

(No Model.)

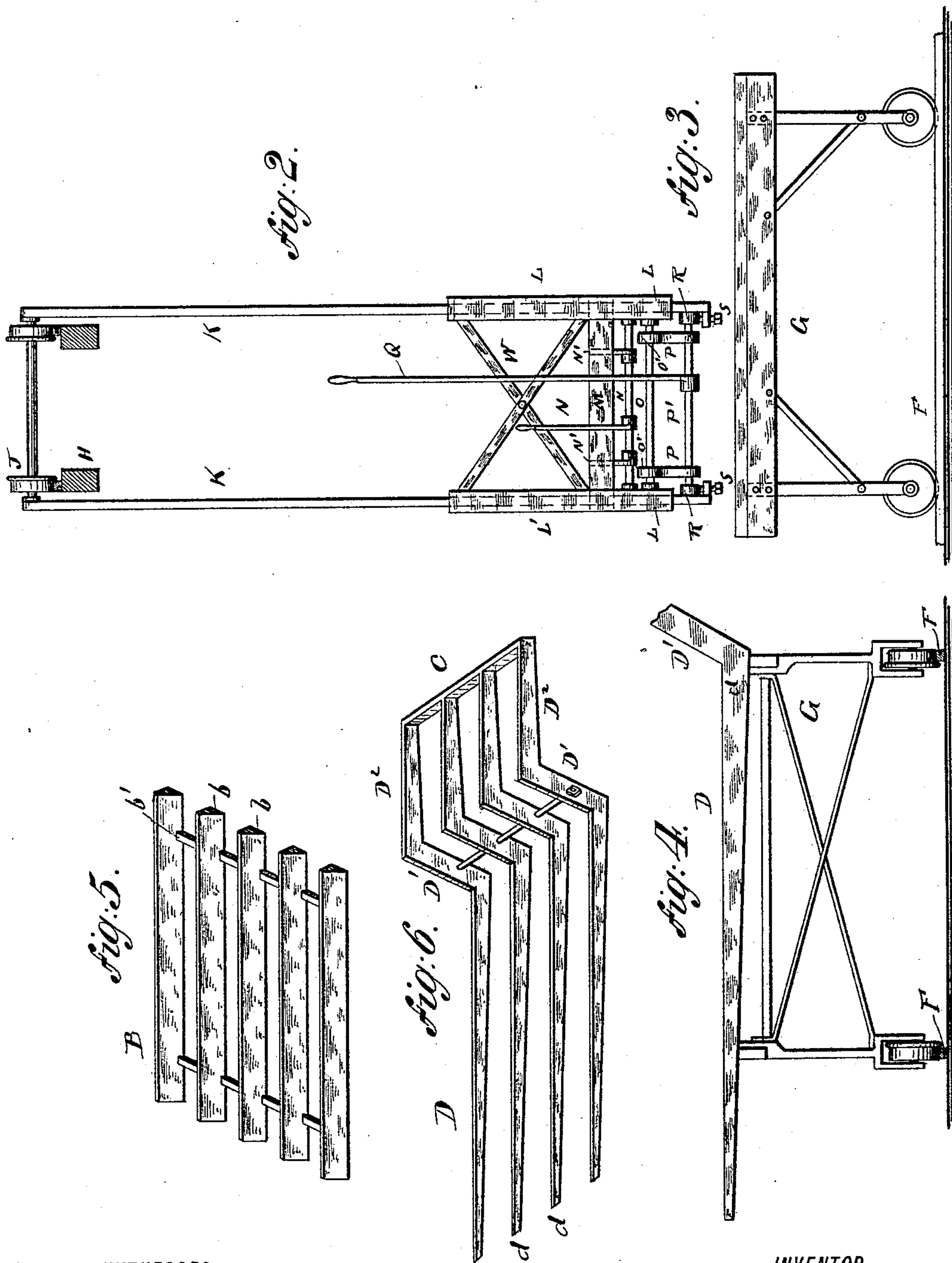
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A. H. FRANCK.

