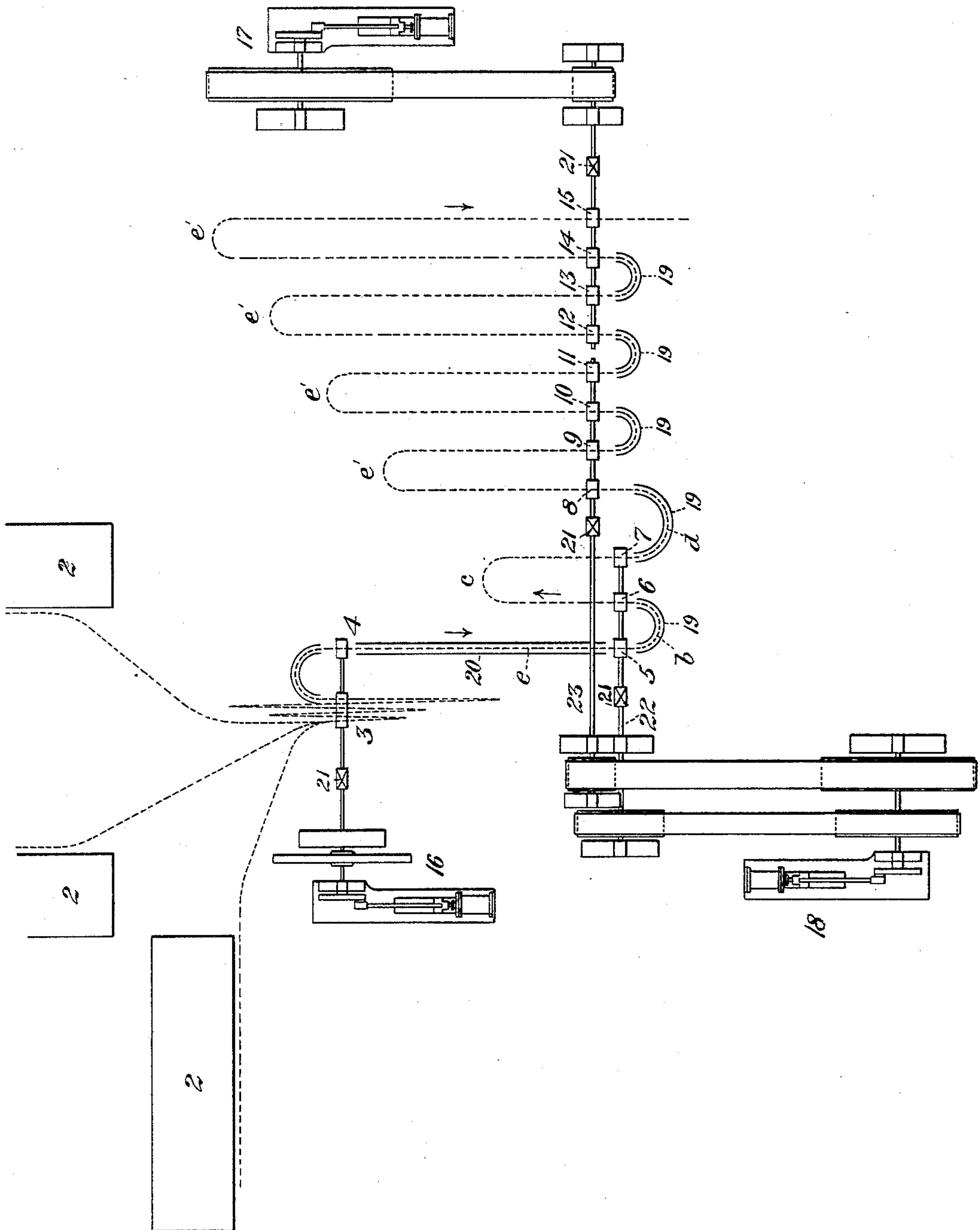


(No Model.)

