

E. WASSELL.
Rolling Apparatus.

No. 48,496.

Patented June 27, 1865.

Fig. 3

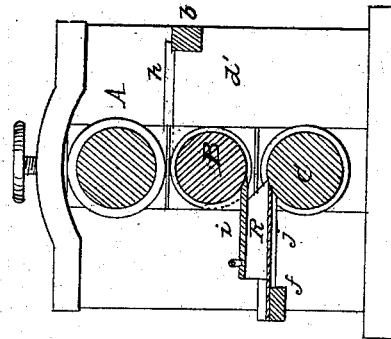


Fig. 2

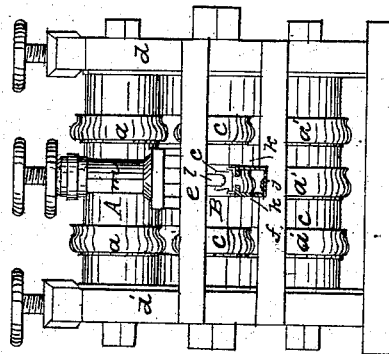
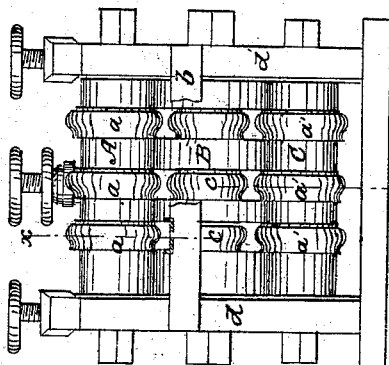


Fig. 1.



Witnesses
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EDWIN WASSELL, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO HIMSELF
AND ARCHIBALD McFARLAND, OF SAME PLACE.

IMPROVEMENT IN ROLLING APPARATUS.

Specification forming part of Letters Patent No. 48,496, dated June 27, 1865.

To all whom it may concern:

Be it known that I, EDWIN WASSELL, of the city of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Rolling-Mills; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a front elevation of a set of rolls for rolling railroad-iron constructed with my improvements. Fig. 2 is a rear elevation of the set of rolls shown in Fig. 1. Fig. 3 is a vertical section through *x x*, Fig. 1.

In the several figures like letters of reference denote similar parts.

My invention consists in certain improvements in what is known as "three-high rolls," in which three rolls set one above the other with their axes in the same vertical plane are used instead of a pair, the middle roll of the series serving as a lower roll to the top roll, and as an upper roll to the bottom roll, thus doing double duty.

My improvement consists in using a grooved roll for the middle roll of the series of three-high rolls with a tongue-roll above and below it instead of using two grooved rolls with a tongue-roll between them, as is the ordinary plan; also, in applying the guides for supporting and guiding the iron as it passes out from between the rolls to the center roll instead of the upper and lower rolls, and so placing the guides relatively to the rest-bars that the iron shall pass out over instead of under the rest-bars; also, in the use of guides so constructed as to serve not only as clearers to prevent the iron from remaining in the groove and winding round the roll, but also as a support to the bar as it passes from the rolls and as a guard on each side to keep it straight.

In the drawings, A, B, and C are a set of three-high rolls, A being the top roll, B the middle roll, and C the bottom roll. The top and bottom rolls are made with their operative surfaces projecting from the body of the roll, forming flanges *a a'*, which are so formed as to give the desired shape to the iron. The middle roll, B, has its operative surfaces sunk into the body of the roll so as to form grooves

c, which the flanges *a a'* of the top and bottom rolls, A and C, enter. The contour of the opposite faces of the rolls determines the shape of the article to be rolled, the rolls shown in the drawings being for rolling railroad-bars.

b is a rest-bar, extending horizontally from one housing, *d*, to the other, *d'*, in front of the rolls with its upper surface at about the level of the lower side of the passes between the upper and middle rolls.

e and *f* are rest-bars, extending horizontally in rear of the rolls, the upper rest-bar, *e*, being in front of the upper passes, and the lower rest-bar, *f*, in front of the lower passes.

It will be seen from the drawings, Figs. 1 and 2, (but more clearly in Fig. 1, where a part of the front rest-bar, *b*, is broken off to give a better view of the rolls,) that the top and bottom rolls, A and C, of the series are of the same diameter and construction, and that the operative faces *a* and *a'* (in the top and bottom rolls respectively) project beyond the plane surface of the rolls. The middle roll is grooved at *c c c*, the operative faces being below the plane surface of the roll B so that the flanges *a a a'* of the top roll and the flanges *a' a' a'* of the bottom roll both enter and work inside of the corresponding grooves *c c c* in the middle roll. As the sides of the flanges *a a'* must fit closely against the sides of the groove *c*, the flanges wear away very rapidly, so that it is found in practice that a grooved roll will last four or five times as long without dressing as its corresponding flanged roll. In order to take advantage of this fact, I place the grooved roll in the center, where it has to do double duty, and use one grooved roll and two flanged or tongue rolls instead of employing, as has been heretofore the practice, two grooved rolls and one flanged roll, because each groove has two flanges working constantly in it. The advantage of this arrangement is therefore obviously very great, as a series of three-high rolls thus arranged will run four times as long without requiring to be taken down to be dressed. This arrangement of the grooved roll in a set of three-high rolls has also the incidental advantage of enabling me to place the upper and lower guide-bars, *h* and *i*, more nearly at the same height, so that the upper guide-bars, *h*, are not so high up and the lower guide-bars, *i*,

are not so low down as when there are two grooved rolls used. This is a matter of great convenience to the workmen. The upper guide-bars, *h*, (see Fig. 1,) are peculiarly constructed, having an L-shaped section. The outer end of the guide-bars *h* rests on the upper rest-bar, *b*, and their inner extremity rests on the operative face of the grooved or middle roll, *B*. The L shape of these guide-bars forms a guard on each side of the railroad-bar as it passes from between the rolls, and the bar rests on and is supported by the guide-bars as it passes from the rolls. The ordinary mode of using guides is to pass the iron bar as it passes from between the rolls under the guides, so that the guides afford no support whatever to the bar; but by my plan of placing the grooved roll in the center of the series I am enabled to pass the iron bar over the guides, and thus prevent its bending and dropping down between the rest-bar *b* and the rolls.

The lower guide is made in the shape of a rectangular box, partly open at top, and is composed of three pieces, a bottom piece, *j*, and two side pieces, *k k*. The bottom piece is supported by the rest-bar *f* and the upper face of the lower roll, *C*, and the side pieces are supported by the stem *l* of the guide-holder *m*, which is a hollow cylinder containing a spiral spring, which presses up and sustains

the head of the stem *l*, thus affording a yielding support to the guides. This guide-holder forms the subject-matter of another patent, and need not therefore be more particularly described. The iron bar as it emerges from between the rolls passes through the guide-box just described, being supported by the bottom piece, *j*, and kept in place laterally by the side pieces, *k k*.

Having thus described my improvement in rolling-mills, what I claim as my invention, and desire to secure by Letters Patent, is—

1. The use, in a series of three-high rolls, of one grooved roll and two flanged or tongue rolls, the grooved roll being placed between the other two rolls, substantially as and for the purposes hereinbefore described.

2. The use of L-shaped guides, in combination with the grooved roll in the middle of a series of three-high rolls, for the purpose of giving the iron a bearing from the point to the heel of the guide as it passes from between the rolls, as well as for clearing it from the groove, substantially as hereinbefore described.

In testimony whereof I, the said EDWIN WASSELL, have hereunto set my hand.

EDWIN WASSELL.

Witnesses:

ALLAN C. BAKEWELL,
W. D. LEWIS.