DEVICE FOR CHARGING AND DISCHARGING ENAMELING OVENS.

No. 463,503.

Patented Nov. 17, 1891.



WITNESSES:
A. Schehl.
Charles Schroeder

INVENTOR
A. H. Franck
BY *Loepp & Paege*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

AUGUST H. FRANCK, OF SHEBOYGAN, WISCONSIN, ASSIGNOR OF TWO-THIRDS
TO WILLIAM F. SCHULZ AND JOHN P. WILSON, BOTH OF SAME PLACE.

DEVICE FOR CHARGING AND DISCHARGING ENAMELING-OVENS.

SPECIFICATION forming part of Letters Patent No. 463,503, dated November 17, 1891.

Application filed March 11, 1891. Serial No. 384,571. (No model.)

To all whom it may concern:

Be it known that I, AUGUST H. FRANCK, a citizen of the United States, and a resident of Sheboygan, in the county of Sheboygan, Wisconsin, have invented certain new and useful Improvements in a Device for Charging and Discharging Enameling Ovens, of which the following is a specification.

This invention relates to an improved device for placing articles to be enameled into a furnace and removing said articles after they have been baked, which apparatus is simple in construction and saves much time and labor and avoids to a very great extent a loss or waste.

The invention consists in the combination, with an enameling-furnace, of a permanent grate in the same, movable forks having tines fitting in between the grate-bars, and a conveyer on which said forks are adapted to be held and to be moved in and out of the furnace and with which movable conveyer the grate can be raised or lowered while in or out of the furnace.

The invention also consists in the construction and combination of parts and details, which will be fully described hereinafter, and finally pointed out in the claims.

In the accompanying drawings, Figure 1 is a vertical longitudinal sectional view of my improved apparatus for placing wares into an enameling-furnace and removing them from the same, the furnace being shown in a longitudinal section. Fig. 2 is an end view of the movable supporting-frame. Fig. 3 is a side view of a truck for shifting the forks to the movable supporting-frame and furnace. Fig. 4 is an end view of said truck and a side view of one of the forks, parts being broken out. Fig. 5 is a perspective view of the permanent grate for the furnace; and Fig. 6 is a perspective view of one of the forks.

Similar letters of reference indicate corresponding parts.

The enameling-furnace A is constructed in the usual well-known manner, but is provided on its bottom with a permanent grate B, composed of a number of bars *b*, united by the cross-bars *b'*, which grate-bars *b* are separated such distance that the tines *d* of a fork

D can pass in between them, the grate-bars *b* being also of such height that the tines *d* of the fork D can be moved up and down between said grate-bars. The tines of the fork D are provided near their connected ends with a bend or offset *D'*, and above the same with the horizontal parts *D''*, at which parts *D''* the several tines are united by a cross-bar C. A greater or less distance from the front of the furnace two tracks *F'* are arranged parallel with the front end of the furnace, and on said tracks *f* a truck G is mounted to run, which truck serves for conveying the forks D to the device, by means of which the forks are moved into or out of the furnace. On the rails H, arranged above and in front of the furnace and parallel with the longitudinal axis of the same, the truck J is mounted to run, from which truck the two bars K project downward and are suitably braced from the truck. On the lower end of each bar K the vertical hollow shank *L'* of an L-shaped arm L is mounted to slide vertically, said shank *L'* being provided at the upper and lower ends with guide-rollers *L''*. The two sliding shanks *L'* are connected by a cross-bar M, and cross-braces W support a rocking shaft N, provided with two hooks *N'* and with a handle-lever *N''*. Below the rocking shaft N a transverse rod O unites the hollow shanks *L L'*, and on said rod O two anti-friction rollers *O'* are mounted, which rest on the edges of cams or eccentrics P, keyed on a rocking-shaft *P'*; provided with a handle Q, keyed thereon, and serving to turn said shaft and the eccentrics or cams P. The shaft *P'* is journaled at its ends in bearings R, that are vertically-adjustable on the lower ends of the bars K by two screws S, passing through the lugs at the lower ends of said bars K. The front ends of the L-shaped arms L are connected by a cross-bar T.

