Aug. 28, 1928. 1,682,112

F. W. BROOKE

HEATING BAR

Filed May 8, 1926

FIG. 1.

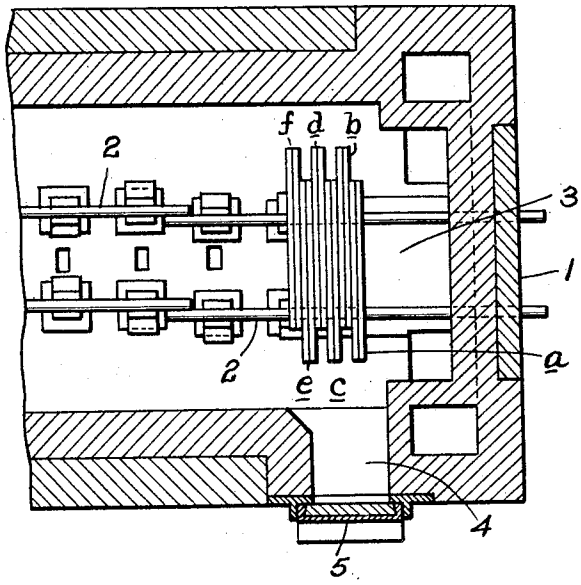


FIG. 2.

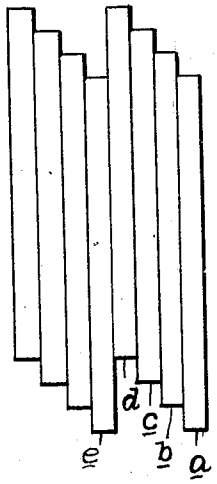
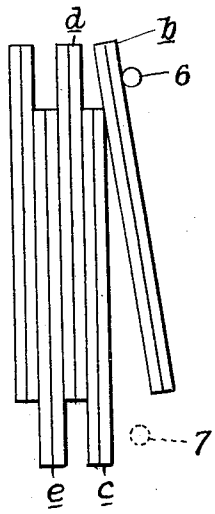


FIG. 3.



WITNESSES

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UNITED STATES PATENT OFFICE.

FRANK W. BROOKE, OF PITTSBURGH, PENNSYLVANIA.

HEATING BAR.

Application filed May 8, 1926. Serial No. 107,646.

The invention relates to the heating of bars, slabs or billets for rolling, in furnaces of the type known as continuous furnaces, wherein the bars are pushed in contiguous succession upon ways extending from end to end of the heating-chamber, and the object is, by means of a suitable arrangement of the bars on the ways, to provide for the selective withdrawal of the bars from the furnace speedily and with little manual labor. The invention is particularly adapted to the pair-heating of sheet-bars, but it may be practiced with advantage in the heating of billets generally, and the withdrawal of the pieces singly or in any desired predetermined number.

In the accompanying drawings Figure 1 is an interior plan view of the rear or discharge portion of a heating-chamber of a continuous furnace, illustrating the practice of the invention. Figure 2 shows a modified arrangement of the bars. Figure 3 shows a modification.

The numeral 1 indicates the discharge end of the heating-chamber of any well known or suitable type of continuous furnace. The bars are fed over the skid tracks 2 arranged in the usual way and merging into the hearth 3. In the heating of sheet-bars, the bars are usually charged and discharged in pairs, and I have shown on the drawings successive pairs of bars being fed in contiguous succession with their longitudinal edges resting on the skid tracks. In discharging the bars manually from the furnace, either through a side door or through an end door, the workman reaches in through the door with his tongs and has to fish for the ends of a pair of bars with some attendant difficulty in grasping and taking hold of them. It is the purpose of the present invention to do away with this difficulty, and this is accomplished by charging and feeding the bars over the skid tracks with their ends in stepped relation, or staggered, to one another. In the present case, in which the bars are shown as drawn out through the side opening 4, provided with the vertically movable door 5, the ends of the pair of bars *a* on the side toward the discharge door stand out toward the door away from the ends of the pair of bars *b*, and the pairs are thus arranged in alternation with the ends of the pairs *a*, *c*, *e*, etc., projecting out toward the side wall relatively to the ends of the pairs *b*, *d*, *f*, etc. Thus in the case shown, as the pair of bars *a* reaches the proper point the furnace attendant reaches in through the discharge opening 4 and is able without difficulty to grasp with his tongs the ends of the bars *a* and draw them out through the door. Then, the next time, he will preferably grasp the ends of the bars *c*, and by first giving these bars a slight forward twist he will topple over the bars *b* upon the skid tracks or the hearth, and after drawing out the bars *c* he can easily grasp and draw out the pair of bars *b*; and so on.

In Figure 2 of the drawings I have shown an arrangement wherein four bars are shown arranged with their ends in stepped relation to one another, as already described, followed by four other bars similarly arranged. In this case the bars *a*, *b* and *c* are drawn out in succession, and then, as already described, the workman will grasp the end of the bar *e*, toppling over the bar *d*, as before, and then draw out the bar *e*, followed by the bar *d*.

It will be understood that the bars may be arranged singly, as described, or in pairs, or in any other desired allocation.

In Figure 3 I have illustrated a stop or abutment 6, placed in the path of the projecting ends of the bars *b*, *d*, etc., at the side of the skid track opposite to the discharge door. As these projecting ends successively contact with the abutment, the opposite ends of the bars so contacting will be separated from those following, as shown, so that they can be readily grasped by the tongs in the hands of the workman and drawn out of the furnace chamber.

By placing a second stop 7, as indicated on Figure 3, at the side of the track opposite the stop 6 and in the path of the projecting ends of the bars *c*, *e*, etc., the automatic separation of each bar or pair of bars from those following can be accomplished and the invention thereby practiced in withdrawing the bars through a door in the end wall of the furnace chamber.

I claim as my invention:

The method of charging and feeding bars in heating furnaces which consists in arranging the bars in contiguous succession transversely of their line of travel with the ends of adjacent bars in transverse stepped relation to one another, pushing the bars through the heating chamber in such stepped relation, and withdrawing the bars from the furnace.

In testimony whereof I have hereunto set my hand.

FRANK W. BROOKE.