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MEANS FOR DETERMINING THE CORRECT POSITIONING OF THE OPERATING MACHINES OF COKE OVEN BATTERIES

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Fig. 1

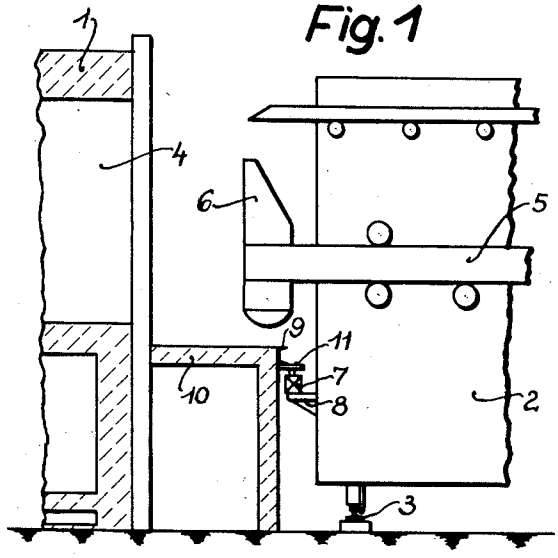
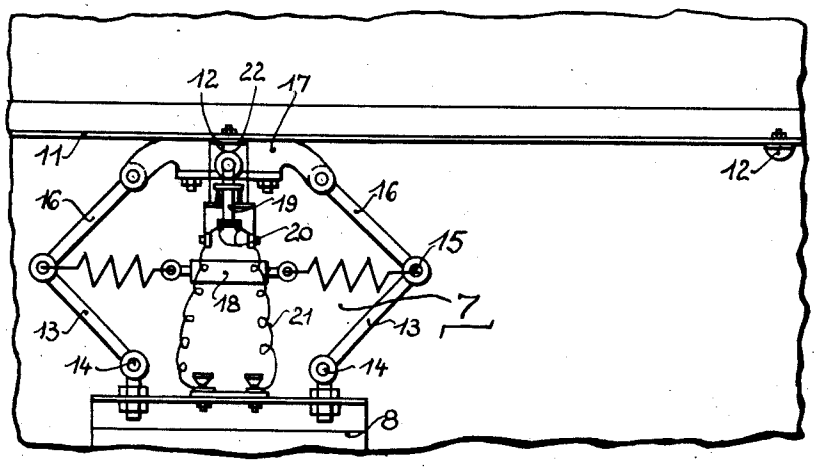


Fig. 2



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MEANS FOR DETERMINING THE CORRECT POSITIONING OF THE OPERATING MACHINES OF COKE OVEN BATTERIES

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1 Claim. (Cl. 200—61.44)

This invention concerns means for determining the correct positioning of the operating machines driven along in front of a coke oven battery in axial alignmnet with an oven chamber which is to be discharged.

It is not always possible for an operator to determine without difficulty whether, for example the head of the pusher ram (on the coke pusher machine), the devices on the door handling mechanism for gripping the door, or the guide walls of the coke guide means, are properly aligned on the axis of an oven chamber from which the coke is to be discharged. A series of ancillary devices have therefore been proposed to assist in this.

Thus, for example, markings have been provided on the buckstays of the battery and an indicator mechanism on the machine, which markings have to be brought into register to determine the correct position. A marking of this nature which depends on the actual position at the time of the operator with respect to such axis and the degree of his reliability, is not always a guarantee that the machine is exactly in its proper operating position, that is in axial alignment with the oven chamber concerned.

It is also known, using so-called overrun elements on the operating machine, to make contact with a current-carrying part, for example a roller, disposed in front of each oven chamber whereby the current is conducted from the oven battery to the operating machine. By this means, the operating motor cannot be brought into action until the true working position is reached. It is, however, necessary, to have a special conductor for each oven chamber in this prior arrangement, and this involves, depending on the size of the oven battery, the use of an expensive, cumbersome and obstructive cable, which may have to be of large cross section.

The present invention provides a simple mechanism for determining the correct working position of the operating machine in front of an oven chamber, in the form of a pressure switch which is arranged on the operating machine and, in use is applied under spring pressure against a guide rail, or the like, disposed along the oven battery, the arrangement being such that the arrival of the operating machine at the correct working position is indicated by a signal emitted in response to the operation of this pressure switch when actuated by means of an abutment, or the like, disposed on the rail, or the like, one of these elements being individually provided in the vicinity of each oven chamber.

