

No. 775,022.

PATENTED NOV. 15, 1904.

T. V. ALLIS.

APPARATUS FOR REDUCING METAL BARS TO SHEETS
IN PILE IN A HEATED STATE.

APPLICATION FILED MAR. 23, 1904.

NO MODEL.

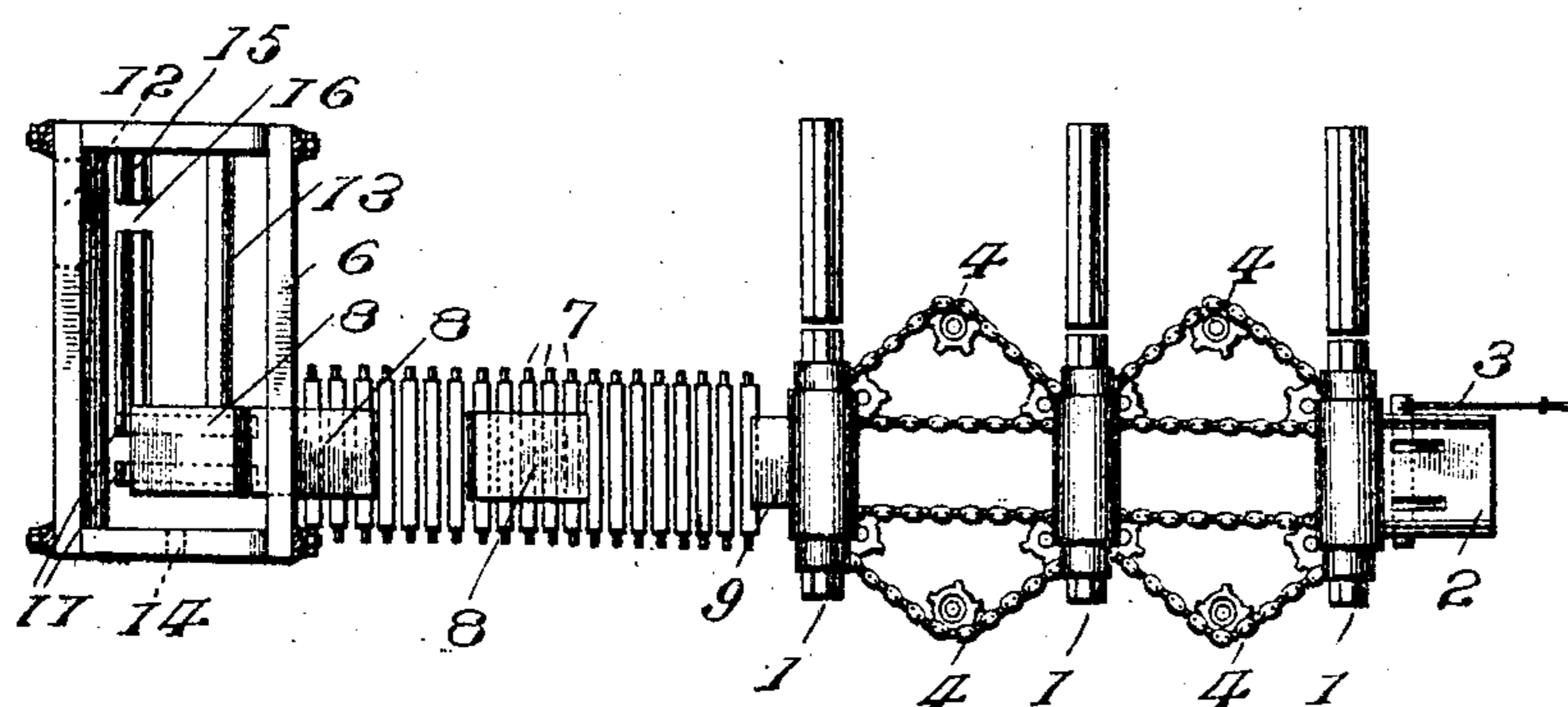
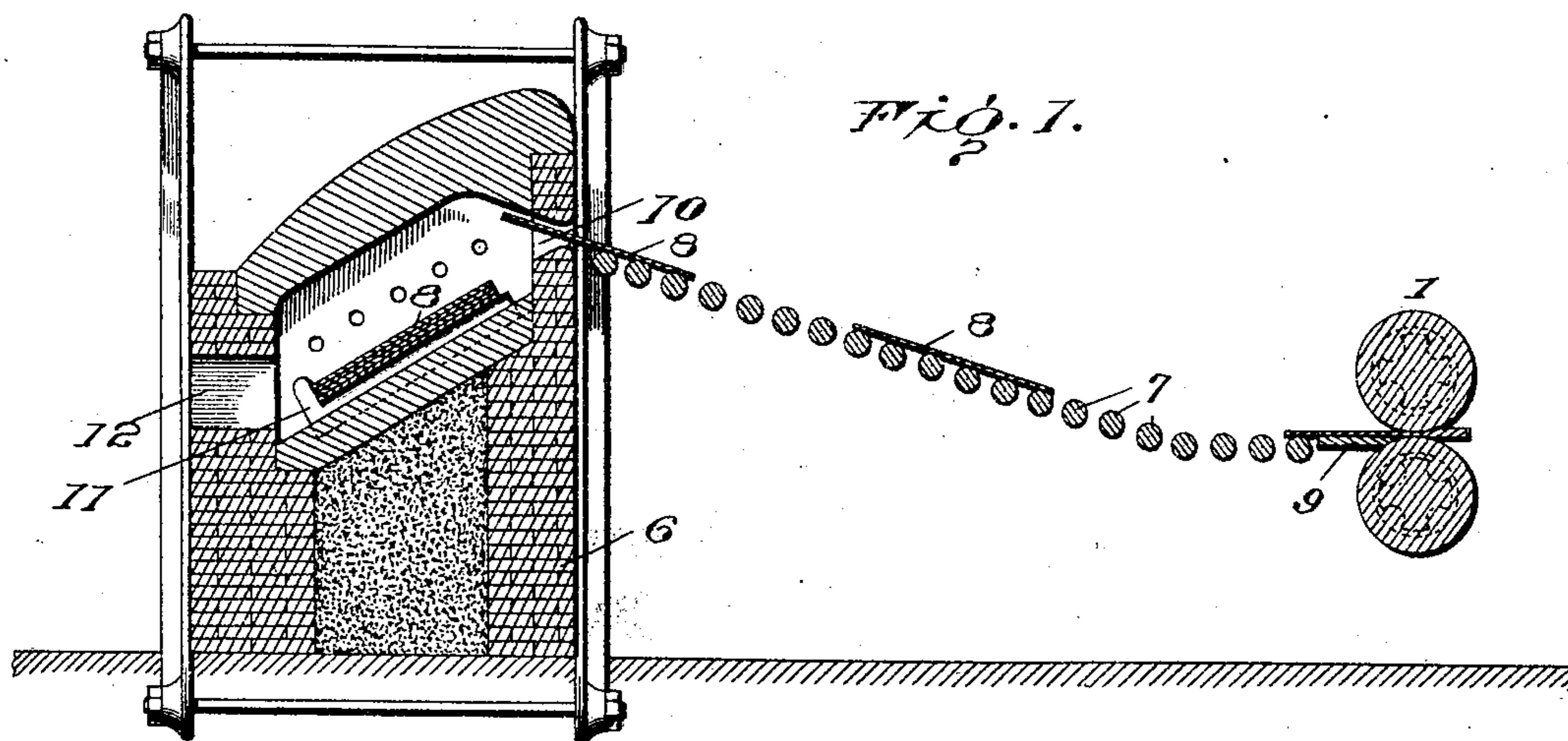
