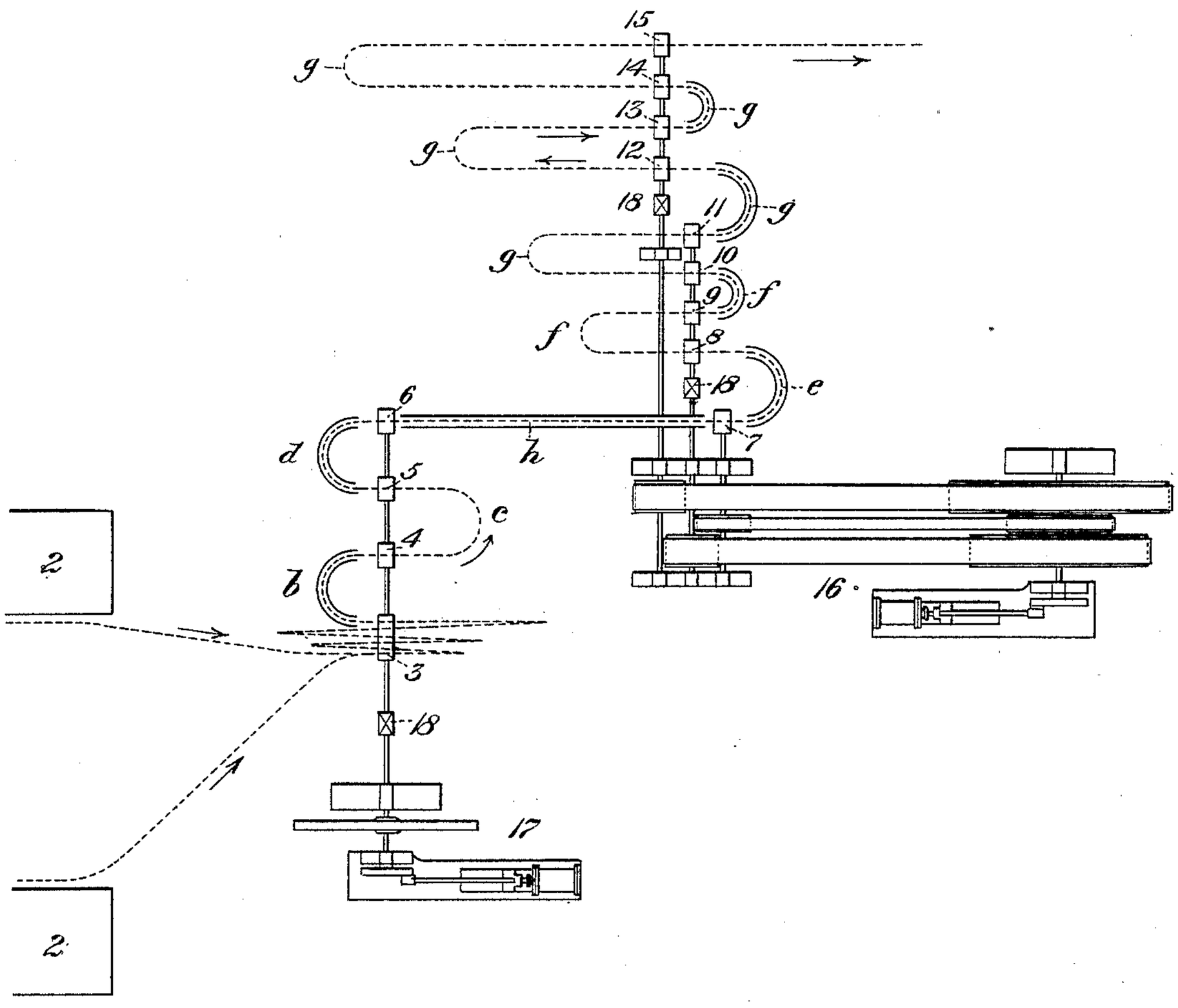
(No Model.)

T. W. FITCH.

BELGIAN ROD MILL.

No. 435,813. Patented Sept. 2, 1890.



WITNESSES.

J. W. Bakewell

C. M. Clarke

INVENTOR.

Thomas W. Fitch

UNITED STATES PATENT OFFICE.

THOMAS W. FITCH, OF EDGEWOODVILLE, PENNSYLVANIA.

BELGIAN ROD-MILL.

SPECIFICATION forming part of Letters Patent No. 435,813, dated September 2, 1890.

Application filed July 1, 1890. Serial No. 357,426. (No model.)

To all whom it may concern:

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

My invention has for its object to provide an improved plant or system of rolls for wire-rod mills, adapted to afford a mill compact and convenient in arrangement, cheap in cost of construction, and capable of being operated with comparatively little labor. It is an improvement on the rod-mill for which on June 30, 1890, I filed a patent application, Serial No. 357,218. It 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, 5, and 6 are the rolls of the billet-train, of which the rolls 3 are a three-high set, through which the bloom is passed several times back and forth, as shown in the drawing by the dotted line, which represents the continuous course of the metal through the mill.

The rod-train consists of three series of rolls, indicated in the drawing by the rolls 7 8 9 10 11 and 12 13 14 15. These series are driven by separate lines of shafting, it may be, from a common driving-engine 16, and the billet-train may be driven by a second engine 17.

18 18 are the usual pinions for transmitting power from the engines to the rolls. After having passed a proper number of times through the rolls 3, the rod, in recurrent loops *b c d*, passes through the rolls 4 5 6, and from the rolls 6 it goes in a direct or continuous pass *h* to the rolls 7, and thence in successive loops *e f g* it passes through the remaining rolls, from the last of which it may be delivered to a suitable reeling or coiling apparatus. 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 a suitable guide and repeaters are used to guide the rod in its course.

By constituting the rod-train of three series or rolls set out of line from each other the power-connections thereof are very much simplified and the mill is rendered compact. The arrangement of the roll-passes constituting the billet-train also conduces to the same end.

I claim—

In a rod-mill, the combination of the billet-train, comprising rolls through which the metal is passed back and forth, and rolls through which the rod travels in loops, and a rod-train to which the rod goes in a direct pass from the billet-train, said rod-train comprising three parallel series of rolls, through which the rod travels in regular order in successive loops, substantially as and for the purposes described.

In testimony whereof I have hereunto set my hand this 30th day of June, A. D. 1890.

THOMAS W. FITCH.

Witnesses:

THOMAS W. BAKEWELL,

W. P. POTTER.