

J. S. SEAMAN.

Rolls for Rounding and Straightening Rods.

No. 155,760.

Patented Oct. 6, 1874.

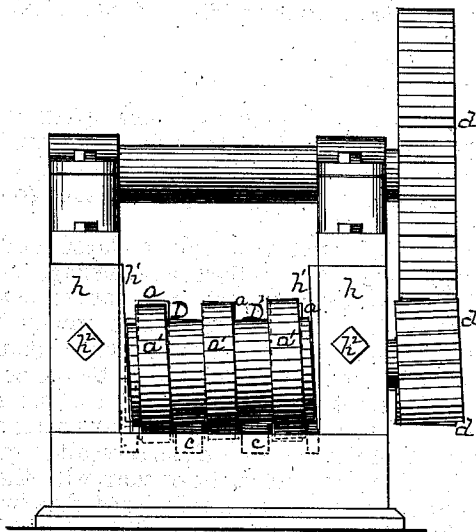


Fig. 1.

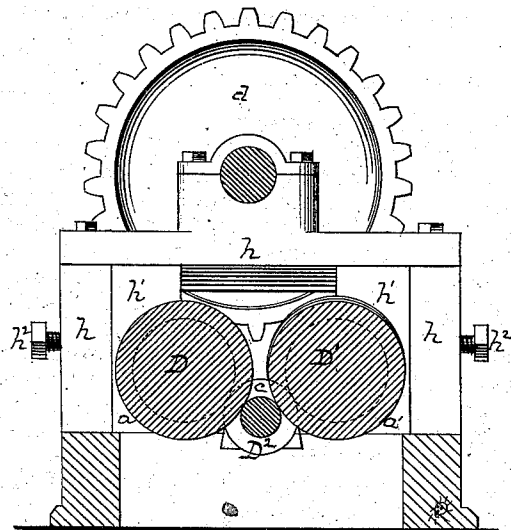


Fig. 3.

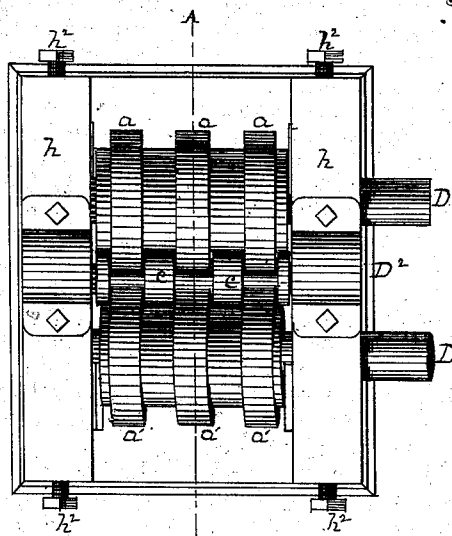


Fig. 2.

WITNESSES { Samuel McBlain  
S. Howard Sprague,

INVENTOR: Joseph S. Seaman,  
by George H. Christy,  
his Atty in fact.

# UNITED STATES PATENT OFFICE.

JOSEPH S. SEAMAN, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO HIMSELF,  
JAMES B. YOUNG, AND ROBERT SLEETH, OF SAME PLACE.

## IMPROVEMENT IN ROLLS FOR ROUNDING AND STRAIGHTENING RODS.

Specification forming part of Letters Patent No. **155,760**, dated October 6, 1874; application filed August 25, 1874.

*To all whom it may concern:*

Be it known that I, JOSEPH S. SEAMAN, of Pittsburg, Allegheny county, Pennsylvania, have invented a Machine for Rounding and Straightening Metallic Rods, Bars, or Tubes, of which the following is a specification:

My invention relates to machinery for rounding or straightening, or rounding and straightening, metallic rods, bars, or tubes, wherein such rods, bars, or tubes are fed forward and rotated by, between, and along the biting-faces of grooved or collared rolls, the construction of the same being substantially as hereinafter described, with reference, by letters, to the accompanying drawings making a part of this specification, in which—

Figure 1 shows a side elevation of my improved machine. Fig. 2 shows a top or plan view of the rolls and housings, and Fig. 3 shows a transverse vertical sectional elevation of the machine through the line A B of Fig. 2.

