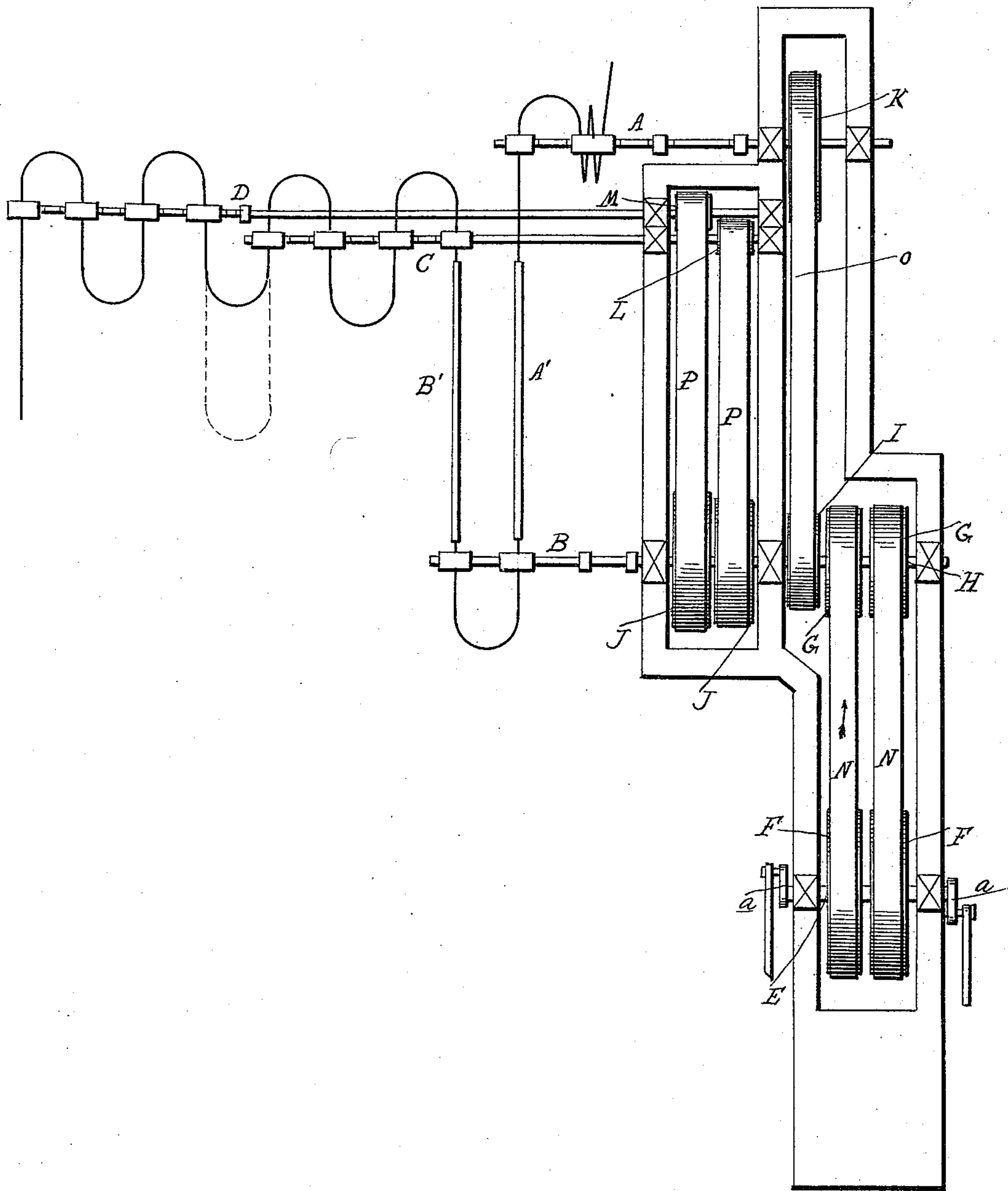


(No Model.)

I. A. KILMER.
ROD MILL PLANT.

No. 440,863.

Patented Nov. 18, 1890.



Inventor :

I. A. Kilmer.

E B Stocking
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Witnesses

L C Hills
E H Bond

UNITED STATES PATENT OFFICE.

IRVING A. KILMER, OF NEWBURG, NEW YORK.

ROD-MILL PLANT.

SPECIFICATION forming part of Letters Patent No. 440,863, dated November 18, 1890.

Application filed July 8, 1890. Serial No. 358,108. (No model.)

