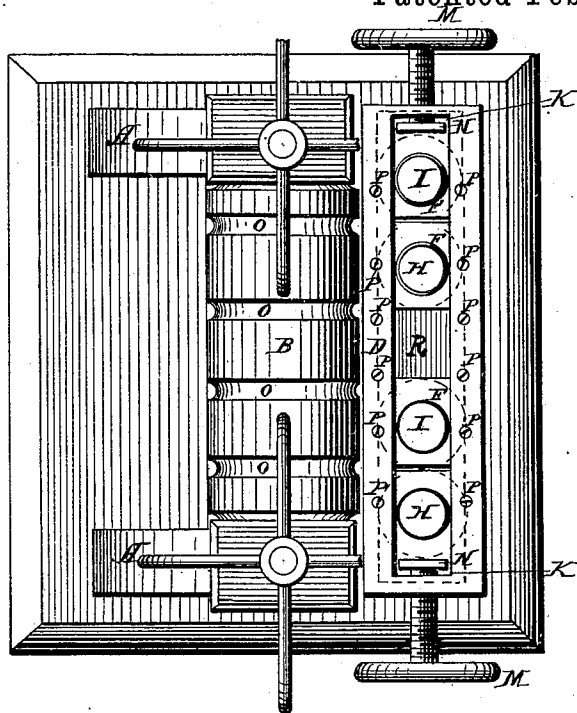
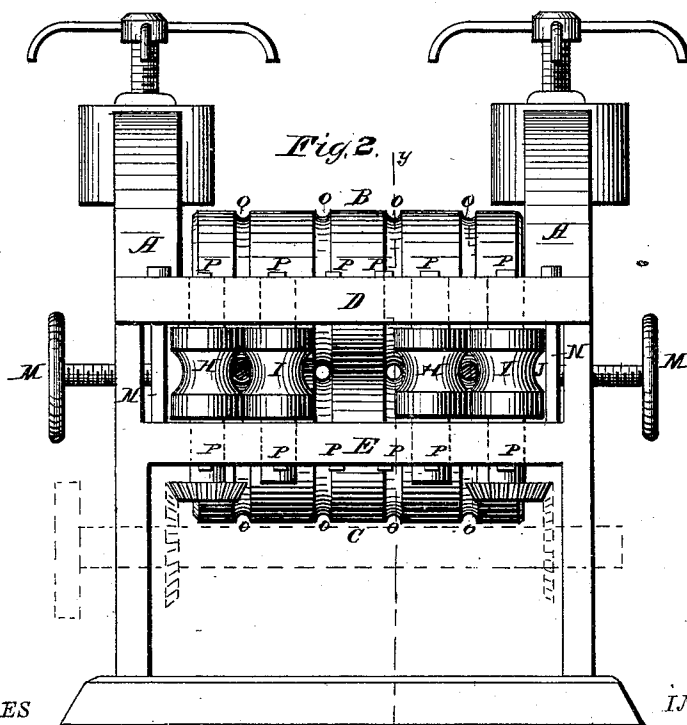