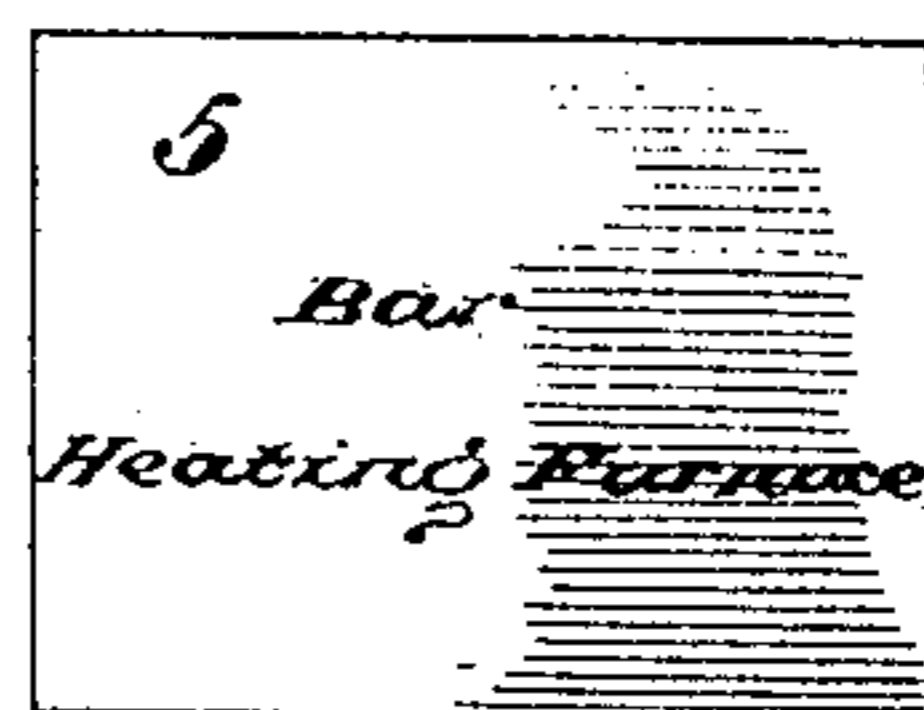
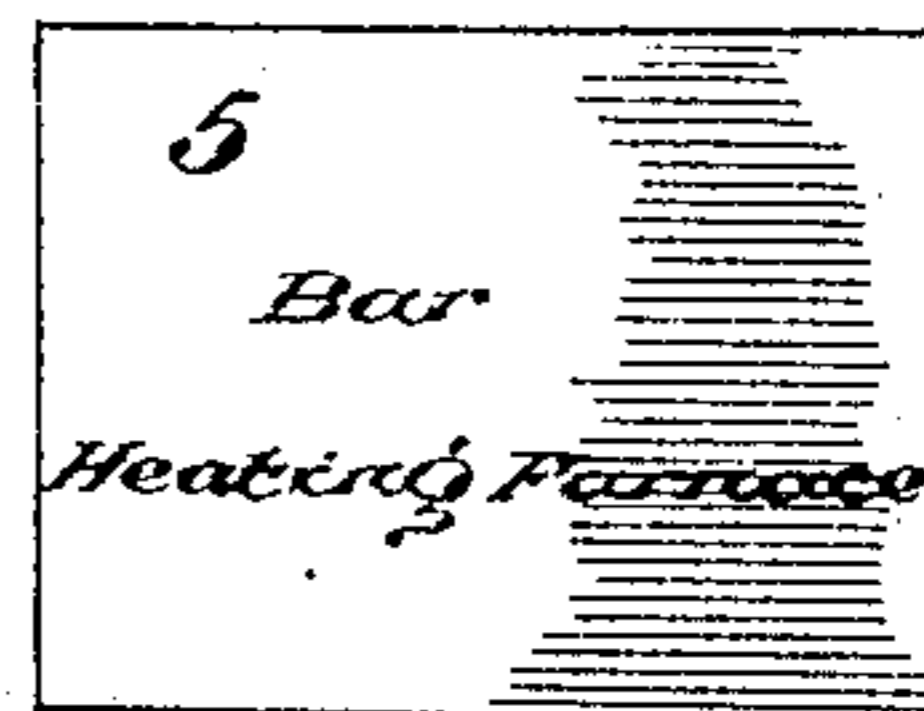
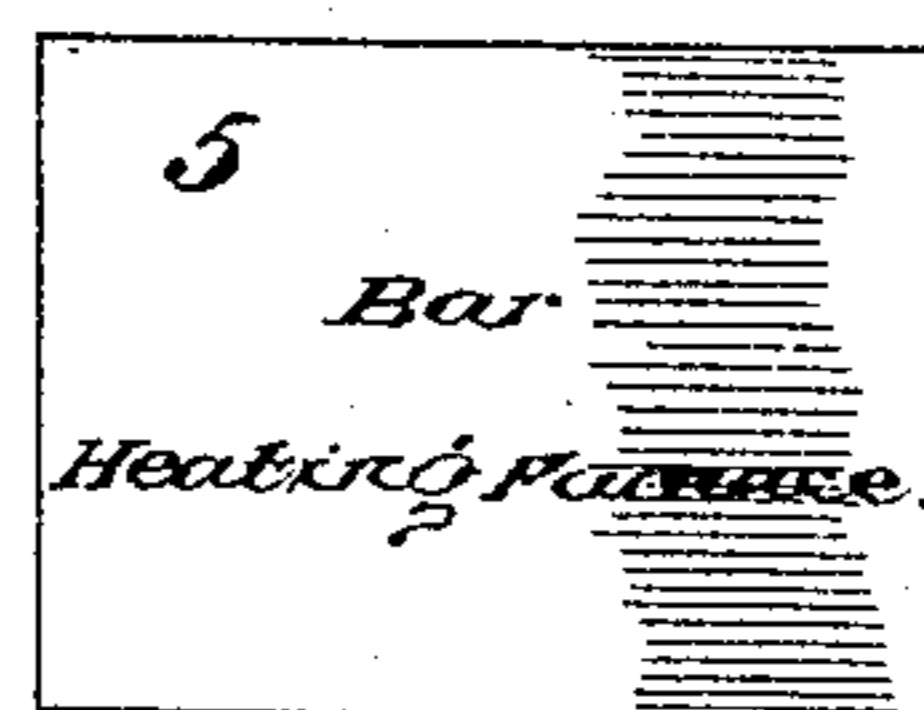


