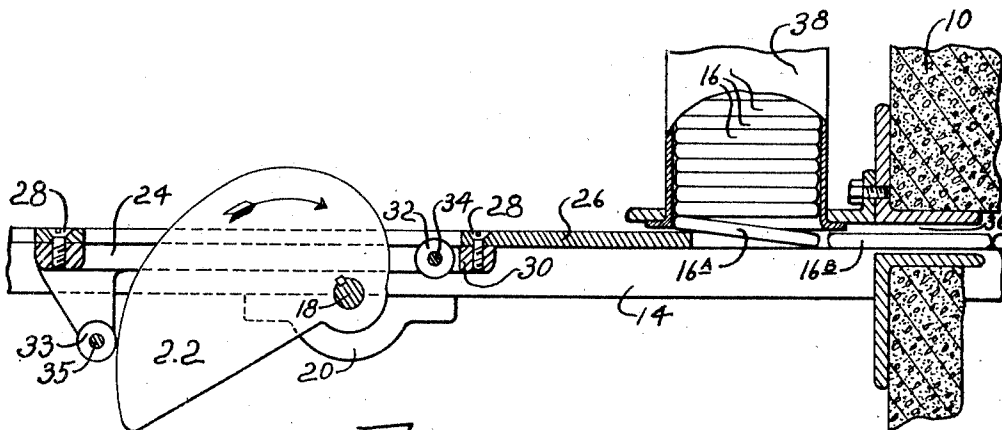
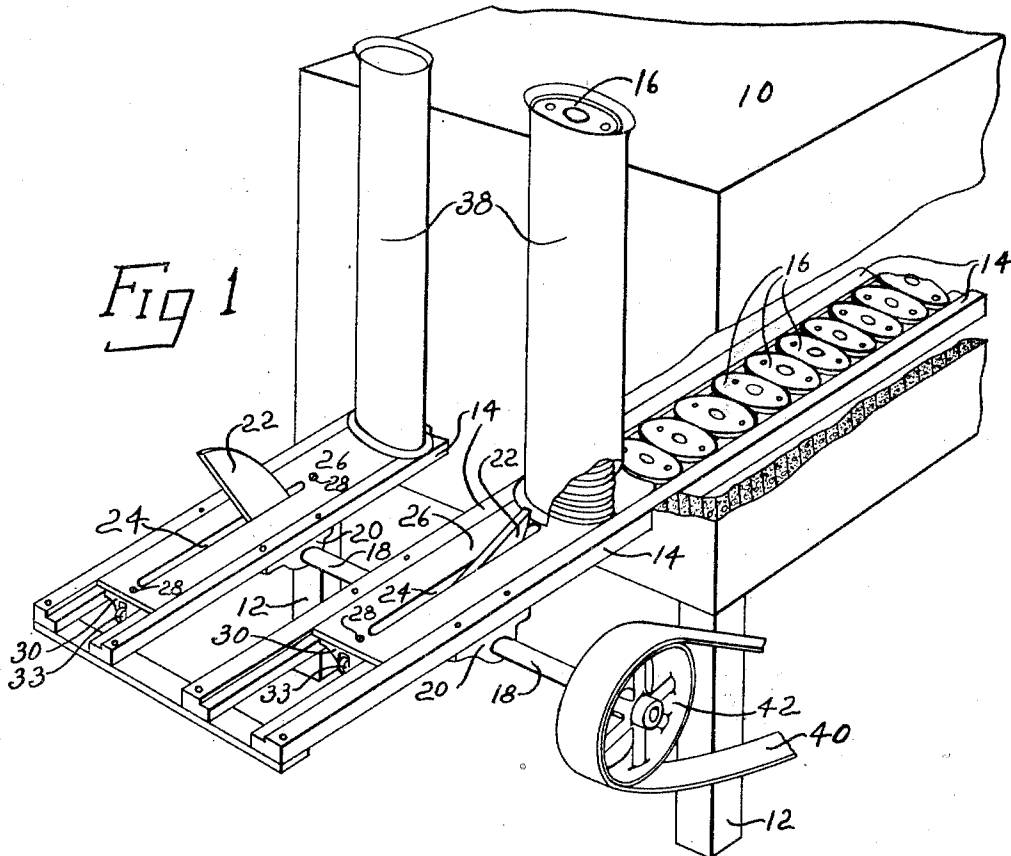


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T. J. LAURENCE
HEAT TREATING FURNACE

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HEAT-TREATING FURNACE.