Fig 2



WITNESSES

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Fig. 4

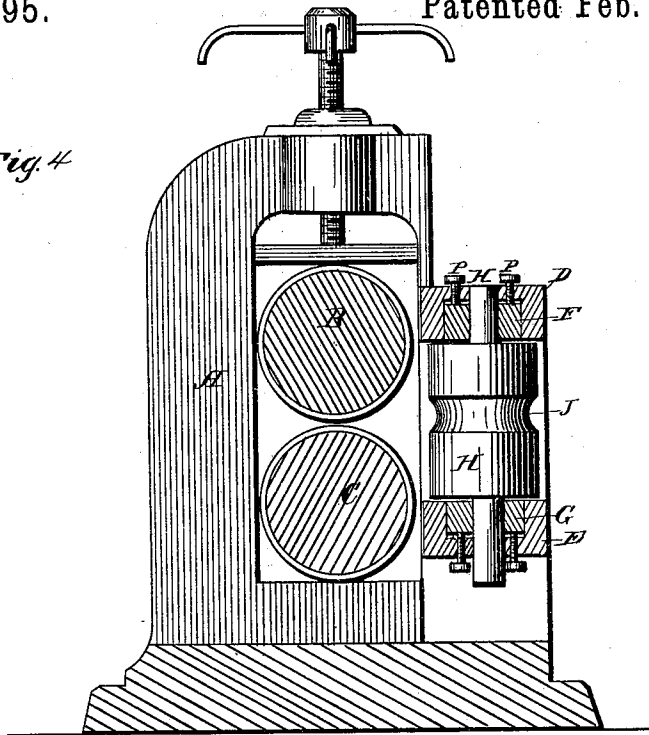


Fig. 5

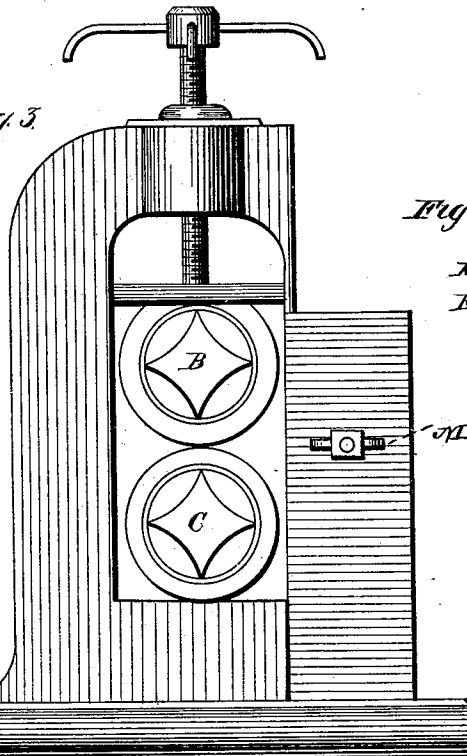


Fig. 6

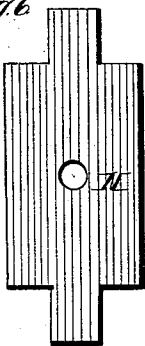
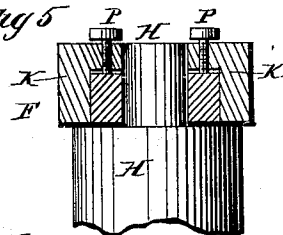


Fig. 7



WITNESSES

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UNITED STATES PATENT OFFICE.

CHARLES FORSTER, OF PITTSBURG, AND BENJAMIN WEAVER, OF ALLEGHENY, PENNSYLVANIA.

MILL FOR ROLLING IRON.

SPECIFICATION forming part of Letters Patent No. 253,595, dated February 14, 1882.

Application filed June 23, 1881. (No model.)

To all whom it may concern:

Be it known that we, CHARLES FORSTER, of Pittsburg, and BENJAMIN WEAVER, of Allegheny, in the county of Allegheny, State of Pennsylvania, have invented a new and useful Improvement in Mills for Rolling Iron; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Our invention relates to an improvement in mills for rolling iron; and it consists of revolving grooved guides susceptible of lateral and vertical adjustment with relation to the grooves in the rolls of said mill, as will hereinafter more fully appear.

To enable others skilled in the art with which our invention is most nearly connected to make and use it, we will proceed to describe its construction and operation.

In the accompanying drawings, which form part of our specification, Figure 1 is a top view or plan of our improvement in mills for rolling iron. Fig. 2 is a front elevation of the same. Fig. 3 is an end elevation of the same. Fig. 4 is a vertical section at line *y* of Fig. 2. Figs. 5 and 6 are detail views.

