



No. 671,990.

S. E. & A. J. DIESCHER.  
FEED MECHANISM.

Patented Apr. 16, 1901.

(No Model.)

(Application filed Mar. 1, 1900.)

2 Sheets—Sheet 2.

FIG. 2.

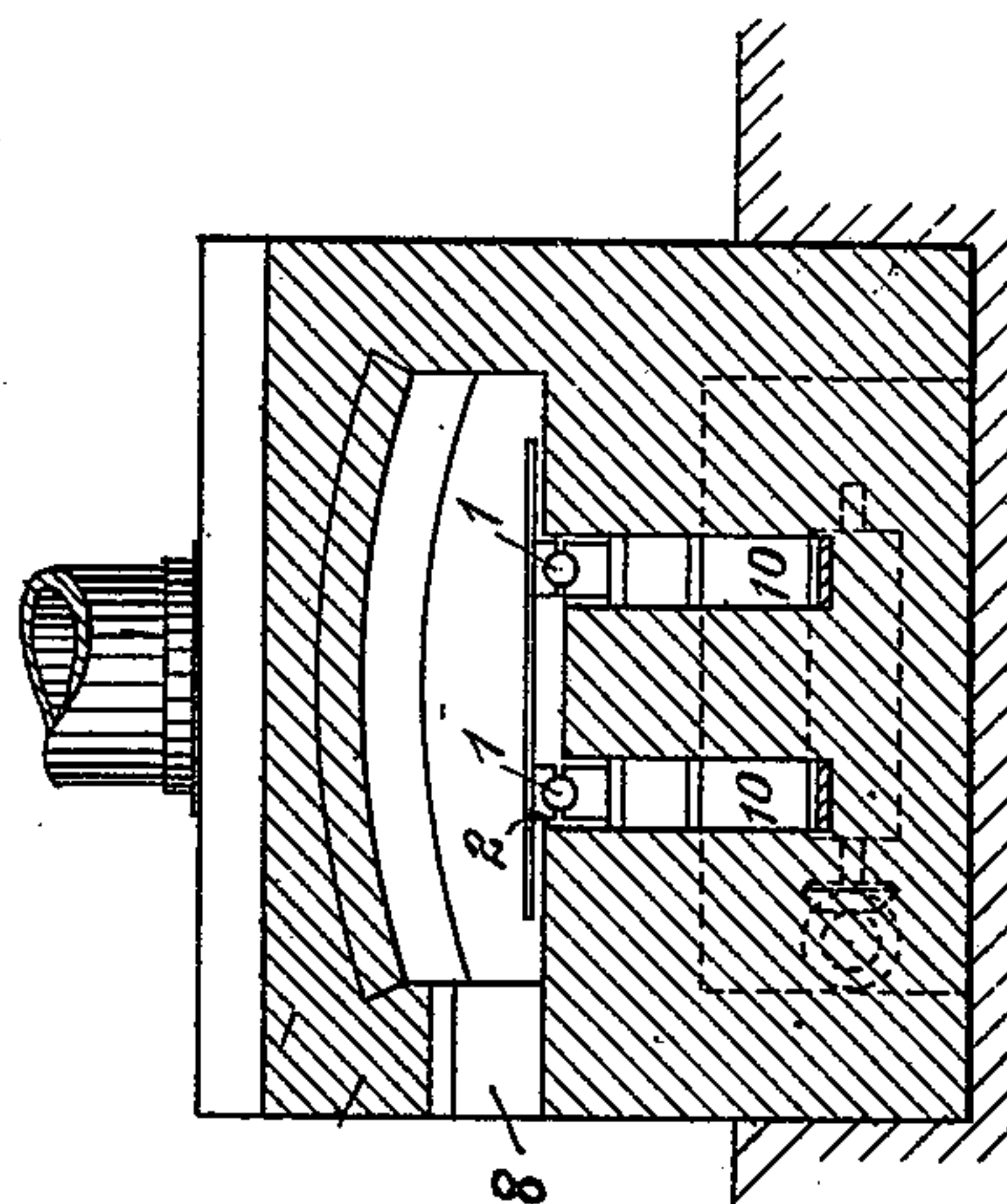
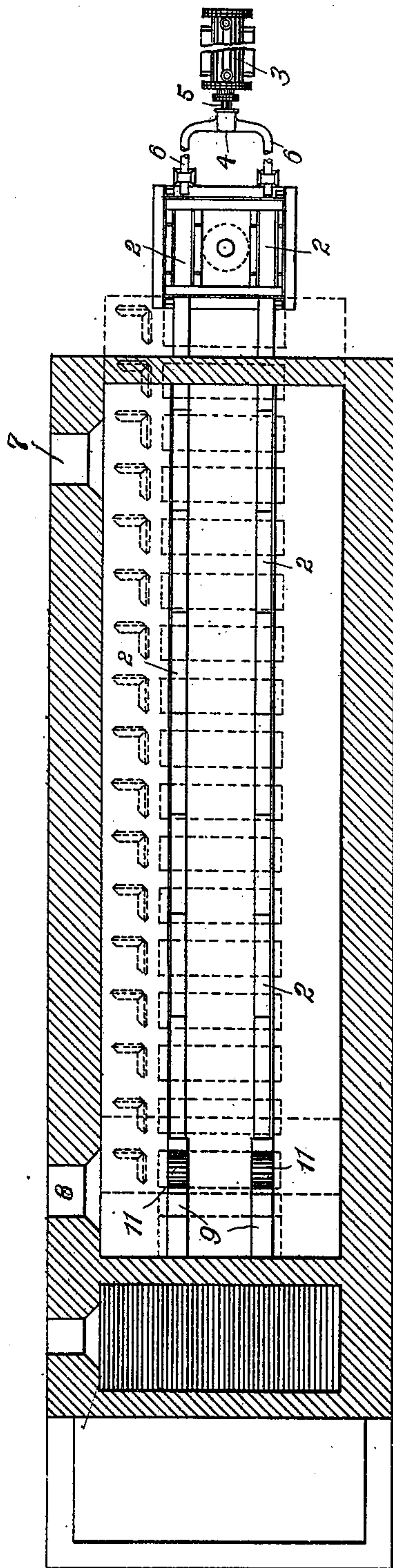


