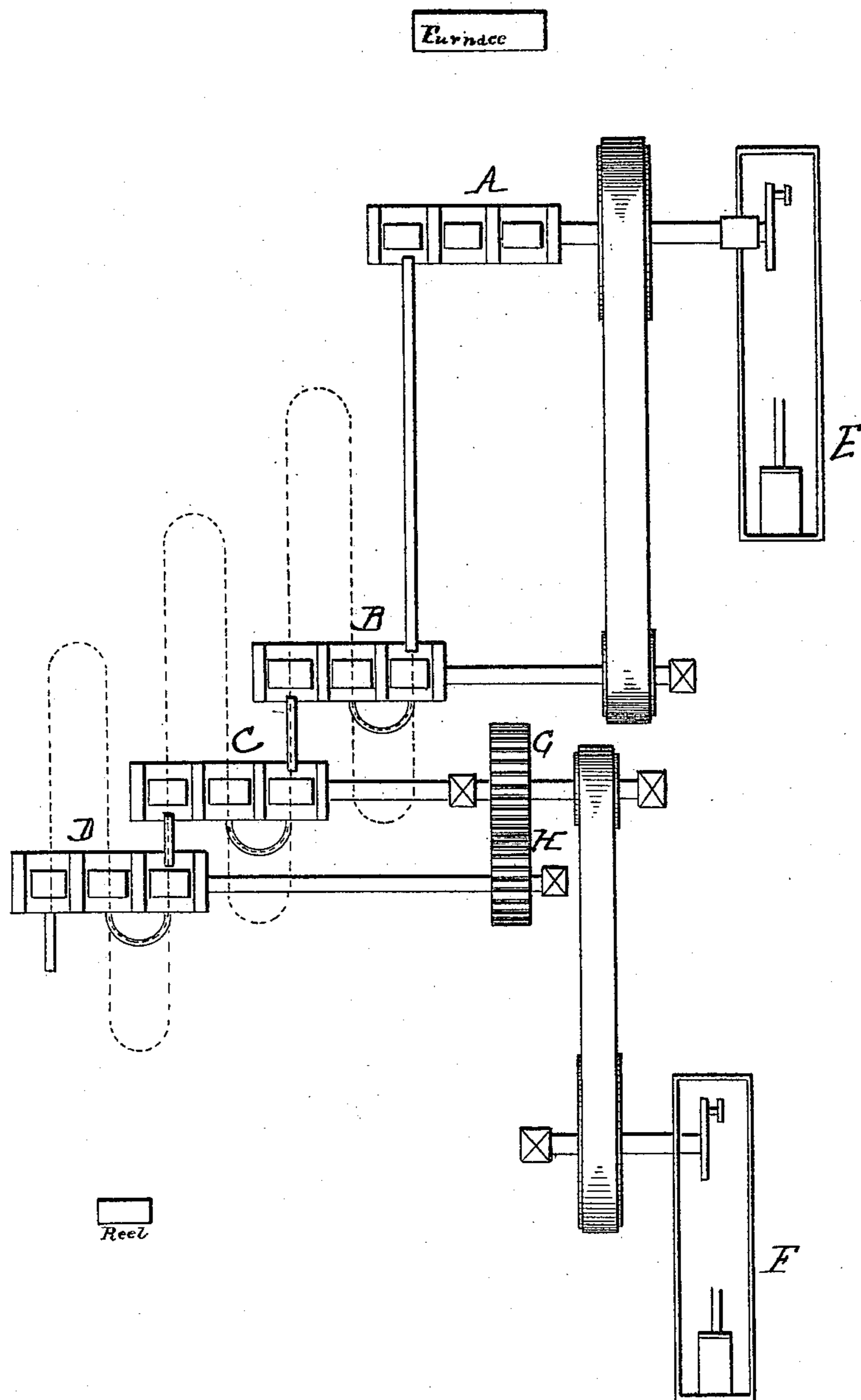


(No Model.)

I. A. KILMER.
ROD MILL.

No. 441,171.

Patented Nov. 25, 1890.



Witnesses
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UNITED STATES PATENT OFFICE.

