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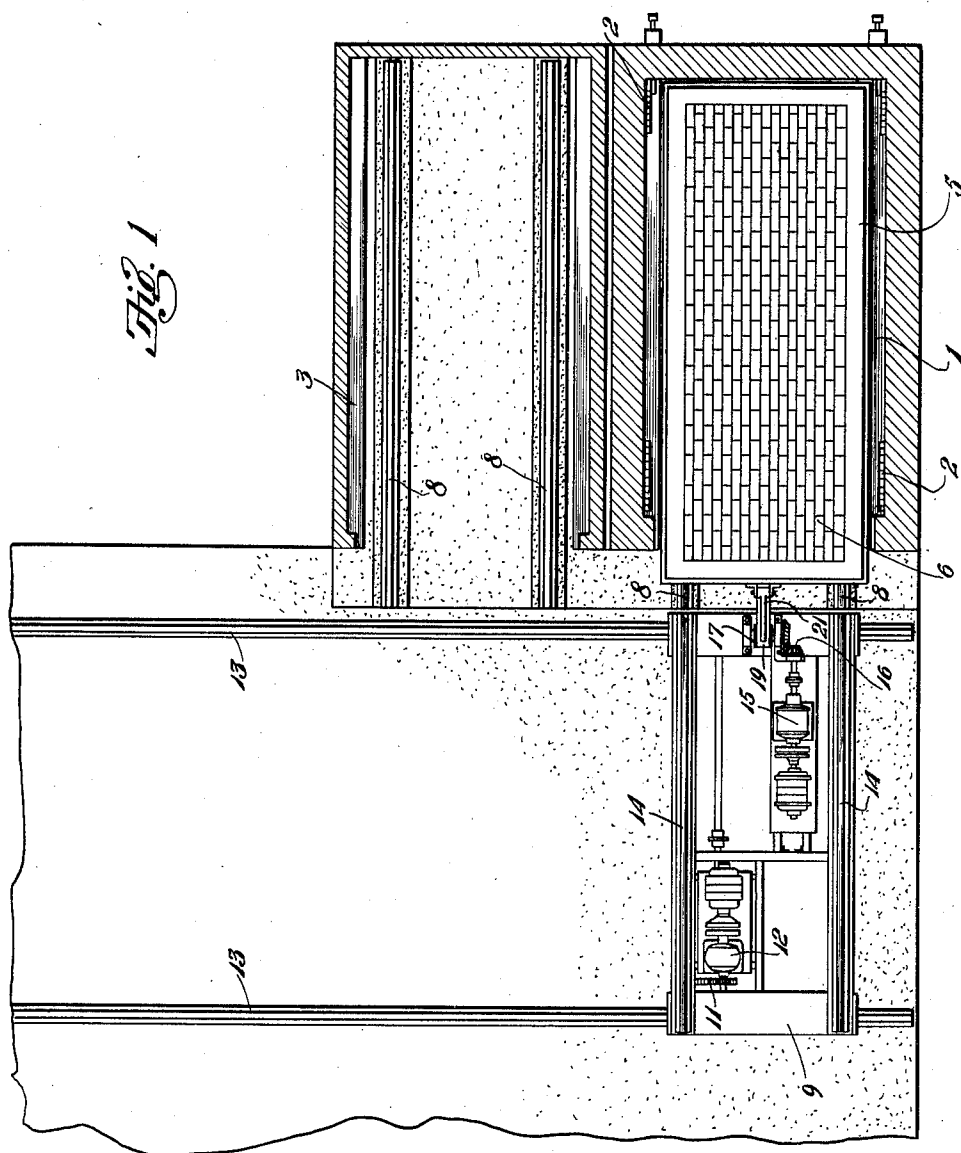
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F. T. COPE