In accordance with a further feature of the invention each abutment, or the like, is adjustably mounted in front of each oven chamber so that they can be set in an adjusted position to compensate any inaccuracies which may develop at any time and thus ensure the correct working position of the machine.

Yet another feature of the invention lies in arranging the pressure switch in the supply circuit of a motor on operating machine, so that this circuit cannot be closed until the pressure switch has been operated.

An embodiment of the invention is illustrated by way of example in the accompanying drawings in which—

Figure 1 is a diagrammatic vertical section through the end of an oven chamber with a coke pusher machine arranged in front thereof.

Figure 2 illustrates a pressure switch constructed and arranged in accordance with the present invention.

The coke pusher machine **2** is propelled in front of the oven battery **1** on rails, one of which is shown at **3**. The ram **5**, with head **6** for discharging the coke from the oven chamber **4**, is pushed into this chamber by the action of a driving motor which has not been illustrated in the drawing, whereupon the coke is forced out of the chamber **4** into a quenching car at the other side of the oven battery, also not shown, via a coke guide assembly adapted to be propelled in front of the oven chamber on that side.

Mounted on a bracket **8** of the pusher machine **2** is a pressure switch **7** which is illustrated in more detail in Figure 2 and which is applied against a rail **11** disposed on a channel iron **9** on the service platform **10** of the battery.

As can be seen from Figure 2, a conical, downwardly tapered, overrun abutment **12** is adjustably mounted on the rail **11** or directly on the channel iron **9** of the service platform **10** on the axis of each oven chamber. The pressure switch **7** which is firmly connected to the pusher machine **2** has lever arms **13** each of which is pivoted at one end **14** to the bracket **8** of the pusher machine and at the other end **15** is articulated to further levers **16**. The two levers **16** are pivotally connected to a slide **17** and each articulation point **15** is coupled by a tension spring to a connector element **18**, so that the slide **17** is held positively applied against the guide rail **11**.

This slide **17** has a recess **22** constructed in conformity with the abutments **12** and in which each of the latter will be accommodated when the proper working position in front of the corresponding oven chamber is reached. Under these circumstances a spring pressed pin **19** is applied against the contact **20** of a circuit **21**. This latter is connected to a signalling lamp or acoustic signalling device, or to both, at the operating footplate of the coke pusher machine, whereby the positioning of the machine for operation is immediately indicated.

Preferably the circuit **21** is also coupled with the motor for driving the ram **5**, in such a way that the feed circuit of the motor cannot be closed, and thus the latter brought into operation, until the pin **19** has been actuated.

A pressure switch such as that described can similarly be arranged on the coke guide mechanism in order to ensure the correct positioning of the guide walls which are brought up to the oven chamber to be discharged. Furthermore a switch of this nature can also be applied to the door handling mechanism to guarantee proper engagement of the levers which are used to lift the door.

What I claim is:

Apparatus for determining the correct axial registering position of an operating machine movable in front of a coke oven battery, comprising, a guide rail in fixed position at the front of a battery and spanning several oven chambers thereof with spaced abutments thereon in fixed relation to the axis of the oven chambers and individual thereto, a portion of a circuit and spring urged switch for opening and closing said portion of a circuit both movable with an operating machine along the guide rail in front of the battery, a bracket on the operating machine in fixed relation thereon and co-related to the operating location of the machine relative to the axes of the individual oven chambers, a pair of upwardly diverging lower arms pivoted at their lower ends to said bracket, a pair of downwardly diverging upper arms articulated

at their lower ends with the upper ends of the lower arms, a slide pivoted at opposite ends to the upper ends of the upper arms, tension springs connected with the articulated ends and also connected with each other by a connecting element, to maintain the slide in contact with the guide rail, said slide having a recess in the same for entrance of the abutments on the guide rail and said spring urged switch being disposed beneath the slide with a member

in position to be operated by the abutments on the guide rail when they enter the recess, for operation of the switch for the aforesaid portion of the circuit.

References Cited in the file of this patent

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