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ROD-MILL.

SPECIFICATION forming part of Letters Patent No. 441,171, dated November 25, 1890.

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To all whom it may concern:

Be it known that I, IRVING A. KILMER, a citizen of the United States, residing at New Windsor, in the county of Orange and State of New York, have invented certain new and useful Improvements in Rod-Mills; 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 appertains to make and use the same.

The figure represents a top or plan view of the arrangement of parts.

As this invention relates solely to the arrangement or grouping of the parts and not to details of construction, the illustration of the various features is not deemed necessary, as they are well known and in common use.

The invention relates to an improved plant for rolling rods from billets, or, as they are sometimes called, "blooms."

The invention consists in the arrangement of parts hereinafter set forth and claimed.

In the annexed drawings, the letters A, B, C, and D represent series of reducing-rolls of three pairs each, constructed substantially alike, except of diminishing capacity, beginning from the first of series A to the last of series D. These several series are arranged so that the last of one set is in line with the first of the next succeeding. The series B, C, and D are placed close together, and the three series farther from series A than they are from one another. From the last pair of series A the usual guide extends to the first of series B, and also from the last of each series B and C the usual guide extends to the first pair of the succeeding series; also, from the first to the second set of each series there is the usual curved guides. These rolls have the usual appliances, engines E and F, gearing G and H, and furnace and reel, and the whole is operated in the ordinary and well-known manner.

Prior to this invention there were several ways in which the rolls were arranged. One method, and perhaps theoretically the best, was to have all the rolls in one series in a line in the diameters of the rolls, so that each succeeding roll would take the "bite" immediately from the roll in front. This is especially desirable, as the metal could be quickly

reduced while in a plastic state; but as the speed of the rolls could not be certainly timed the metal would not pass correctly from one roll to the other. Another method was to have a series of reducing-rolls and then another set of finishing-rolls; but the difficulty here is that there has to be much handling so as to rapidly turn the metal and pass it from one roll to the next. By the present arrangement this series of finishing-rolls is separated into three series, whereby the metal will pass by means of guides from one roll to another, thus dispensing with help; also, there may be a curved guide from the second to the third set of rolls in each series, thus dispensing with all help and only requiring such attention as is necessary to see that the guides are properly working.

I am aware of a construction wherein is shown a billet-train, an intermediate train, and a rod-train, the last composed of rolls arranged in two parallel lines. In this construction there is a straight pass from the last pair of rolls of the billet-train to the first pair of the intermediate train and from the last pair of the intermediate train to the first pair of the rod-train. The pairs of rolls of the rod-train are arranged in sets of two—one after another—the first set being in line with the last pair of rolls of the intermediate train, so that there is a straight pass for three pairs of rolls. This construction requires that the two parallel lines of rolls of the rod-train should be arranged on several shafts. In the special construction I refer to there are four shafts, which are run by the same engine. These various sets of rolls of the rod-train are designated the "compound continuous mill;" also, the straight pass of the last pair of rolls of the intermediate train and the first two pairs of rolls or the first set of pairs of rolls of the rod-train give a "continuous mill" for three pairs of rolls.

As has already been stated, the object of my invention is to dispense with as much of the continuous-mill feature as can be done and yet retain the advantage which theoretically pertains to a string of rolls, one after another. I dispense entirely with the intermediate set of rolls and arrange the rod-train, as shown, in sets of three, whereby I obtain

the minimum number of straight passes and "repeats," dividing the work so as to get three straight passes and six repeats. In this method there is no "looping" or "pulling" of the metal as it passes from one pair of rolls to another. There are only two lines of shafting for each engine.

Having thus described my invention, what I claim is—

10 A rod-mill plant consisting of the billet-train A and the rod-train, the latter consisting of the three sections B C D, the first pair of section B being on a line with the last pair of the billet-train A, and the last

pair of said section being on a line with the 15 first pair of the second section C, and the last pair of this section being on a line with the first pair of the third section D, there being two engines, one for the billet-train A and section B and the other for sections C 20 and D, as set forth.

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

IRVING A. KILMER.

Witnesses:

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