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My invention relates to new and useful improvements in heat treating furnaces of the class in which the parts to be heat treated are pushed thru the furnace in a continuous procession.

In the treating of small parts the common method is to put the parts to be heated on a tray and slowly push the tray thru the furnace. This method requires a man to load and unload the trays and furthermore heat is not evenly distributed to all the small parts when they are piled on a tray.

An important object of my invention is to provide means in the form of a magazine for automatically feeding the parts to be heated, to a reciprocating member which is adapted to force the parts into and thru the furnace, one at a time and one in front of the other.

The manner in which my invention works will be more clearly understood by reference to the following specification and drawings wherein:

Fig. 1 is a view in perspective of the receiving end of a heat treating furnace embodying my invention, parts being broken away.

Fig. 2 is a part sectional view of the magazine feed for the furnace shown in Fig. 1.

I have shown a heat treating furnace 10 supported on legs 12. Extending thru the furnace and for a distance sufficient to support the feeding mechanism at the receiving end thereof, is a track 14 along which parts 16 to be heat treated are pushed.

Altho not shown, it is to be understood that there is a discharge opening in the rear wall of the furnace and that the parts after being sufficiently heated fall out this opening and into a receptacle or directly into a tempering liquid.

A shaft 18 parallel to the receiving end of the furnace 10 rotates in bearings 20 secured to the under side of the tracks 14. Secured to the shaft 18 is a cam 22 rotating in a slot 24 in a pusher plate 26. The plate 26 slides back and forth on the tracks 14 and secured beneath it by screws 28 is a cam engaging member 30. The member 30 slides between the tracks 14 and has a slot, the same as the plate 26, to allow the cam 22 to rotate therein. At each end of the slot in member 30 there are rollers 32 and 33, pivoted on pins 34 and 35 respectively, which act as roll-

er bearings between the cam 22 and the member 30.

Secured adjacent and extending above a receiving opening 36 in the furnace 10, is a tubular magazine 38 shaped similar to the outline of the parts 16 to be treated. The plate 26 is so shaped that when the cam 22, bearing on the roller 33 has moved it to the extreme left hand, or out, position, the lower opening of the magazine 38 is uncovered allowing a part 16^a to drop onto the tracks 14. When the cam 22 pushing on the roller 32 has moved the plate 26 to the extreme right, or in, position the part 16^a will be pushed into the furnace 10, thru the opening 36, to the position of piece 16^b and in so doing will advance the entire procession of parts 16 in the furnace. As the cam 22 continues to rotate it will push the plate 26 out to the left by bearing on the roller 33 and allow another part 16 to drop out of the magazine 38 onto the track 14 and then push it into the opening 36 and advance the parts 16 thru the furnace 10.

A means for driving the shaft 18 is shown consisting of a belt 40 and pulley 42. Any suitable means may be used such as gears or chains driven by a suitable source of power. The speed of the shaft 18 depends on the length of the furnace 10 and on the temperature to which the parts 16 are to be heated.

The magazine 38, track 14, cam 22 and pusher plate assembly 26 and 30 form one feeder unit. Any number of these units may be placed side by side depending on the width of the furnace. A workman, in operating this improved type of furnace, only has to keep the magazine 38 filled with the parts 16.

It is understood that various changes may be made in the feeder mechanism to adapt it to different shaped parts to be heat treated without departing from the spirit of the invention as explained in the preceding specification and claimed in the following claims.

What I claim is:

1. A device of the class described comprising a heat treating oven having a receiving opening leading thereinto, tracks leading into said oven thru said opening, a plate having a slot therein adapted to reciprocate upon said tracks and a cam rotating in said slot and adapted to operate said plate.

2. In combination with a heat treating

- oven, article supporting means extending into and thru said oven, and means for pushing articles to be heated along said supporting means, said pushing means comprising 5 a slotted member having a roller at each end of said slot adapted to form rolling contact between said member and a cam rotating in said slot for reciprocating said member.
- 10 3. A furnace feeding device of the class described comprising a track extending into a heat treating furnace, a magazine secured above said track, a slotted plate slidable on said track beneath said magazine, and a cam rotating in the slot in said plate to push 15 the plate toward the furnace, and to push said plate from the furnace a sufficient distance to uncover said magazine.
4. A pushing element of the class described comprising a plate having parallel 20 sides and a longitudinal slot therein, a cam engaging member secured beneath said plate and having a similar slot, and a roller at each end of the slot in said cam engaging member.

THOMAS J. LAURENCE.