FIG. 4.

WITNESSES:

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# UNITED STATES PATENT OFFICE.

SAMUEL E. DIESCHER AND ALFRED J. DIESCHER, OF PITTSBURG,  
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## FEED MECHANISM.

SPECIFICATION forming part of Letters Patent No. 671,990, dated April 16, 1901.

Application filed March 1, 1900. Serial No. 6,909. (No model.)

*To all whom it may concern:*

Be it known that we, SAMUEL E. DIESCHER and ALFRED J. DIESCHER, citizens of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented or discovered certain new and useful Improvements in Feed Mechanisms for Furnaces, of which improvements the following is a specification.

10 The invention described herein relates to certain improvements in feed mechanism for furnaces, and has for its object a construction whereby comparatively thin articles, such as sheet-bars, may be moved through the furnace at such a rate as will insure the proper heating of the article by the time it reaches the discharge-opening.

15 In general terms the invention consists in the employment of blocks or shoes which are adapted to serve as carriers for the article to be heated, in combination with suitable mechanism for moving the blocks or shoes through the furnace.

20 In the accompanying drawings, forming a part of this specification, Figure 1 is a sectional elevation of our improved furnace and feed mechanism, the plane of section being indicated by the line I I, Fig. 3. Fig. 2 is a sectional plan of the furnace. Figs. 3 and 4 are transverse sections on planes indicated, respectively, by lines III III and IV IV, Fig. 1.

25 In the practice of our invention one or two lines of pipe or rails 1 are arranged along the bed of the furnace from the front or charging end to or nearly to the discharge-opening at or near the rear end of the furnace, as clearly shown in Fig. 1. A series of blocks or carriers 2, formed of fire-clay or other suitable material and having their under surfaces grooved, are arranged on the pipes or rails end to end. The rails and blocks are so constructed and arranged that the upper surfaces of the blocks will be in a plane above the level of the furnace-bottom, so as to permit of the passage of heat under the articles arranged across the blocks or shoes and the free movement of the articles through the furnace. The shoes or carriers are moved through the furnace by any suitable actuating mechanism—such, for example, as that shown—con-

sisting of a fluid-pressure cylinder 3, located in front of the furnace and having a suitable pushing-head 4 secured to its piston-rod 5. When two lines of rails or pipes are employed, the pusher-head is provided with two arms 6, in line with the blocks resting on the rails.