Fig. 2.



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Witnesses

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UNITED STATES PATENT OFFICE.

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APPARATUS FOR REDUCING METAL BARS TO SHEETS IN PILE IN A HEATED STATE.

SPECIFICATION forming part of Letters Patent No. 775,022, dated November 15, 1904.

Application filed March 23, 1904. Serial No. 199,652. (No model.)

To all whom it may concern:

Be it known that I, THOMAS V. ALLIS, a citizen of the United States, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Apparatus for Reducing Metal Bars to Sheets in Pile in a Heated State; 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.

My invention relates to certain new and useful improvements in apparatus for reducing metal bars to sheets in pile in a heated state and according to the process described and claimed in another application for Letters Patent, filed by me December 31, 1903, Serial No. 187,380.

My present invention has for its object to provide means for first "roughing" hot bars and reducing them into "singles"—*i. e.*, plates; second, means for automatically transferring said singles consecutively to a heating-furnace, and, third, a heating-furnace adapted by its construction to automatically "pile" the plates therein in condition to be removed in pile to be subjected to the action of ordinary reducing-rolls.

With these ends in view my invention consists of a set of any ordinary roughing-rolls and a heating-furnace adjacent thereto with a "roll-conveyer" between the roughing-rolls and the furnace for automatically delivering the plates to the furnace, the latter so constructed that the plates as they are delivered thereto by the roll-conveyer will fall by gravity and be automatically arranged in pile within the furnace.

In order that those skilled in the art to which my invention appertains may know how to make and use my improved apparatus, I will proceed to describe the same, referring by numerals to the accompanying drawings, in which—

Figure 1 is a central vertical section of the final pair of a set of ordinary roughing-rolls and an adjacent heating-furnace of novel construction and with a roll-conveyer arranged between the roughing-rolls and the heating-

furnace. Fig. 2 is a plan view, on reduced scale, showing a full set of roughing-rolls, the roll-conveyer, the furnace with top removed and slightly modified in form with three-bar heating-furnaces in convenient relation with the roughing-rolls.

Similar reference-numerals indicate like parts in both figures of the drawings.

1 is a set of roughing-rolls, which are preferably arranged in tandem, as shown in Fig. 2, with a table 2 at the initial end of the train of rolls and suitable means 3 for delivering the bars to the bite of the first pair of rolls, and 4 represents side chain-conveyers for transporting the bars from one pair of rolls to another.

