

F. TSCHUDY.
 AIR AND STACK VALVE FOR REVERSING FURNACES.
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Patented Aug. 5, 1913.

Fig. 2

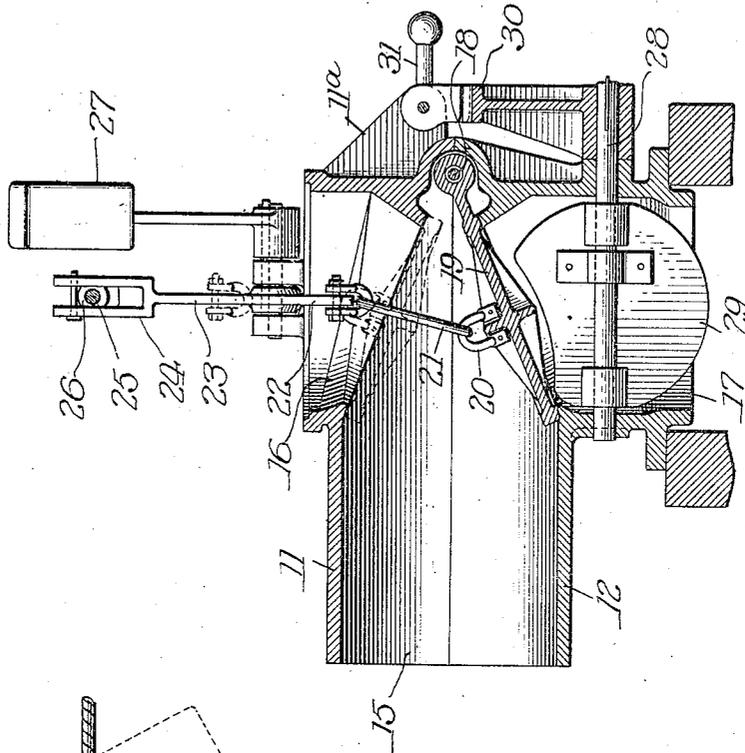
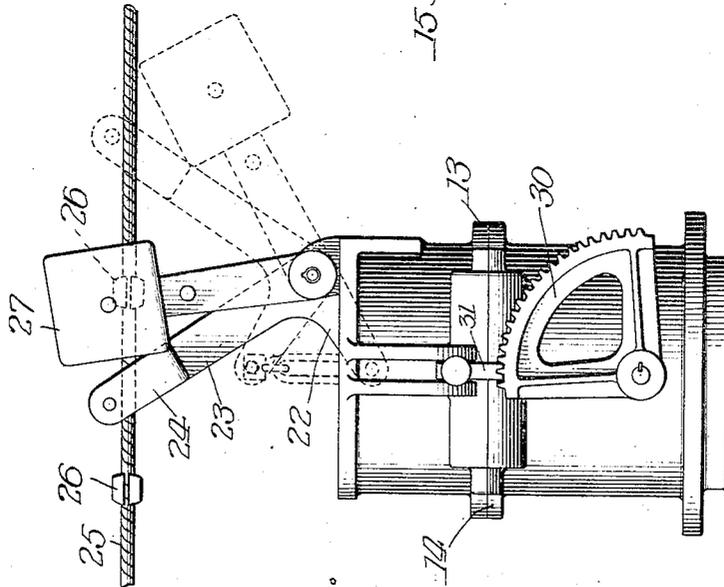


Fig. 1



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UNITED STATES PATENT OFFICE.

FREDERICK TSCHUDY, OF BIRMINGHAM, ALABAMA.

AIR AND STACK VALVE FOR REVERSING-FURNACES

1,069,206.

Specification of Letters Patent.

Patented Aug. 5, 1913.

Application filed June 17, 1911. Serial No. 633,849.

To all whom it may concern:

Be it known that I, FREDERICK TSCHUDY, a citizen of the United States, residing at Birmingham, in the county of Jefferson and State of Alabama, have invented certain new and useful Improvements in Air and Stack Valves for Reversing-Furnaces, of which the following is a specification.

