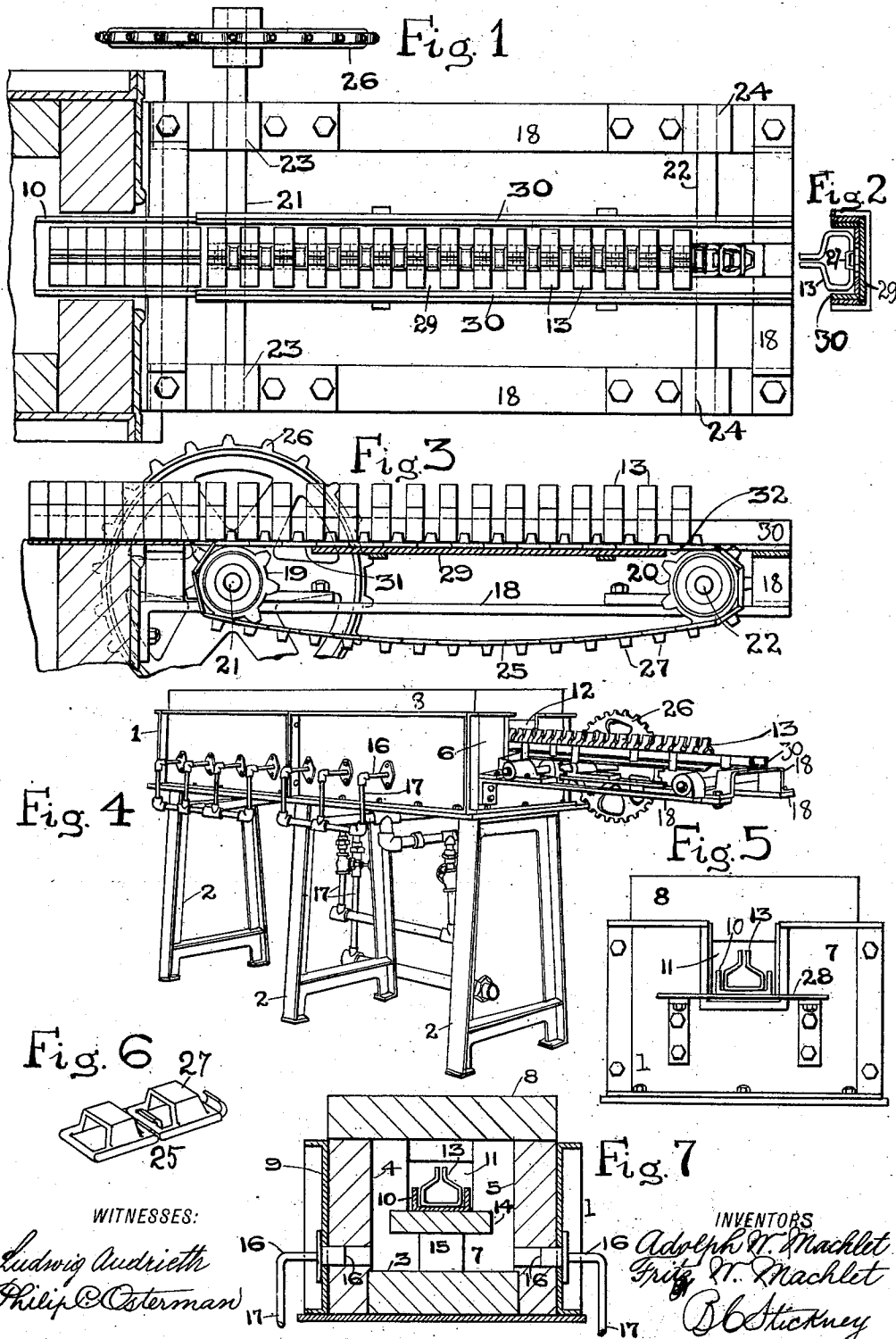


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A. W. & F. W. MACHLET.
FURNACE.

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FURNACE.

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To all whom it may concern:

Be it known that we, ADOLPH W. MACHLET and FRITZ W. MACHLET, citizens of the United States, residing in Elizabeth, county of Union, and State of New Jersey, have invented certain new and useful Improvements in Furnaces, of which the following is a specification.

This invention relates to gas and other furnaces of the kind employed for heating large quantities of small articles for various purposes, as hardening, annealing, etc.

The principal object of the invention is to provide means for increasing the efficiency of the furnace, and rendering it more convenient and less expensive to manipulate the articles. We also aim to reduce the cost and prolong the life of the apparatus.

In the preferred manner of practicing the invention, the articles or blanks are placed one after another upon the links of an endless traveling chain, the links having lugs to carry the articles along. The endless traveling chain is wholly outside of the furnace. The articles are deposited by the chain upon the end of a track which extends through the flame chamber or heat space of the furnace; and as each article is deposited upon said track, the preceding articles are forced a little along the track. In other words, the chain not only carries the articles one by one through the furnace, but also pushes them together and along the track through the furnace; this operation proceeding slowly enough to enable the articles to become properly heated, at the time they emerge from the furnace. The chain being always outside of the furnace does not become unduly heated, and hence objectionable to the attendant. Moreover rapid deterioration of the chain is avoided, because it is not exposed to the action of the flames. The furnace may be in the form of an entirely closed box, thereby avoiding waste of heat, and hence conducing to economy of operation; holes being provided in the ends of the furnace however, and the track extending through the holes; but the latter being not much larger than is necessary to accommodate the articles to be passed through the furnace. The track may rest upon a table within the furnace, and burners for gas and air may be provided in the lower part of the furnace below the table, whereby even and

proper heating of the articles is secured without liability of overheating them. Said holes in the ends of the furnace serve as vents for the products of combustion.