Reference being had to the accompanying drawings, A represents the housings for the rolls B and C, in front of which are supports D and E, in which are bearings F and G for the revolving guides H and I, having grooves J. The upper support, D, is susceptible of detachment, being held in place by means of screws, and each support having an opening, as indicated at K, in which fit the bearings F and G for the revolving guides H and I, which are adjusted laterally by screws M, which act against plates N, which press against the bearings F and G. By this arrangement of the screws M and plates N and the intermediate movable filling-blocks, R, the revolving guides H and I may be adjusted with relation to the several grooves O in the rolls B and C, thereby adapting the revolving guides to the different grooves in the rolls B and C. The screws and plates M N also prevent the separation of said guides or rolls when subjected to the resistance of the iron being operated on. The revolving guides are adjusted vertically through

the medium of screws P acting upon the bearings F and G, thereby avoiding the use of liners, as practiced in the adjustment of the ordinary fixed guides. The screws P also prevent lateral motion of the guides or rolls, and in adjusting them laterally the screws P must be slackened up until the proper adjustment is made. The revolving guides H and I may be rotated by the frictional action of the bar passing through said guides and between the rolls B and C. Said revolving guides may also be rotated through the medium of gear, as indicated by dotted lines in Fig. 2. Hence we do not confine our invention to the rotation of the revolving guides by frictional action.

The revolving guides, combined with finishing-rolls, as hereinbefore described, and represented in the accompanying drawings, will have the advantage of avoiding the friction and other disadvantages common to stationary fixed guides, and will have the advantage of one reduction of the iron in case said guides are geared to act as rolls, as herein mentioned, and will enable the roller to accomplish the rolling of the iron with great facility and more perfectly, at the same time enabling him with ease and dispatch to adjust the guides laterally or vertically with relation to the rolls B and C without stoppage of the mill, which is a consideration of great importance, as the finishing roller will not thereby interfere with the other workmen and their manipulation of the heated iron prior to its coming to him.

The cost of construction of the revolving guides F and G is much less than the cost of the ordinary stationary guides heretofore used, while the saving of time and the more perfect and efficient guiding of the iron to the finishing-rolls are secured.

We are aware that universal and similar mills, where vertical and edging rolls are driven by power and adapted to rolling heavy slabs and beams and other articles, are common and well known in the art of rolling; but such vertical rolls cannot be adjusted vertically or horizontally with relation to the grooves in the horizontal rolls. In our device the revolving guides can be adjusted with relation to different grooves in the horizontal rolls. This adjustment between the guides and that of the

rolls is a very important feature of our invention, for it is an essential thing that perfect harmony should exist between the passes of the guides and rolls; otherwise there will follow undue friction and a distorting action between the guides and rolls upon the iron while passing through and between them. To avoid this undue friction and distorting action when using the ordinary fixed guides is a thing of no easy accomplishment, and is always attended with much labor and loss of time, and requires skill of the highest order. Hence the importance of our improvement will without further description be apparent to the skillful guide or finishing roller.

It will be observed by our improvement of guides for a finishing-mill that the guide may be so constructed, so far as relates to the form of the grooves in them, that one pass of the iron between the rolls may be avoided. For example, the roller having the iron in the square form may reduce it by the guides to the oval form when viewed in cross-section,

and by the rolls B and C changed to the round and finished form. Other changes and modifications from this hint will readily suggest themselves to the skillful roller.

Having thus described our improvement, what we claim as of our invention is—

1. The combination, with a pair of horizontal rolls, of the pair of vertical grooved guide-rolls, supports D and E, adjustable bearings F and G, having adjusting-screws P, plates N, and screws M, substantially as herein described, and for the purpose set forth.

2. In a mill for rolling iron, the combination, with a pair of horizontal grooved rolls, of a pair of vertical revolving grooved guide-rolls, adjusting-screws M, plates N, and adjusting-screws P, substantially as and for the purpose specified.

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Witnesses:

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W. S. COLWELL.