5 represents any desirable number of bar-heating furnaces located in suitable relation with the roughing-rolls, all of which details of construction and arrangement form no part of my present invention.

6 is a heating-furnace located in convenient relation with the delivery end of the train of roughing-rolls and embodying details of construction, which will be presently described.

7 is a conveyer, consisting of a series of rolls journaled in any suitable frame and in parallelism to constitute revoluble supports and conveyers for the plates 8 as they successively emerge or are delivered from the final pair of roughing-rolls.

9 is a suitable table or shelf between the initial end of the roll-conveyer and the roughing-rolls over which the rolled plate is fed to the roll-conveyer.

The initial end of the roll-conveyer is horizontal or in the same plane with the table or shelf 9, and the remaining portion rises or is inclined upward, as clearly shown at Fig. 1, in order that the plates conveyed to the furnace may be so delivered through a throat or inlet passage 10 of the furnace that they will tilt and then fall or travel by gravity onto a receiver or support within the furnace and which is inclined reversely to the incline of the roll-conveyer. This receiver or support is composed, preferably, of parallel bars 11, the lower ends of which are turned up at right angles, as clearly shown at Fig. 1, to constitute stops for arresting the plates as they

travel by gravity and to accurately register one with another to thus automatically form the plates into a pile.

Adjacent to the upturned ends of the bars 5 11 the furnace is formed with a suitable opening 12, which may be closed by an ordinary door. From this construction it will be seen that when the pile has been automatically formed upon the supporting-bars 11, constructed and arranged as described, the space 10 between the upturned ends of said bars will permit of the jaws of a pair of ordinary tongs being passed through the opening 12 and the pile grasped thereby and removed 15 through said opening and delivered in the ordinary manner to reducing-rolls of any suitable construction.

In Fig. 2 I have shown a modified construction of the furnace, which adapts it to be used 20 for receiving and heating a plurality of piles of plates. To accomplish this purpose, the furnace is elongated, and parallel bars or supports 13 are arranged at right angles to the supports 11 to constitute a track upon which 25 the piles successively formed upon the bars 11 may be pushed by means of a suitable push-bar passed through an opening 14 in the end wall of the furnace and as shown in dotted lines.

A guide stop-plate or angle-iron 15 is arranged in alinement with the upturned ends 30 of the supporting-bars 11 to maintain the register of the several plates established by the upturned ends of the said supporting-bars, and when this form of furnace is employed 35 the exit-door through which the piles are successively removed is located at the far end of the furnace and the guide stop-plate or angle-iron 15 is formed with a notch or gateway 16 in alinement with the exit-door in order 40 that the tongs heretofore referred to may readily grasp the pile.

From the construction shown and described it will be readily seen that bars heated in the

heating-furnace 5 may be passed directly to the roughing-rolls and reduced to plates which 45 may be automatically and successively conveyed while in a heated state to the heating-furnace 6, wherein they are formed into a pile which may be removed and delivered to final reducing-rolls, so that a bar may be re- 50 duced to sheets by a continuous process, all as fully explained in the application for Letters Patent hereinbefore referred to.

What I claim herein, and desire to secure by Letters Patent, is— 55

1. In combination with roughing-rolls adapted to reduce bars in a heated state into plates, a "roll-conveyer" leading from the roughing-rolls to a heating-furnace and adapted to deliver the plates to said furnace at a 60 plane above that of the roughing-rolls, a heating-furnace provided with a throat or inlet opening in alinement with the roll-conveyer, an inclined plate-support having vertical stops for automatically registering successive plates 65 into a "pile" and an exit-door through which said pile may be removed, substantially as described.

2. In combination with roughing-rolls and a "roll-conveyer," a heating-furnace having 70 an inlet passage or throat in alinement with the delivery end of the "roll-conveyer," an exit or outlet passage below the plane of the inlet passage or throat, and an automatic plate "piling" device between the inlet and outlet 75 passages of the furnace, consisting of inclined parallel bars with their lower ends turned upwardly to constitute registering stops, substantially as hereinbefore set forth.

In testimony whereof I have signed my name 80 to this specification in the presence of two subscribing witnesses.

THOMAS V. ALLIS.

Witnesses:

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