To all whom it may concern:

Be it known that I, IRVING A. KILMER, a citizen of the United States, residing at Newburg, in the county of Orange, State of New York, have invented certain new and useful Improvements in Rod-Mill Plants, of which the following is a specification, reference being had therein to the accompanying drawing.

10 This invention relates to certain new and useful improvements in rolling-mill plants of that class wherein the bloom or billet is reduced to a rod by one continuous operation and at a single heat; and the objects and advantages of the invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

20 The invention is clearly illustrated in the accompanying drawing, which, with the letters of reference marked thereon, forms a part of this specification, and which represents a diagrammatic view of a rod-mill plant embodying my improvements.

25 The plant comprises four series or trains of rolls, consisting of a billet-train A, a side train B, and an overlapping pair of rod-trains C and D. The billet-train should have arranged in convenient proximity thereto the bloom or 30 billet furnace, and this train performs its usual function of reducing the billet to a size which adapts it to be brought to and be operated upon by a rod-train of the mill. The means which are employed in this invention for such a reduction of the reduced billet are 35 what are herein designated as a "side train" B. Any suitable form of straight guide A' is interposed between the billet-train and the side train, and a similar straight guide B' serves to conduct the billet which has been 40 reduced from the side train to the first set of rolls of the section C of the rod-train proper.

The rod-train, the side train, and the billet-train are all arranged so as to economize floor-space, as shown, and the billet-train overlaps 45 the side train, the side train overlaps the first section of the rod-train, and the two sections of the rod-train are arranged, preferably, in close proximity to each other and between the 50 billet and side trains.

The several trains are operated in the fol-

lowing manner, whereby I dispense with the employment of gearing.

E is a shaft journaled in suitable bearings in the bed and at each end provided with a 55 crank-disk *a*, the wrist-pins of which are designed to be connected with an engine, (not shown,) and arranged so that either one or both of said engines may be employed, as may be desired. F are band-pulleys on the said 60 shaft, and these pulleys are connected with the smaller pulleys G on the shaft H, parallel with the shaft E and suitably journaled in the bed. This shaft H is the side-train shaft and has thereon, in addition to the pulleys G, 65 the smaller pulley I and the larger pulleys J.

K is a pulley on the shaft of the billet-train, and L and M are small pulleys on the shafts of the two sections of the rod-train, respectively. 70

The pulleys F and G are connected by the endless bands or belts N, the pulleys I and K are connected by the belt O, and the pulleys J and L and M are connected by the belts or bands P. 75

The two sections of the rod-train are revolved faster than the other trains in order to readily take up the overfeed; but these sections are so arranged that should there be any overfeed—that is, should the wire be fed to 80 the final section faster than the rolls thereof can take it up—the surplus will simply extend back, as indicated by dotted lines in the drawing, where it will not be in danger of becoming tangled or in any way interfering with the 85 other portions of the plant.

It will of course be understood that the number of pairs or sets of rolls in each train may be increased as desired to produce a desired reduction of the billet, or, in other words, to 90 effect the production of a rod of a desired size.

What I claim as new is—

1. A plant for rolling billets to rods, comprising a billet-train, a side train arranged at a distance therefrom and overlapping at one 95 end only, and an intermediate rod-train in sections, one overlapping the side train and the other arranged with its initial roll beyond the final roll of the first section, substantially as specified. 100

2. In a rod-mill plant, a side train arranged at a distance from a billet-train and overlap-

ping the same at one end only, the intermediate rod-train in sections, the first one of which overlaps at one end the side train, with its final train arranged outside the limit of the side train, and the final section of the rod-train arranged with its initial roll outside the final roll of the first section, substantially as specified.

3. In a rod-mill plant, a billet-train, a side train arranged at a distance therefrom and overlapping the same, an intermediate rod-train in sections, with the initial section overlapping the side train and outside the limits of the billet-train, with the final section outside the initial section, and means for imparting different velocities to the several trains, substantially as shown and described.

4. In a rod-mill plant, a side train, a billet-train, a rod-train in sections arranged intermediate the billet and side trains, pulleys on

the shafts of the various trains, bands connecting the pulleys, and connections from the main shaft, whereby the various trains are actuated therefrom, substantially as specified.

5. In a rod-mill plant, the combination, with the billet-train, a side train, and an intermediate rod-train in sections, of the main shaft having connections with an engine or engines, pulleys on said shaft, large and small pulleys on the shaft of the side train, a pulley on the shaft of the billet-train, small pulleys on the shafts of the rod-train sections, and belts connecting the various pulleys, substantially as and for the purpose specified.

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

IRVING A. KILMER.

Witnesses:

CHARLES H. WIGGAND,
JAMES M. GILLIES.