TRANSFER CAR FOR ANNEALING FURNACES

Filed March 13, 1925

3 Sheets-Sheet 1



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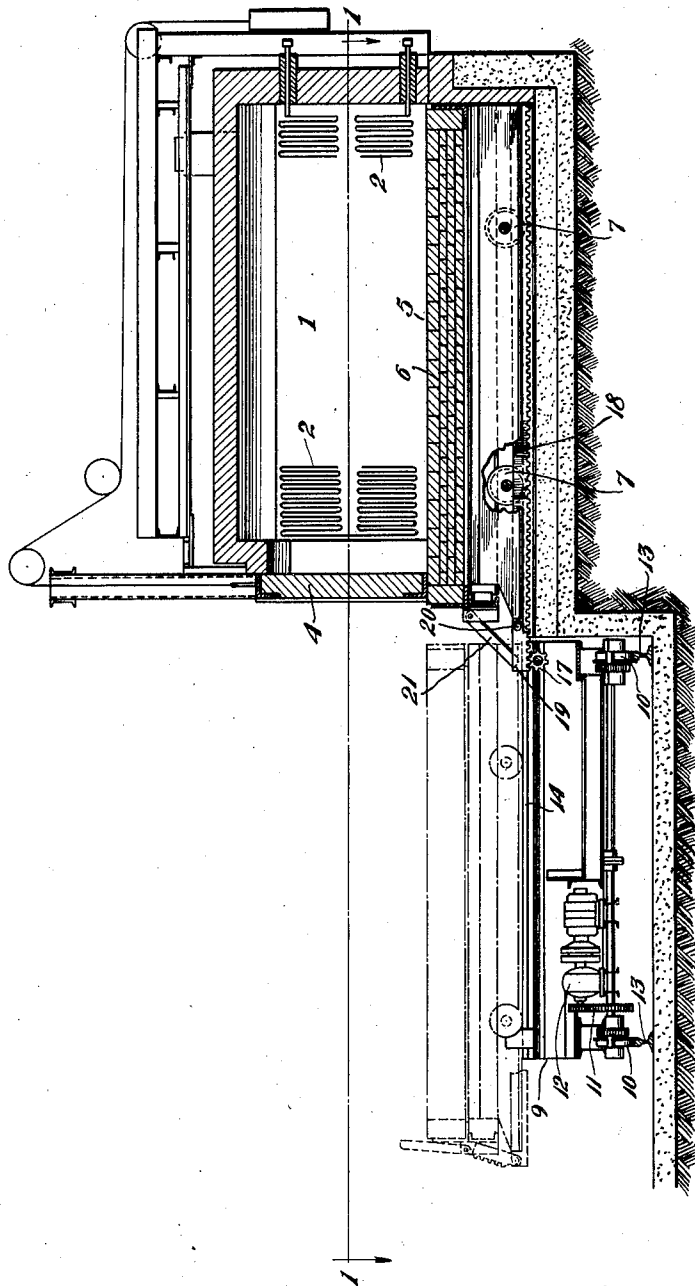