My invention relates to regenerative reversing by-product coke ovens and has particular reference to a novel valve for use in connection with such furnaces.

In the operation of coke ovens of the above description, it is usual to admit air and gas from either end of the heating furnace; that is, the air and gas are admitted from one side, mixed and burned, the products of combustion passing through the checker work out to the stack. When the furnace is reversed, the air is received into the furnace through the checker work, previously heated by outgoing products of combustion.

My invention has for its object the provision of a valve by means of which, when in one position, air may be admitted to the furnace and, when in the other position, the products of combustion may pass there-through into the stack flue. To this valve is added a novel regulating damper by means of which each individual furnace in a battery of many furnaces may be regulated to suit the requirements of that furnace.

With these objects in view it may be considered that my invention consists broadly in a combined air and stack reversing and regulating valve, a particular description of which will appear hereinafter and be pointed out in the claim.

My invention will be more readily understood by reference to the accompanying drawings, wherein—

Figure 1 is an end elevation of a valve such as contemplated by me, and Fig. 2 is a central, vertical section through the valve shown in Fig. 1.

Referring more particularly to the drawings, it will be seen that I provide a body portion composed of upper and lower halves 11 and 12 respectively. These halves are provided with abutting flanges 13, 14, through which suitable fastening means may be inserted. The two portions, when united form a duct 15, which may communicate with the interior of a furnace and

through which may pass the incoming air or outgoing products of combustion. The upper half 11, of the main member contains an air inlet opening 16, which may, as at present contemplated, communicate with the atmosphere or may connect with a suitable source of supply either at atmospheric or higher pressure. The lower half 12, of the body portion contains a duct 17, communicating preferably with the stack flue, not shown.

Mounted on a shaft 18, which is seated in bearings formed at the line of division between the upper and lower halves, I provide a valve member 19, adapted when in one position, to cover the opening 16 and in the other position to cover the opening 17. Mounted on the member 19, I provide a loop 20, to which may be connected a link 21, joined by any suitable means to one arm 22, of a rocker, the other arm 23 having a bifurcated portion 24, a cable 25 being seated between the two arms formed by the bifurcation. In the present instance the connection to the cable is loose or sliding, stops 26 being provided on the cables, a small amount of lost motion being thereby provided. Also keyed to the shaft on which the rocker arm is mounted is a counter-weight 27. As shown in Fig. 1, when the valve 19 is in its lowermost position, the counter-weight is slightly off center and exerts no influence on the rocker arm. However, as shown in dotted lines, when the rocker has been moved to the right, as viewed in Fig. 1, the counter-weight will tend to hold the valve 19 securely over the opening 16. This provides against any possible accidental opening of the valve.

Mounted in the opening 17, by means of suitable bearings in the lower half 12, I provide a shaft 28, having secured thereto and turning therewith a damper 29. As shown, a portion is removed from the damper 29, in order that when it is in the position of Fig. 2, it may clear the valve seated over the opening 17. Keyed to the shaft is a segmental gear 30, provided for the operation of the damper and its retention in adjusted position. A pawl or stop 31, mounted on the integral projection 11^a, co-acts with the teeth of the gear 30 and serves to hold the damper in adjusted position.

It will be seen that the valve seats in the parts 11, 12 are circular and continuous, the shaft for the mounting of the valve 19 being

so arranged that a perfect contact of the valve may be had at all points on the valve seat, thus preventing possible leakage.

Various modifications may be made such as will suggest themselves to those skilled in the art, all which modifications I consider to be within the scope of my invention.

I claim:

10 An air and stack valve for reversing furnaces comprising in combination a casing composed of two halves suitably joined at their edges forming a conduit, the upper

half of said casing containing an opening to the atmosphere, the lower half containing an opening communicating with the furnace stack, a flap valve pivoted at the junction of the two halves and adapted to close either the opening to the atmosphere or to the stack, substantially as described.

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