C. H. PERKINS.

Guides for Rolling-Mills.

No. 144,632. Patented Nov. 18, 1873.

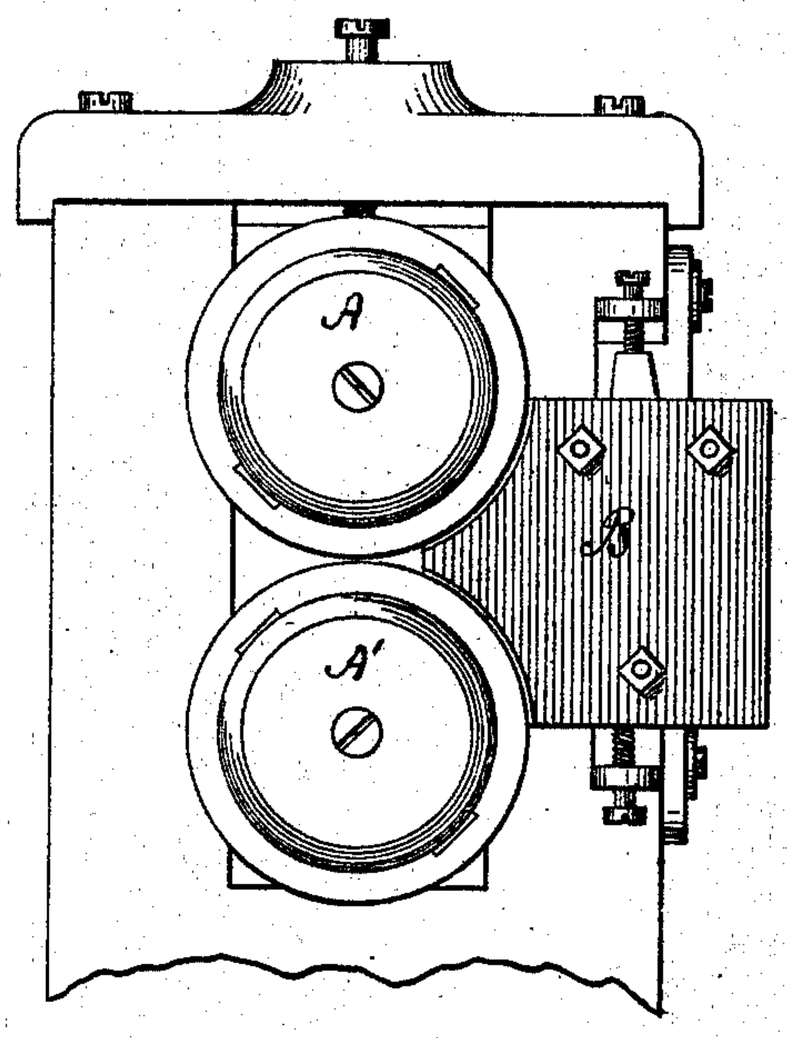

FIG. 1.

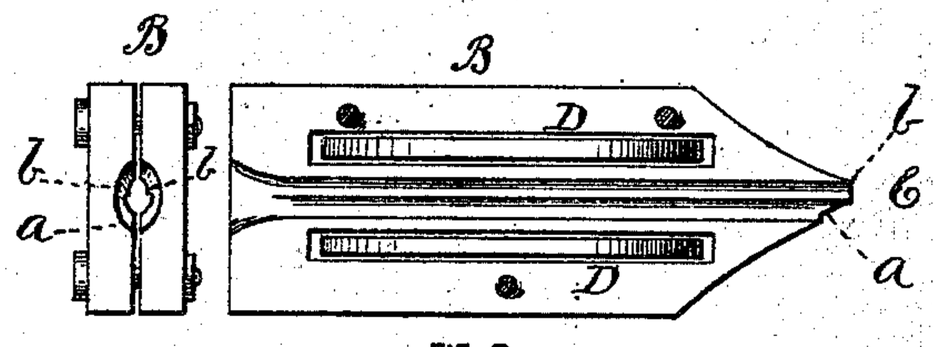

FIG. 2.

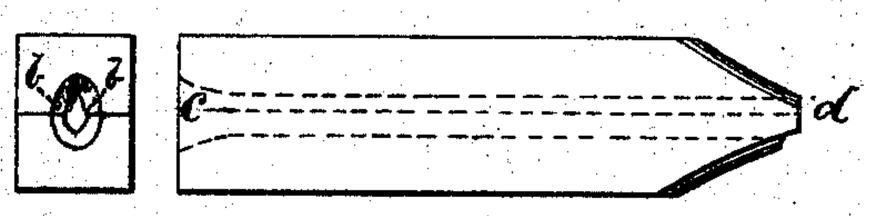

FIG. 3.