The housings *h h* are of any suitable construction, and are fitted up with the usual or other known appliances necessary in the operation of metal rolls—such as adjusting pressure and plunger blocks, *h' h'*, and set-screws *h<sup>2</sup>*. In these housings are mounted, side by side, the rolls *D D<sup>1</sup>*, which are driven by any suitable gearing, *d*. One of these main rolls, *D*, is arranged horizontally, or nearly so, and the other, *D<sup>1</sup>*, being adjusted or set at such distance therefrom as the diameter of the rod, bar, or tube to be operated on may require, is arranged with one end a little above, or the other a little below, or one above and the other below, the corresponding end or ends of the other roll, *D*. The amount of variation of the axes of the two rolls is such, or about such, as is adopted in cylindrical rolls for the same purpose—viz., securing a forward or feed motion in the bar, rod, or tube which is being operated on. But these rolls *D D<sup>1</sup>*, instead of being made cylindrical, as heretofore, are grooved or made with a series of projecting collars, *a a'*, and the faces of the collars then constitute the biting-surfaces. These collars *a a'* are opposite each other in the two rolls. The rest-roll *D<sup>2</sup>*, being arranged beneath and between the main rolls *D D<sup>1</sup>*, is also, by preference,

grooved or made with projecting collars *c*; but these collars *c* alternate with the collars *a a'*, so that the latter shall, when in use, play between the former, or opposite the grooves formed thereby.

This element—viz., rolls collared and inclined, and with collars alternating, as described—constitutes the first part of my improvement; and the advantage gained by it is, that the rod, bar, or tube, at the point or along the line where it is gripped by the collars *a a'*, does not engage the collars *c* of the rest-roll. The bite of the collars *c* alternate with the bite of the collars *a a'*, as a result of which I can do more perfect work than with the cylindrical or uncollared rolls heretofore in use.

In the use of cylindrical rolls, one of which is thrown slightly out of line with the other, it is obvious that the parallelism of contiguous surfaces is lost, and, hence, that the line of bite will be comparatively short.

To remedy this, and thereby secure a longer line of bite, I make the rolling surface or surfaces of the inclined roll *D<sup>1</sup>* (whether the same be grooved or not) slightly hollowing or dish-shaped in the direction of its length, the amount of such hollow or dish being such that the operative rolling-surfaces of the two main rolls will, when one roll is inclined at the proper angle, be parallel with each other.

As shown in the drawing, this, the second part of my improvement, is illustrated by the middle collar of the roll *D<sup>1</sup>* being slightly less in diameter than the end collars.

With such construction each pair of collars *a a'* on the two main rolls will take a bite on the rod, bar, or tube passing through, and by so much the more perfectly reduce it to a round, or straighten it, or both, at a single operation.

The rest-roll *D<sup>2</sup>* may be made of any desired size, with reference to the diameters of the main rolls *D D<sup>1</sup>*; and, if so preferred, the whole machine may be turned up, so that the main rolls shall be one above the other, instead of side by side; also, the collared main rolls *D D<sup>1</sup>* may be arranged as set forth, but in combination with a cylindrical rest-roll, *D<sup>2</sup>*, and such modification I include as a part of my invention.

What I claim herein, and desire to secure by Letters Patent, is—

1. A pair of grooved or collared rolls,  $D D^1$ , one inclined, in combination with a rest-roll,  $D^2$ , substantially as and for the purposes set forth.

2. In combination with the several rolls  $D D^1 D^2$ , the collars  $a a'$ , arranged opposite each other on the rounding and straightening rolls, and the collars  $c$  on the rest-roll, the collars last named being arranged opposite the grooves of the main rolls, substantially as described.

3. In a machine which rounds or straightens while the bar, rod, or tube operated on moves along in the direction of the length of the rolling-surfaces, a roll slightly hollowed or dish-shaped in the direction of its length as an element in the combination of two rolls and a rest, substantially as set forth.

JOSEPH S. SEAMAN.

Witnesses:

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