In the accompanying drawings Figure 1 is a sectional plan of the feeding-in end of a furnace, to which the improvements are applied. Fig. 2 is a cross-section of a part of the feeding portion of the apparatus. Fig. 3 is a sectional elevation of the parts seen at Fig. 1. Fig. 4 is a perspective view of the furnace. Fig. 5 is an elevation of the delivery end of the furnace. Fig. 6 is a perspective of two of the links forming a conveyor chain. Fig. 7 is a cross-section of the furnace.

A furnace 1 is seen at Fig. 4 with supporting standards 2, and comprises a bottom 3, sides 4, 5, ends 6, 7, and top 8 all made of refractory material, and forming a closed box contained in a metal casing 9. A track 10 in the form of a trough extends through the flame chamber of the furnace, and projects through openings 11, 12, in the ends of the furnace, and is of a size to accommodate articles 13 deposited thereon, and to confine them during their travel through the furnace. The track 10 rests upon a table 14 supported in the furnace upon blocks 15. Burners 16 for mixed air and gas, (which may be supplied by any suitable system of piping as indicated at 17) are let into opposite sides of the furnace at the bottom of the flame chamber below the table 14.

A bracket or support 18, in the form of an open frame, is mounted at one of its ends upon one end of the furnace, and a pair of sprocket wheels 19, 20, are mounted upon shafts 21, 22, journaled at 23, 24, upon the sides of said bracket. A chain 25 runs over said sprockets. The shaft 21 is provided with a power revolved driving wheel 26, the sprocket 20 being an idler. Upon each link of the chain is formed a lug 27. The articles 13 are deposited one by one upon the chain between the lugs, so that the latter carry the articles along to the receiving end of the track 10, and deposit them one at a time thereon. The sprocket 19 is adjacent to the receiving end of the track 10, and so arranged that each lug 27 pushes its article 13 upon the track 10 before passing down below said track around the wheel 19. Each article as it passes upon the track 10 is pushed by the

lug against the preceding article, and causes it to advance all of the prior articles, so that the latter are gradually pushed along the track 10 through the furnace and deposited upon a table 28 provided upon the delivery end of the furnace, whence they may be removed, chilled or otherwise treated.

The upper reach of the chain is supported upon a fixed plate 29, and side guides 30 are also provided; said plate 29 and guides 30 forming a trough which is substantially an extension of the trough 10; holes 31 and 32 being formed in the floor of said extension trough for the chain to pass through. The articles may be deposited one at a time upon the chain links as the latter pass off from the sprocket 20.

Having thus described my invention, I claim:

1. In combination, a furnace having an interior track, an endless chain, and wheels over which said chain runs in proximity to the end of said track; said chain having a succession of means to carry blanks to and deposit them upon the end of said track, and force them along the same.

2. In combination, a furnace having a track, a chain having a succession of lugs to carry blanks, means extending along said chain to guide the blanks, chain-driving means, and devices whereon said chain runs in proximity to the end of said track; said chain mounted in such relation to the track that the blanks carried along by said lugs are deposited *seriatim* on the track and forced therealong by the lugs.

3. The combination with a furnace having a track, of an endless chain mounted wholly outside of the furnace; and means for operating said chain; the chain having a succession of means to carry blanks to said track and deposit them thereon, and push them against one another and along said track.

4. In combination, a furnace having a track, an endless chain mounted outside of said furnace to receive the blanks, means for driving said chain, a succession of lugs upon said chain in position to carry blanks to said track and deposit them thereon, and push them together and along the track, and a plate to support said chain under the weight of the blanks.

5. In combination, a furnace having a

track, an endless chain mounted outside of said furnace, means for driving said chain, a succession of lugs upon said chain in position to carry blanks to said track and deposit them thereon, and push them together and along the track, and a blank-guiding trough through which said chain runs, said trough extending in line with said track away from the furnace.

6. In combination, a furnace having an interior track in the form of a trough, a blank-guiding trough outside of the furnace and about in line with said track, an endless chain running in said exterior trough and having a succession of lugs to carry blanks and deposit them upon said interior track, and means to drive the chain.

7. The combination with a furnace, of a trough extending through the furnace, and having an extension outside of the furnace, and an endless chain resting upon and running in said extension, an opening being provided in the bottom of the trough for said chain to run through, and a wheel beneath the trough for driving said chain; the latter having a succession of lugs to carry blanks along the extension and deposit them in the main portion of the trough and push them therealong.

8. The combination with a furnace, of a trough extending through the furnace, and having an extension outside of the furnace, and an endless chain resting upon and running in said extension, two openings being provided in the bottom of the trough for said chain to run through, and two wheels beneath the trough for carrying said chain; the latter having a succession of lugs for carrying blanks along the extension and depositing them in the main portion of the trough and pushing them therealong.

9. The combination with a furnace, of a conveyer chain for causing articles to traverse said furnace, said chain comprising links, each provided with a lug for conveying the blanks, and a sprocket wheel over which the chain runs; the lugs being hollowed to form sockets for the wheel sprockets.

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