(No Model.)

J. T. ROWLEY.

ROLLING MILL FOR RODS.

No. 311,920. Patented Feb. 10, 1885.

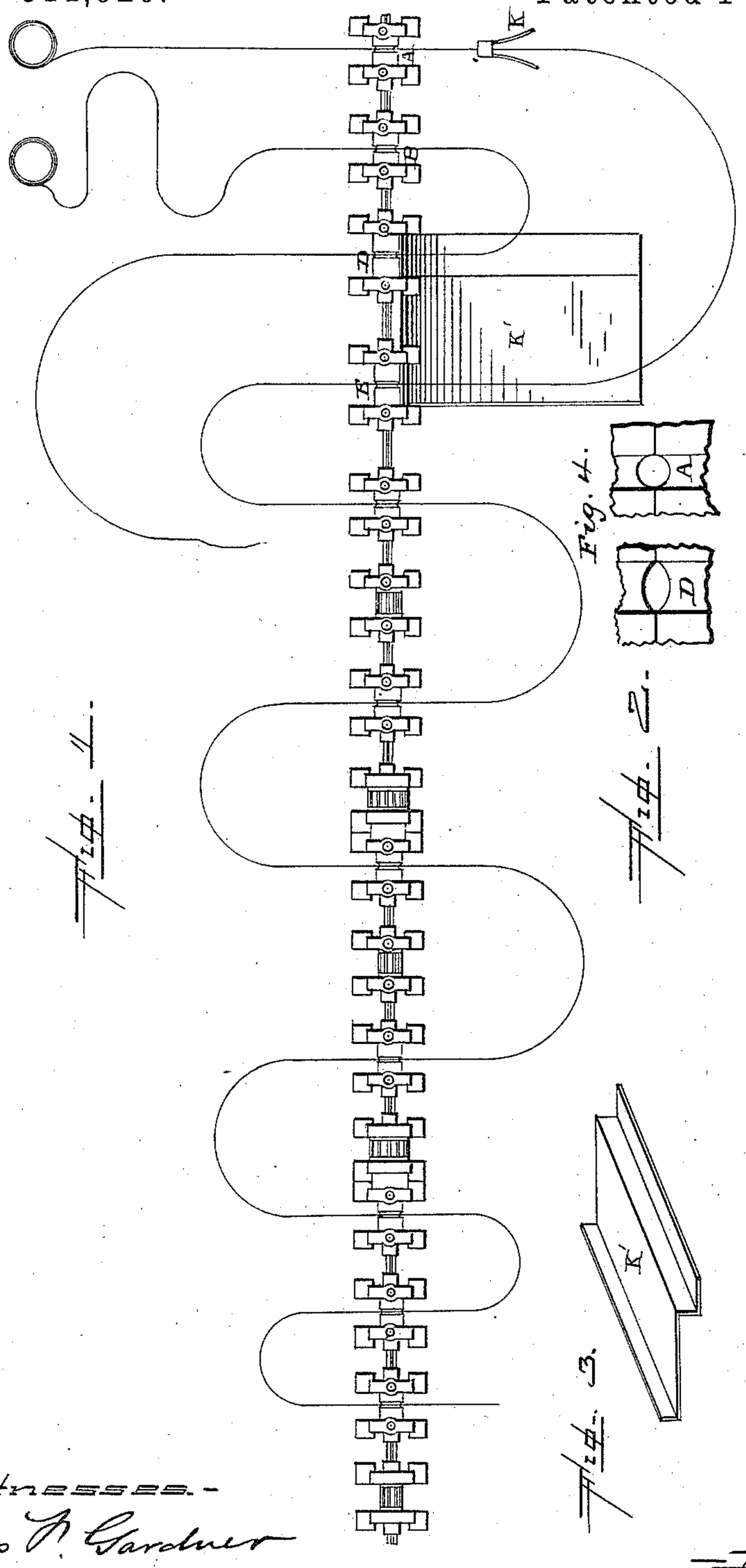

Fig. 1.

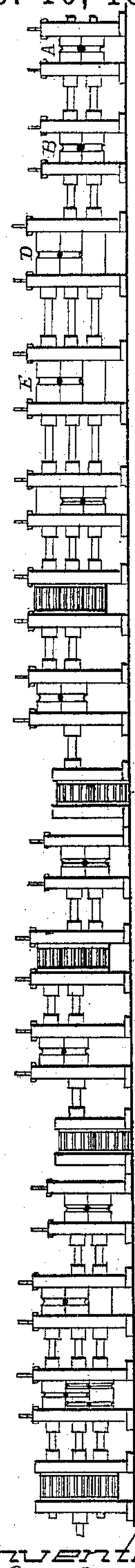

Fig. 2.

Fig. 4.

Fig. 3.

Witnesses.

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UNITED STATES PATENT OFFICE.

JOHN T. ROWLEY, OF JOHNSTOWN, PENNSYLVANIA.

ROLLING-MILL FOR RODS.

SPECIFICATION forming part of Letters Patent No. 311,920, dated February 10, 1885.