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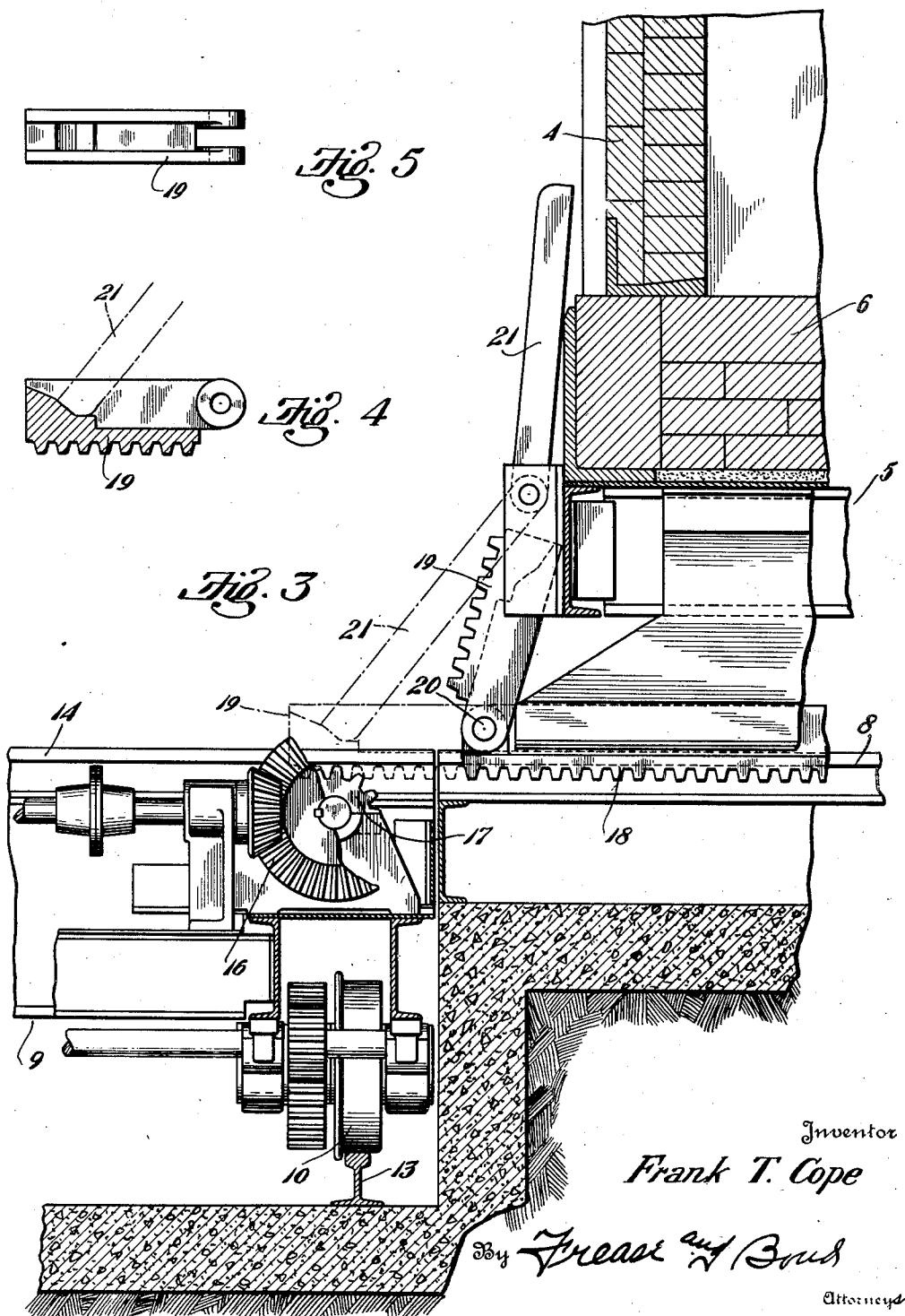
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TRANSFER CAR FOR ANNEALING FURNACES