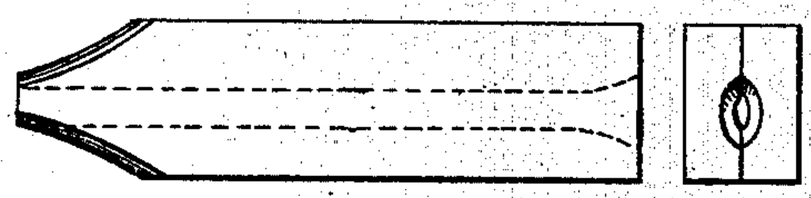

FIG. 4.

WITNESSES.

Samuel Ames

Thomas F. Coffgrave

INVENTOR.

Charles H Perkins

per B. F. Thurston

atty

UNITED STATES PATENT OFFICE.

CHARLES H. PERKINS, OF PROVIDENCE, RHODE ISLAND.

IMPROVEMENT IN GUIDES FOR ROLLING-MILLS.

Specification forming part of Letters Patent No. **144,632**, dated November 18, 1873; application filed June 24, 1873.

CASE A.

To all whom it may concern:

Be it known that I, CHARLES H. PERKINS, of the city and county of Providence, in the State of Rhode Island, have invented a new and useful Improvement in Rolling-Mills; and I do hereby declare that the following specification, taken in connection with the drawings making a part of the same, is a full, clear, and exact description thereof.

Figure 1 is a side elevation of a pair of rolls with a box-guide combined therewith. Fig. 2 is an interior face view of one of the halves of the improved box-guide, to which the present invention relates. It also exhibits a transverse sectional view of both parts of the guide. Fig. 3 exhibits, in side view and in section, a slight modification of my improved guide. Fig. 4 shows a side view, and also a sectional view, of the box-guide in common use.

The improvement hereinafter described is one division of an invention, other parts of which form the subject of another application for Letters Patent. It relates specially to the box-guides used in rolling merchantable bar-iron, and it is adapted for use with any description of rolling-mill, but is of especial value in those mills which employ a series of sets of rollers, combined by intermediate twisted guides, to turn the iron partially around its axis while passing from one set of rolls to the next. Examples of such rolling-mills are shown in the Letters Patent Nos. 128,422 and 128,748, granted to me June 25, 1872, and July 9, 1872, respectively.

Before my invention, box-guides for rolling-mills have been constructed substantially as shown at Fig. 4—that is to say, in such manner that the bar of iron to be rolled will fill the guide, and be sustained and held in position on all sides by the walls of the box. It is very necessary that the iron to be rolled should be held firmly in the proper position to be seized by the rolls, otherwise the rolling operation will be improperly performed. From the fact that the character of the guides heretofore used has been such as described, it very often happens that the bar will stick in the guide before its end is brought within the gripe of the rolls, and unless the operative can succeed in forcing it through the guide, and which he usually attempts to do by crooking the bar and striking it on the bend with his tongs, the bar must be withdrawn, and is fit only to be cut into scrap.

To furnish a guide which will enable the bar to be rolled to pass freely through it, while, at the same time, the bar will be held in proper relation to the rolls, is the object of my invention.

In the drawings, A A′ represent a pair of rolls for rolling iron bars mounted in proper housings, and which require no further description. B represents the guide-box, shown at Figs. 2 and 3, arranged in proper relation to the rolls. The said guide-box B is provided with a channel, C, through its longitudinal axis, Fig. 2, the figure of which, formed when the two halves of the guide-box are bolted together, will be as shown in the sectional view of Fig. 2. The superficial area of the cross-section of the channel or guide C, for the passage of the iron bar to be rolled, is considerably larger than the area of the cross-section of the bar; but such excess of area is occasioned by the fact that the lower section, *a*, of the guide is made larger than the corresponding section of the rod or bar to be rolled. The upper section, *b*, of the guide is of the proper form to sustain the rod in a position which will enable it to be correctly presented to the rolls, and its area is the same as the area of the corresponding section of the bar. Thus the guide-channel *a b* in the guide-box B is, as a whole, so much larger than the bar that the latter will pass freely through the former, reliance being had, for the correct presentation of the bar to the rolls, upon the walls *b*.

It will be observed that the dotted line *c d*, Fig. 3, indicates the horizontal plane connecting the base of the walls *b b*, and coincides with the center line of draft of the rolls, so that the bar is sure to be between the guiding-walls when it is seized by, and as it is passing through, the rolls.

A further improvement consists in the application of springs D D to the two halves of the box-guide B, shown at Fig. 2, the tendency of which is to cause the two parts of the guide to

separate when the clamp-bolts are slackened, whereby an adjustment of the guide to varying sizes of bars can be conveniently made.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A box-guide for a rolling-mill having an inwardly-projecting guiding-surface on each side thereof, both of which guiding-surfaces are practically in the same plane, and extend longitudinally therein, substantially as and for the purposes specified.

2. The combination, with the rolls A A′, of the box-guide B, which is provided with inwardly-projecting guiding-surfaces, substantially as and for the purposes specified.

3. In combination with the box-guide for rolling-mills the springs D D, substantially as described, for the purposes specified.

CHARLES H. PERKINS.

Witnesses:

THOMAS F. COSGROVE,

SAMUEL AMES.