The operation is as follows: One of the forks D, of which there are two, rests on the truck G, and on said fork the articles to be enameled are packed in such a manner that they rest on and are supported by the tines. The truck D is then moved to the front of the baking-oven, and the truck J is moved toward the baking-oven to such an extent that the arms L pass under the upper horizontal parts

D² of the fork D. By means of the screws S the shaft P' can be adjusted higher or lower, and as the arms L L' are supported by means of the rollers O from said shaft P' the arms L
 5 can thus be adjusted by means of said screws S at any exact position to receive the higher horizontal parts D² of the fork D. After the arms L have been brought in the proper position the handle-lever N² of the rocking shaft
 10 N is pulled down, so as to cause the hooks N' to pass around the cross-bar C on the fork D, as shown in Fig. 1, thus securely holding the fork on the arms L L'.

By means of the handle-lever Q the cams or
 15 eccentrics P are turned so as to move the arms L L' upward slightly, so as to permit moving the truck G from under the fork. The fork while in the raised position is moved into the furnace by moving the truck J in the direc-
 20 tion toward the open end of the furnace. After the fork D has been moved into the furnace the desired distance the handle Q is moved upward for the purpose of lowering the arms L L' and the fork D². The articles that have been
 25 transferred into the furnace while resting on the tines of the fork D now rest on the upper edges of the grate-bar b, and the lowered fork can be withdrawn from the furnace and de-
 30 tached from the conveying device and by means of the truck G transferred back to be filled again, and so on. After the articles have been baked and they are to be removed, all that is
 35 necessary is to convey one of the forks while in lowered position and while held in the manner shown in Fig. 1 into the furnace in such
 a manner that the tines of the fork pass be-
 40 tween the grate-bars, then raise said fork in the manner described for the purpose of lifting the articles from the tops of the grate-bars upon the tines of the fork, then withdraw
 the fork and the articles thereon, move the
 truck G under the fork, and then lower the
 fork, detach it from the conveyer, and move
 45 the truck G with the filled fork thereon to a suitable place where the articles can be re-
 moved from the fork.

By using my improved device considerable fuel is saved, as the furnace-door need remain open but a very short time. The articles can

be handled very easily and rapidly and in 50
 great quantities. The permanent grate in the furnace is very durable and lasts a long time, as it is not subjected to sudden changes of temperature as the removable grates used
 heretofore have been. 55

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, with an enameling-fur-
 nace, of a permanent grate in the same, an in- 60
 dependent removable fork having tines fit-
 ting between the grate-bars, and a conveyer
 located outside of the furnace for introducing
 the fork into the furnace and removing it
 from the same, substantially as set forth. 65

2. The combination, with an enameling-fur-
 nace, of a fixed grate in the same, an inde-
 pendent and removable fork, the tines of
 which fit between the grate-bars, a conveyer
 for said fork located outside of the furnace, 70
 which conveyer is supported to move to or
 from the opening of the furnace, and means
 of raising or lowering said conveyer while in
 or out of the furnace, substantially as set
 forth. 75

3. The combination, with a furnace, of a
 fixed grate in the same, an independent re-
 movable fork, a truck, rails parallel with the
 ends of the furnace, on which rails the truck
 runs, a conveyer for the fork, which conveyer 80
 is supported to move toward or from the open-
 ing of the furnace, and means for raising or
 lowering the conveyer while in or out of the
 furnace, substantially as set forth.

4. The combination, with an enameling-fur- 85
 nace, of a fork having its tines united at one
 end by a cross-bar, a conveyer, and a rocking
 shaft provided with arms for embracing the
 said cross-bar and clamping the fork on the
 conveyer, substantially as set forth. 90

In testimony that I claim the foregoing as
 my invention I have signed my name in pres-
 ence of two subscribing witnesses.

AUGUST H. FRANCK.

Witnesses:

CARL DOSE,
 JOHN DIEKAN.