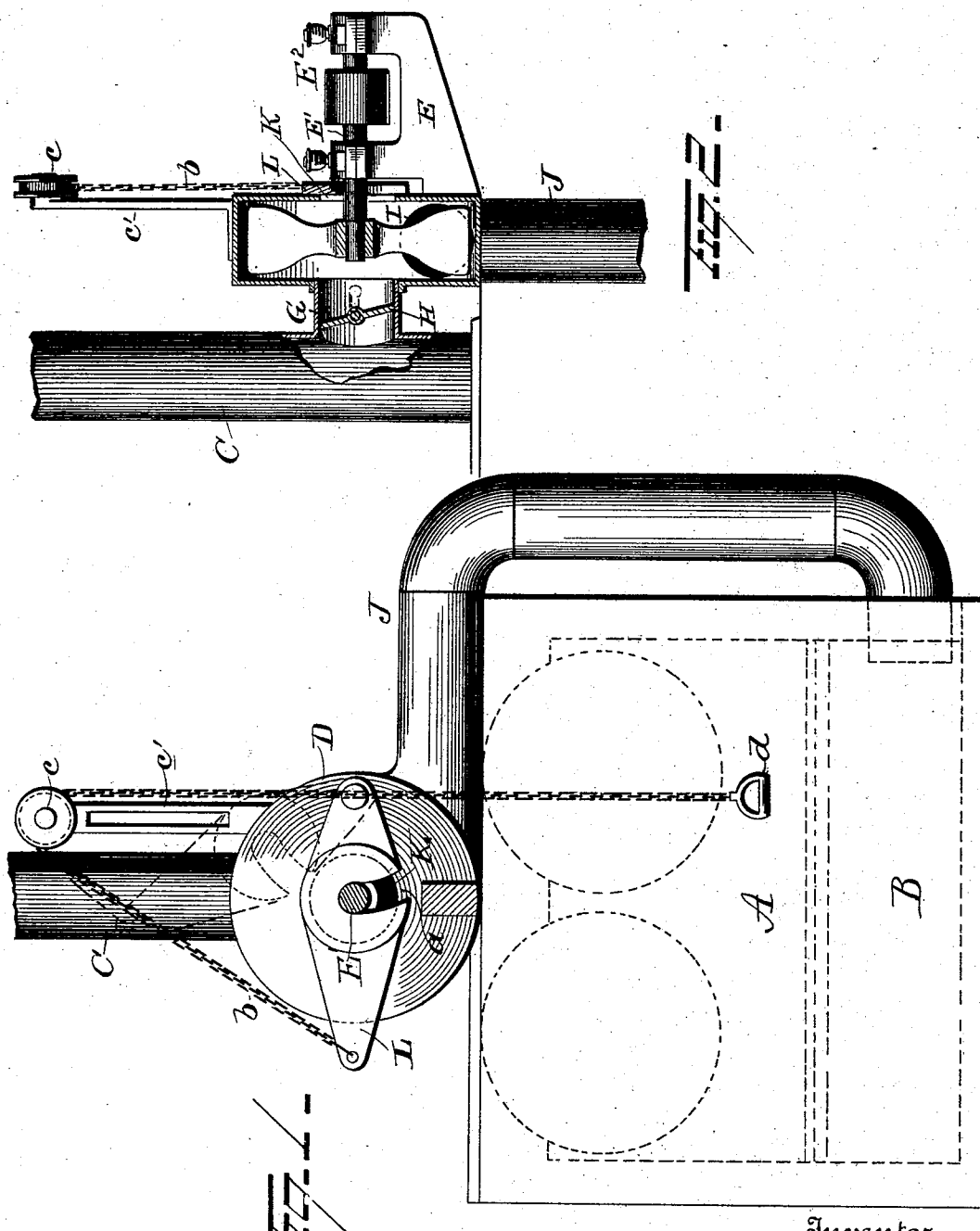


(No Model.)