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3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE.

FRANK T. COPE, OF SALEM, OHIO, ASSIGNOR TO THE ELECTRIC FURNACE COMPANY, OF SALEM, OHIO, A CORPORATION OF OHIO. (INC. 1923.)

TRANSFER CAR FOR ANNEALING FURNACES.

Application filed March 13, 1925. Serial No. 15,304.

This invention relates to annealing furnaces and more particularly to a furnace including a heating chamber and a slow cooling chamber in which a transfer car is used for conveying the heated material from the heating chamber to the slow cooling chamber, and the objects of the invention are to provide a rack and pinion mechanism for delivering the material on to the transfer car and removing it therefrom, the material being preferably located upon a car arranged to be moved into each chamber of the furnace from the transfer car, a rack being provided upon the material handling car and a pinion upon the transfer car, a portion of the rack being hinged and arranged to be swung back upon its hinge to permit the transfer car to pass freely in front of the chambers of the furnace after they are charged.

An embodiment of the invention is illustrated in the accompanying drawings, in which—

Figure 1 is a plan sectional view of a furnace embodying the invention, taken substantially on the line 1—1, Fig. 2;

Fig. 2, a longitudinal, vertical, sectional view through the furnace;

Fig. 3, an enlarged detail sectional view showing the rack and pinion means for moving the material carrying car to and from the transfer car;

Fig. 4, a detail sectional view of the hinged rack; and

Fig. 5, a plan view of the same.

Similar numerals of reference indicate corresponding parts throughout the drawings.

The furnace comprises a heated chamber 1 arranged to be heated by any well known means, such as the electric resistors 2 and an unheated chamber 3, preferably located adjacent and parallel to the heated chamber. A door, such as indicated at 4, is preferably provided for closing each of the chambers.

In operation, material to be annealed is placed in the heated chamber 1 and brought to the desired temperature, after which it is removed and placed in the slow cooling chamber 3 and permitted to slowly cool to produce the desired annealing effect.

The material is preferably carried upon a car 5 provided with a hearth portion 6 of fire brick or the like, and having the wheels

7 arranged to travel upon the tracks 8 in the bottom of the chambers 1 and 3.

For the purpose of moving the car 5, with the heated material, from the heating chamber 1 to the slow cooling chamber 3, a transfer car 9 is provided. The wheels 10 of this car arranged to be driven through gearing 11, by the motor 12 to move the car upon the tracks 13, which are located at right angles to the chambers 1 and 3.

Tracks 14 upon the transfer car are arranged to register with the tracks 8 in the chambers 1 and 3 to receive the material carrying car 5. A motor 15 is carried upon the transfer car and through the gearing 16, drives a pinion 17 arranged to mesh with the rack bar 18 upon the under side of the material carrying car.

The outer end portion of the rack bar comprises a section 19 hingedly connected to the end of the stationary bar as at 20 and arranged to be held in the extended or operative position, shown in Fig. 2, by the pivoted latch bar 21.

This hinged extension is necessary in order to move the material carrying car 5 entirely into either of the chambers 1 or 3 and it is also necessary that this section of the rack bar be hinged in order that it may be thrown back against the car, as shown in Fig. 3, to permit the transfer car to be moved upon its tracks 13 without interfering with the rack bar. The latch member 21 may also be thrown back against the end of the car, as shown in Fig. 3, thus permitting the transfer car to be moved past the end of the furnace chambers.

When it is desired to withdraw the car 5 from either of the furnace chambers, the transfer car is placed in position in front of said chamber and the hinged section 19 of the rack bar is lowered into engagement with the pinion 17 and locked in this position by means of the latch bar 21, permitting the car 5 to be withdrawn from the furnace and on to the tracks 14 of the transfer car.

I claim:—

1. An annealing furnace including a heating chamber, a transfer car, tracks in the chamber, tracks upon the transfer car, a material carrying car arranged to be moved upon said tracks, a rack upon the material carrying car, a driven pinion upon the transfer car for engagement with said rack, and a hinged section upon said

rack arranged to extend beyond the end of the material carrying car.

2. An annealing furnace including a heating chamber, a transfer car, tracks in the
5 chamber, tracks upon the transfer car, a material carrying car arranged to be moved upon said tracks, a rack upon the material
10 carrying car, a driven pinion upon the transfer car for engagement with said rack, and a hinged section upon said rack arranged
to be swung back out of the path of the transfer car.

3. An annealing furnace including a heating chamber, a transfer car, tracks in
15 the chamber, tracks upon the transfer car,

a material carrying car arranged to be moved upon said tracks, a rack upon the material carrying car, a driven pinion upon the transfer car for engagement with said rack, a hinged section upon said rack arranged to be swung back out of the path of the transfer car, and a hinged locking member upon the car for holding the hinged section of the rack in horizontal position, and arranged to be swung back out
25 of the path of the transfer car.

In testimony that I claim the above, I have hereunto subscribed my name.

FRANK T. COPE: