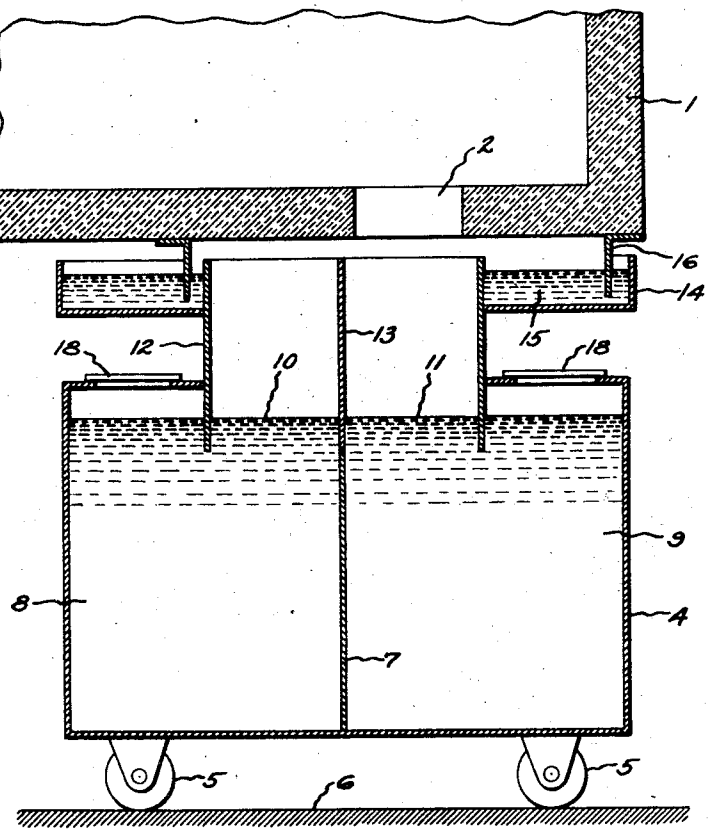
July 1, 1941. R. E. COX 2,247,770

HEAT TREATING APPARATUS

Filed July 27, 1940



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Patented July 1, 1941 2,247,770

UNITED STATES PATENT OFFICE

2,247,770

HEAT TREATING APPARATUS

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Application July 27, 1940, Serial No. 348,009

4 Claims. (Cl. 266—4)

My invention relates to heat treating apparatus and particularly to heat treating apparatus which includes a furnace operative with a non-oxidizing gas atmosphere and a quench tank for receiving material discharged from the furnace. It is the object of my invention to provide improved apparatus of this character whereby one may quench material discharged from the furnace in either of two quenching mediums carried by the tank, the change from one medium to the other being made with a minimum of effort and without danger of air entering the furnace.

My invention will be better understood from the following description taken in connection with the accompanying drawing and its scope will be pointed out in the appended claims.

In the single figure of the drawing which is a vertical cross-sectional view of one embodiment of my invention, 1 represents a lower corner of a furnace in which material such as small articles to be heat-treated are raised to the necessary temperature before being quenched. The furnace is shown having the discharge opening 2 in the bottom thereof and by suitable means, not shown, it is supplied with a non-oxidizing gas atmosphere. Arranged below the furnace is the quench tank 4 which preferably is mounted on antifriction means shown for example as the wheels 5 arranged to run on the track 6 whereby the tank may be moved bodily with respect to the furnace. Arranged intermediate the ends of the tank is the partition 7 by which the tank is divided into the two quenching chambers 8 and 9 which chambers are adapted to contain different quenching mediums, as liquids whose levels are indicated at 10 and 11 respectively. Projecting upward from the upper face of the tank is the receiving duct 12 having therein the partition 13 which is an extension of the partition 7 and by which the duct is divided into two parts connecting with the two chambers 8 and 9. Secured to and extending around the duct 12 is the endless trough 14 which contains a suitable sealing material 15 such as oil. Projecting downward into the trough 14 is the endless vane 16 which is attached in a gas-tight manner to the under surface of the furnace.

It will be noted that in the drawing the tank is shown in such a position relative to the furnace that material discharged from the opening 2 therein will drop into the chamber 9 of the tank for quenching. When it is desired to have the discharged material dropped into the other chamber 8 for quenching, the tank will be moved to the right a sufficient distance to bring that chamber beneath the discharge opening 2. It will also be noted that the trough 14 is materially wider than that necessary to receive the cooperating vane 16, the width being made great enough to allow free movement of the tank from the one position to the other. As a result of this construction one may quench the material discharged from the furnace in the quench medium in either of the two chambers of the tank by simply shifting the tank from one position to the other. Because of the seal construction which I have devised there is no possibility of outside air entering the furnace when the tank is in either of its two positions or while being moved from one position to the other.

In order that material may be removed from the quench tank, doors 18 are provided in the top of the tank and to prevent air from entering the furnace through the doors, they are sealed by extending the duct 12 below the level of the liquids in the two chambers.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. Heat treating apparatus comprising a furnace in which articles to be treated are heated in a non-oxidizing atmosphere, a quench tank having a plurality of chambers adapted each to contain a quenching medium, said furnace and tank being arranged for relative movement whereby articles discharged from the furnace may fall into one or the other of said chambers, and means forming a gas tight seal between said furnace and said tank and comprising cooperating parts constructed to have relative horizontal movement while in a sealing position to permit said relative movement of the furnace and tank.

2. Heat treating apparatus comprising a furnace in which articles to be treated are heated in a non-oxidizing atmosphere, a quench tank having a plurality of chambers and arranged for movement beneath said furnace whereby articles discharged therefrom may fall into one or the other of said chambers, a gas tight seal between said furnace and said tank and comprising cooperating members one secured to the furnace and the other to the tank, said members being constructed to have relative movement to allow said movement of the tank.

3. Heat treating apparatus comprising a furnace in which articles to be treated are heated in a non-oxidizing atmosphere, a quench tank having a plurality of separate chambers adapted to contain different quenching mediums, anti-

friction means for supporting said tank to facilitate its movement from a position in which articles discharged from said furnace are received by one chamber to a position in which they are received by the other chamber and means comprising cooperating members one fixed to said furnace and the other fixed to said tank for preventing the entrance of air into said furnace without interfering with the movement of said tank.

4. Heat treating apparatus comprising a furnace having a discharge opening in the bottom thereof, a quench tank having a plurality of chambers adapted to contain different quenching liquids and arranged to be moved horizontally whereby said chambers may be brought selectively beneath said opening, sealing means between said furnace and tank comprising an endless trough and an endless vane received thereby the width of said trough being sufficient to allow said horizontal movement of the tank.

RALPH E. COX.