T. W. FITCH.
BELGIAN WIRE ROD MILL.

No. 435,812.

Patented Sept. 2, 1890.



WITNESSES.

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THOMAS W. FITCH, OF PITTSBURG, PENNSYLVANIA.

BELGIAN WIRE-ROD MILL.

SPECIFICATION forming part of Letters Patent No. 435,812, dated September 2, 1890.

Application filed June 30, 1890. Serial No. 357,218. (No model.)

To all whom it may concern:

Be it known that I, THOMAS W. FITCH, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Belgian Wire-Rod Mills, of which the following is a full, clear, and exact description.

The type of mill for rolling wire rods, known as the "Belgian mill," consists of a series of sets of rolls whose housings are set in line with each other, and the metal which is rolled from a billet to the form of a long rod of proper diameter passes in loops back and forth through the rolls. Such mill has many advantages in respect of its compactness and the ease with which it can be managed; but it also has certain defects principally in the arrangement of its driving-gear.

The object of my invention is to overcome these defects and to afford an improved mill convenient in construction, capable of being operated with very little labor, and of producing an increased output.

The invention is illustrated in the accompanying drawing, which shows the mill in plan view. This drawing does not illustrate the details of construction of the rolls or of their housings and driving-gear, since these are so familiar to those skilled in the art that minute description and illustration of them would not serve to make the specification more intelligible.

In the drawing, 2 2 are the usual bloom-heating furnaces.

3 4 are the rolls of the billet-mill, of which the rolls 3 form a three-high train, through which the bloom is passed several times, as indicated in the drawing by the dotted line, which represents the continuous course of the metal through the mill. After passing repeatedly through the rolls 3 and thence back in a loop through the rolls 4 the rod goes in a continuous pass or course *e* through a set of rolls 5, thence in two loops *b* and *c* through two sets of rolls 6 and 7, which are in line with the rolls 5 and may be driven by the same shafting. Thence the rod travels in a loop *d* to a series of rolls 8, 9, 10, 11, 12, 13, 14, and 15, through which the rod passes in loops *e'*. The rod thus travels in one continuous pass *e* and three loops *b c d* from the billet-train to the rolls 8. The rolls 8 to 15 may be in

line with or parallel with each other, and are parallel with the rolls 5, 6, and 7, which are situate sufficiently out of line therefrom to permit the use of separate lines of shafting 22 and 23. The rolls 7 are situate to one side of the rolls 8, so that the rod in passing from the one to the other shall travel in a loop *d*, and not in a direct course. These are the distinguishing features of my invention. From the last set of rolls the rod may be delivered to the reel, where it is coiled and bundled. The passes of the rolls are preferably shaped so that the cross-section of the rod shall be changed alternately from square to oval, and suitable guide-troughs and repeaters 19 and 20 are used to guide and deliver the rod to the rolls in the usual manner.

16 17 18 are engines for driving the rolls. The engine 16 may be employed to drive the billet-train, the engine 18 to drive the rolls 5, 6, 7, 8, 9, 10, and 11, and the engine 17 to drive the rolls 12 13 14 15. 21 are the usual pinions connecting the engines with the driving-gear of the rolls.

The advantages of my invention will be appreciated by those skilled in the art. The mill is convenient and economical in its construction and arrangement and is well adapted to produce a large output. It will be understood that in its use several rods may be caused to pass through the rolls at the same time, and the mill will be found to be suited to be used in such manner with safety to the workmen and with a minimum of necessary labor.

I claim—

The improved Belgian rod-mill, which consists in the combination of the billet-train and two parallel series of rolls set a little out of line from each other and arranged substantially as described, so that the rod travels from the billet-train in a continuous pass, then through the first series in loops, and from said first series in a loop directly to the second series, substantially as and for the purposes described.

In testimony whereof I have hereunto set my hand this 28th day of June, A. D. 1890.

THOMAS W. FITCH.

Witnesses:

W. B. CORWIN,
H. M. CORWIN.