30 In charging the furnace blocks or shoes are placed on the rails at the front end of the furnace and are then pushed along a distance equal to the length of the blocks or shoes. The pusher-head is then moved back and another block placed on the rails and pushed back. The article to be heated is passed in through the charging-door 7 (preferably located in the side wall of the furnace) and arranged across the two lines of blocks by which the articles are carried through the furnace to a point in suitable proximity to the discharge-opening 8 of the furnace. Slots 9 are formed through the bottom of the furnace at the ends of the rails to permit the blocks to drop into a pit 10, leaving the article resting on the hearth of the furnace. The blocks or shoes are removed from this pit and carried to the front of the furnace and again placed in circuit. While the return of the blocks and the placing of them in position can be done by hand, it is preferred that mechanism should be employed for this purpose. To this end a suitable conveyer—such, for example, as that shown—consisting of a series of driven rollers 11, having side guides 12, extends from the pit 10 under the bottom of the furnace to the front end thereof. An elevator of any suitable form or construction, but preferably consisting of a platform 13, secured to the ram of a fluid-pressure cylinder 14, is arranged in front of the furnace in such relation to the mechanism employed for shifting the blocks through the furnace that the blocks when raised by the elevator can be moved by the shifting mechanism onto the rails 1. The conveying mechanism carries the blocks from the pit 10 and feeds them into proper position on the platform of the elevator, which when blocks are required is raised to bring the blocks into line with the rails and within the field of operation of the shifting mechanism.

100 In order to prevent the blocks from being fed into the pit of the elevator when the lat-



ter is raised, a curtain 15 is secured to the platform 13 in such position as to be moved in front of the conveyer when the platform is raised.

- 5 If desired, the pit 10, the conveyer-tunnel, and the elevator-pit may be filled with water to a level (indicated by dotted lines in Fig. 1) to cool the blocks or shoes.

While our improvements are especially adapted for moving sheet-bars through the furnace, it will be understood that other articles, either larger or smaller in cross-section and of any length within the width of the furnace, can be moved through the furnace.

- 15 It is characteristic of our improved feed mechanism that the blocks or carriers are independent of each other and of the shifting mechanism, so that each block or carrier can perform its carrying function without the assistance of any of the other blocks or carriers and so that any block or carrier can be removed from the line of feed and from the article without interfering with the operation of the shifting mechanism and without disturbing the other blocks or the articles carried by the other blocks.

We claim herein as our invention—

1. As a means for moving articles through a furnace, the combination of a series of independent carrier blocks or shoes, means for moving the blocks or shoes from the charging-door to the discharging-door, and means whereby the blocks or shoes are automatically separated from the article carried thereby, substantially as set forth.

2. As a means for moving articles through a furnace, the combination of a series of independent carrier blocks or shoes, means for moving the blocks or shoes from the charging-door along the furnace and means whereby the blocks or shoes are automatically removed from the furnace, substantially as set forth.

3. As a means for moving articles through

a furnace, the combination of a series of independent carrier blocks or shoes, means for moving the blocks or shoes along the furnace, means whereby the blocks or shoes are automatically removed from the furnace, and means for returning the blocks to charging position, substantially as set forth.

4. The combination of a furnace having a discharge-opening one or more slots in its bottom adjacent to said opening, a series of independent carrier blocks or shoes, and means for moving said blocks or shoes through the furnace and into such slots in the bottom thereof, substantially as set forth.

5. The combination of a furnace provided with a pit under its bottom near its discharging end, slots or openings through the bottom into the pit, a series of independent blocks or carriers, means for shifting said blocks or carriers along the furnace and into such slots or openings, and means for moving the blocks or carriers from the pit to the charging-point of the furnace, substantially as set forth.

6. As a means for moving articles through a furnace, the combination of a series of carrier blocks or shoes, means for moving the blocks or shoes from the charging-door along the furnace, a slot or opening through the bottom of the furnace adjacent to the discharging-door, a conveyer having one end arranged to receive the blocks or shoes as they drop through the slot, and extending to the front end of the furnace, and an elevator arranged to receive the blocks or shoes from the conveyer and raise them to charging position, substantially as set forth.

In testimony whereof we have hereunto set our hands.

SAMUEL E. DIESCHER.  
ALFRED J. DIESCHER.

Witnesses:

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