Application filed May 19, 1884. (No model.)

To all whom it may concern:

Be it known that I, JOHN T. ROWLEY, of Johnstown, in the county of Cambria and State of Pennsylvania, have invented certain new and useful Improvements in Mills for Rolling Steel or Iron Rods; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in mills for rolling steel or iron rods; and it consists in the combination of two pairs of finishing-rolls and two pairs of finishing-ovals, with the roughing-section, the finishing-rolls being made to run more slowly than the roughing-section, as will be more fully described hereinafter.

The object of my invention is to double the usual number of finishing-ovals and finishing-rolls heretofore used, and run them at a slower speed, at the same time that the speed upon the roughing-section is increased, whereby a greater amount and a better quality of work can be done than where but a single set of finishing-rolls and finishing-ovals are used.

Figure 1 is a plan view of a mill embodying my invention. Fig. 2 is a side elevation of the same. Fig. 3 is a detail of the conductor. Fig. 4 is an enlarged detail view, showing the difference between the finishing-oval and the finishing-roll.

A B represent two finishing-rolls, and D E two sets of finishing-ovals. The finishing-ovals D E are the two sets of rolls which give to the rod its last change of shape and reduction in size before reaching the finishing-rolls, and the finishing-rolls A B are those rolls which give to the rod its final finish and shape. These ovals and rolls are placed in a line with each other and the roughing-section, and are operated by suitable driving-wheels which are secured to their shafts.

Separate pinions may be used for the finishing-rolls, so as to give them a higher rate of speed than any other part of the mill.

No claim is made to the roughing-section of the mill, and hence no description is given of this part, for it is conceded to be old.

It will be seen that I employ two sets of finishing-ovals and two sets of finishing-rolls, in contradistinction to a single set of finishing-ovals and a single set of finishing-rolls.

Used in connection with the finishing-ovals is a guard or shield, K′, which is used for safety and protection to the finisher. Before the two ovals is placed an inclined conductor or pan, which does away with an extra "hooker," and which is not used as repeater or conductor from one groove to the other, but is used to prevent the rod from forming a tangle. This conductor K′, as shown in Fig. 3, has one portion lower than the other, so as to keep the rods which are being made entirely separate and distinct. This pan or conductor is here shown in connection with the finishing-ovals only, but may be used in connection with any of the rolls of the train. It is placed upon an incline, as shown, so as to guide the rod gradually out as it passes from the finishing-ovals.

In operating this mill I increase its product by decreasing the speed on the finishing-rolls and increasing the speed on the roughing-section, which will enable the mill to deliver more stock and at a greater heat than is possible by the present construction of rod-mills. If the finishing-rolls are set at a speed of four hundred revolutions per minute each, the two sets give a speed equal to eight hundred revolutions per minute, which will double the capacity of the ordinary rod-mill. In other rod-mills the speed is increased on the finishing-rolls to a much greater degree than in any other part of the train; but in contradistinction to this I propose to run the two sets of finishing-ovals and two sets of finishing-rolls slower, and use two sets of finishing-rolls instead of one, whereby I am able to produce a greater amount and a better finished quality of work than can be done by the ordinary construction, and with less wear and damage to the train. By the present construction of rod-mills it is necessary to run the reels at such a high rate of speed, to enable them to take up the finished rods from the floor, that the rod is damaged by knots and kinks at the reel, and which scar the rod badly. By having two sets of finishing-ovals and two sets of finishing-rolls, while one rod is being reeled from one set of finishing-rolls another rod is on the other roll. Where only one set of fin-

ishing-rolls is used, a great rate of speed is necessary, and it is necessary to wait until the rod has entirely left the roll before another can be entered, when considerable time is lost, to which is added a great risk of life and limb by the last end of the rod being drawn through so rapidly. Where two sets of finishing-ovals and two sets of finishing-rolls are used, there is no time lost, and a great saving of material is made, and less labor is required in the management of the rods. Where two sets of finishing-ovals and two sets of finishing-rolls are used, the rods can either be worked alternately, first on one roll and then on the other, or two rods can be worked at the same time. Either the same size rod can be made by both sets of finishing-ovals and both sets of finishing-rolls, or one size may be made upon one set of finishing-ovals and finishing-rolls and another size made upon the other set of finishing-ovals and finishing-rolls. By this construction the same size square will make two separate and distinct sizes—as, for instance, a No. 5 and a No. 6 rod.

Having thus described my invention, I claim—

1. In a rod-mill, the combination of the two sets of finishing-ovals and two sets of finishing-rolls with the roughing-section, substantially as shown.

2. In a rod-mill, the combination of the two sets of finishing-ovals and two sets of finishing-rolls with the roughing-section, the roughing-section being made to revolve more rapidiy than the finishing-ovals and finishing-rolls, substantially as set forth.

3. The combination, with the two sets of finishing-ovals, of the conductor K′, substantially as set forth.

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

JOHN T. ROWLEY.

Witnesses:
F. A. LEHMANN,
J. W. GARNER.