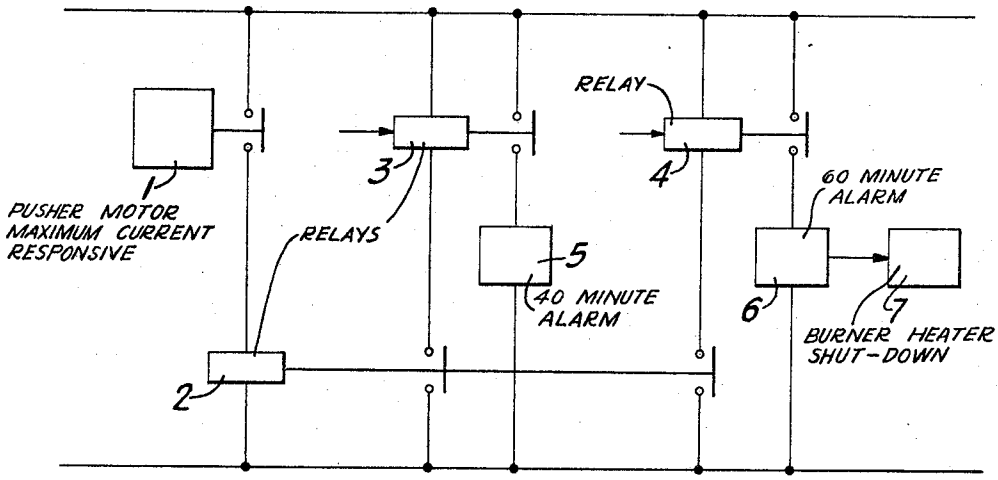
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METHOD FOR MONITORING THE HEATING OF COKE OVENS IN RELATION TO A PUSHING SEQUENCE

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METHOD FOR MONITORING THE HEATING OF COKE OVENS IN RELATION TO A PUSHING SEQUENCE

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ABSTRACT OF THE DISCLOSURE

According to the invention, the pushing sequence of the pusher machine is determined by the maximum current input and when this is compared with the stipulated oven schedule, time relays are activated, after the expiration of preselected time intervals, that shut off the supply of heat to the coke oven battery.

BACKGROUND OF THE INVENTION

The object of the invention is a process for supervising the heating of by-product coke ovens.

In the operation of by-product coke ovens it is indispensable to maintain the oven schedule, by which the sequence and time interval of the pushing of coke are stipulated. This is especially true when operating the coke ovens at short working periods with high heating-flue temperatures, which can amount to about 1600° C. A delay of the pushing sequence would lead to overheating inside the heating flues at these temperatures, and the refractory oven masonry would soon be destroyed thereby. In addition, it is also necessary to avoid an overheating of coke charges that are completely coked when a delay occurs.

The object of the invention, therefore, is to provide a process which makes it possible reliably to avoid such overheatings as a result of deviations of the oven schedule.

SUMMARY OF THE INVENTION

The method of the invention comprises determining the pushing sequence of a pushing machine associated with the coke oven battery and determining the maximum current input to the pushing machine motors. Then, activating time relays, set to a certain preselected time interval, throttle or shut down the heat supply to the coke oven battery.

BRIEF DESCRIPTION OF THE DRAWING

The drawing illustrates schematically equipment suitable for carrying into practice the method of the invention.

DETAILED DESCRIPTION

According to the invention, it is suggested that the pushing sequence of the pusher machine be determined by its current input and compared with the stipulated oven schedule, and that the delays of the pushing sequence, determined in this manner, be used as impulse for throttling or interrupting the supply of heat.

Suitable instruments for measuring and recording the current input in the particular pushing of the coke charge, and consequenty, simultaneously for determining the pushing sequence, i.e., the time interval between individual pushing operations, are suitably installed on a central control panel, and are coupled with the control for supply of heat. This coupling can be effected in various

manners. In the drawing, one embodiment of a control installation is schematically represented.

A maximum contactor 1 is in the ammeter for the pusher ram drive mechanism. When coke is being pushed, the current to the pusher ram drive motors increases to a maximum and the maximum contactor closes. The closing of the maximum contactor 1 activates relay 2. This activation, in turn, activates relays 3 and 4.

Now, if the pushing sequence of the coke oven battery is 30 minutes, for example, then the time relay 3, in case the next oven has not yet been pushed, at the end of 40 minutes, sends an impulse to the alarm 5 which optically and/or acoustically announces the absence of a push according to schedule.

If the next push has not occurred, for example, after another 20 minute delay, then the time relay 4 activates the alarm 6 which, in turn, activates the alternating blast shifting arrangement 7 in such a way that the heating is throttled or rather is shut down.

According to a preferred modification of the invention, it is possible, in case of a delay of the pushing sequence, first to effect, via a time relay an optical or acoustic prewarning calling, for a throttling of the supply of heat and, in case of a longer interruption, for automatically shutting off the supply of heat.

The time after which the prewarning occurs can be selected, for example, at 40 minutes. If operation of the pusher machine is still interrupted after 60 minutes in all, heating is stopped by first closing the gas valves and then centrally throttling the draft to about 4 mm. water gage in the elbows. The operating condition is then safe.

After shutting off the supply of heat, the decision as to when the heating of the coke oven can be resumed is dependent on the type and extent of the breakdown, which led to the interruption of the supply of heat, and it must be made by superintending personnel.

With the process according to the invention, care is taken in a reliable manner that damages to the oven masonry as a result of overheating are no longer possible in case of the occurrence of any type of breakdowns or interruptions in the sequence of operations of a group of coke ovens. These damages are expensive to repair and they also result in a considerable loss of production.

Although the invention has been described herein with a certain degree of particularity, it is understood that the present disclosure has been made only as an example and that the scope of the invention is defined by what is hereinafter claimed.

What is claimed is:

1. Method for monitoring the heating of a coke oven battery comprising the steps:
   (a) determining the pushing sequence of a pushing machine associated with said battery;
   (b) determining the maximum electrical current input to the drive motors of said pushing machine ram and activating a time delay relay in response to the maximum current input to energize a relay adapted to operate an alarm after a preselected time interval;
   (c) utilizing time delays in pushing after elapse of a preselected time interval to activate apparatus adapted to shut down the supply of heat to said coke oven battery.

2. The invention of claim 1 including the step:
   (a) effecting a warning signal after the elapse of said preselected time interval.

3. The invention of claim 1 including the step:
   (a) activating a second time relay after a second preselected time interval subsequent to the expiration of said first time interval; and
   (b) shutting down the supply of heat to said coke oven

battery upon the expiration of said second preselected time interval.

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