M. W. KEENE.  
FURNACE.

No. 491,115.

Patented Feb. 7, 1893.



Witnesses  
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# UNITED STATES PATENT OFFICE.

MILTON WALTER KEENE, OF DALLAS, TEXAS, ASSIGNOR OF ONE-THIRD TO  
LOUIS R. HENKLE, OF SAME PLACE.

## FURNACE.

SPECIFICATION forming part of Letters Patent No. 491,115, dated February 7, 1893.

Application filed August 20, 1892. Serial No. 443,584. (No model.)

*To all whom it may concern:*

Be it known that I, MILTON WALTER KEENE, a resident of Dallas, in the county of Dallas and State of Texas, have invented certain  
5 new and useful Improvements in Furnaces; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the  
10 same.

My invention relates to an improvement in furnaces, and more particularly to means for returning smoke and gas to the ash pit.

The object of the invention is to produce  
15 simple and efficient devices for returning smoke and gas to the ash pit of a furnace.

A further object is to produce means whereby to conduct smoke and gas to the ash pit of a furnace and regulate the admission of air.

20 With these objects in view the invention consists in certain novel features of construction and combinations and arrangements of parts as hereinafter set forth and pointed out in the claim.

25 In the accompanying drawings: Figure 1 is a front elevation of a furnace having my improvements applied thereto. Fig. 2 is a side view of my improvements.

A represents a furnace, B the ash pit and  
30 C the smoke stack.

Located on top the furnace adjacent to the smoke stack or at any suitable location, is a fan casing D, from which a bracket E projects. A shaft E' is mounted in the bracket  
35 E and projects within the casing D, where it has a fan, secured to it. The shaft E' is also provided with a pulley E<sup>2</sup> for the reception of a strap from any convenient source of power, whereby to transmit motion to the fan.

40 The fan casing D is connected; by a pipe G, with the smoke stack C, and in this pipe a valve or damper H is located, whereby the communication between the fan and smoke stack can be regulated. The outlet I of the  
45 fan is connected, by a pipe J with the ash pit B of the furnace, as shown in Fig. 1.

The side of the fan casing D, opposite to the connection of the pipe G therewith, is made with an opening K, adapted to be covered  
50 by a pivoted block or valve L. The

block or valve L is pivotally connected at one end to the fan casing, and at its other end, preferably extends beyond the same, being provided at a point between its ends with a curved slot *a* for the accommodation of the  
55 shaft E'. To the free end of the valve L a chain *b* is attached and passes upwardly over a pulley *c*, supported by a bracket *c'* secured to the casing D. After passing over the pulley *c* the chain *b* extends downwardly to a  
60 point within easy reach of the operator, where it is provided with a knob *d*. By these means the valve L can be raised or lowered to open or close the opening K and thereby the inlet of air to the fan may be easily regulated.  
65 When it is desired to increase the heating capacity of the furnace the valve L will be opened more or less to allow fresh air to enter the fan, and thus increase the supply of oxygen. When it is desired to reduce the  
70 heat of the furnace, the valve L will be closed.

To operate the devices above described, first close the doors of the ash pit; then open the damper H. Then open the valve L until the fire gets white. There will then be little or no  
75 smoke discharging through the stack.

Having fully described my invention what I claim as new and desire to secure by Letters Patent is:

The combination with a furnace, a smoke  
80 stack, and a pipe extending from one to the other, of a chamber formed in the pipe, a rotary fan therein, said chamber having an opening for air formed around the axle of the fan; a valve pivoted at one end at a point adjacent to the axle of the fan and provided  
85 with an open slot whereby it straddles the axle, a flexible device for raising the free end of the valve, and said valve adapted to drop by gravity and rest upon the axle when in its  
90 extreme depressed position, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

MILTON WALTER KEENE.

Witnesses:

B. J. RAUCH,  
J. D. FOURAKER.