

(No Model.)

D. McCOWATT.
FURNACE DAMPER.

No. 486,733.

Patented Nov. 22, 1892.

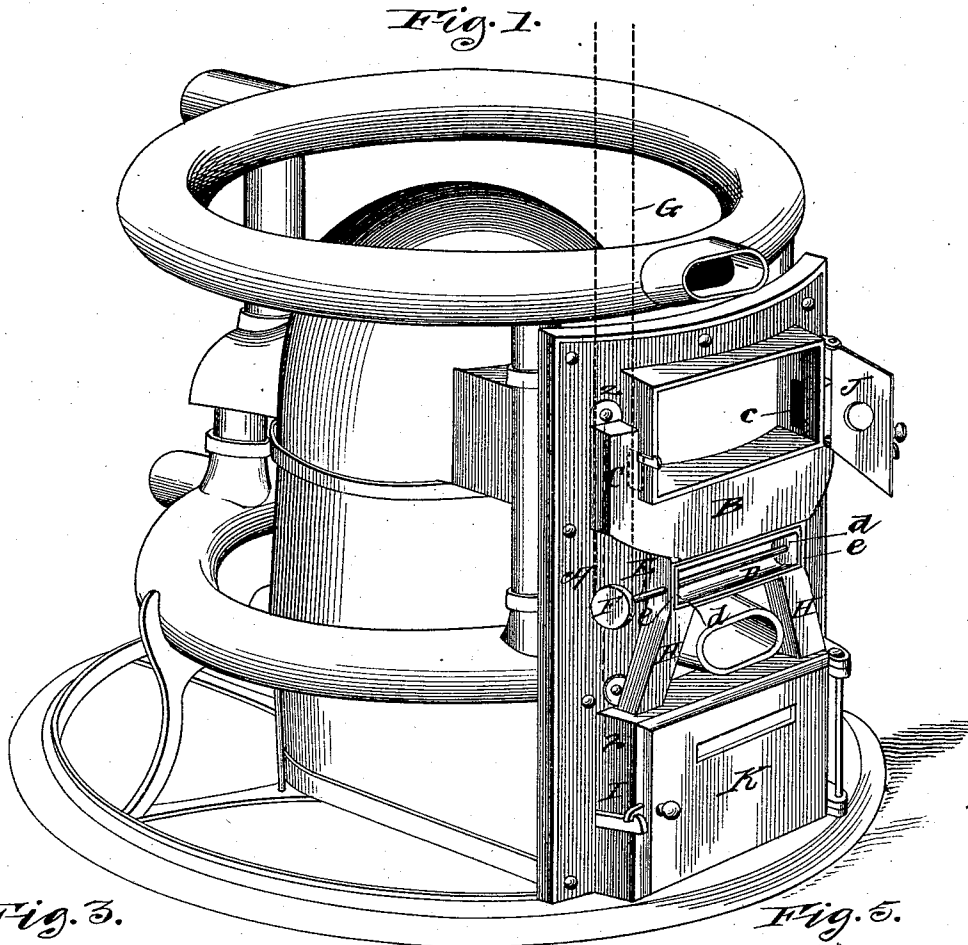


Fig. 3.

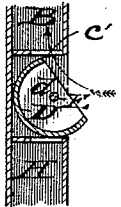


Fig. 4.

Fig. 2.

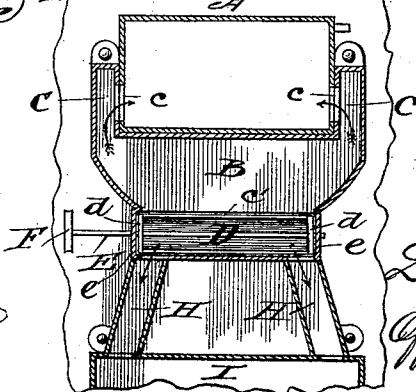


Fig. 5.



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UNITED STATES PATENT OFFICE.

DAVID MCCOWATT, OF CHICAGO, ILLINOIS.

FURNACE-DAMPER.

SPECIFICATION forming part of Letters Patent No. 486,733, dated November 22, 1892.

Application filed December 14, 1891. Serial No. 414,952. (No model.)

To all whom it may concern:

Be it known that I, DAVID MCCOWATT, of Chicago, Illinois, have invented certain new and useful Improvements in Furnace-Dampers, of which the following is a specification.

My invention relates to a novel construction and arrangement of parts for controlling combustion in furnaces; and may be applied to all classes of furnaces, but I have shown it in the accompanying drawings in connection with hot-air furnaces for domestic use.

The purpose and object of the invention are to provide means whereby the draft can be regulated and controlled without the escape of gas, the damper being so arranged that it may be adjusted to varying positions, so as to direct the draft over the fire or under it or to give more or less draft either over, whereby to check, or under the fire, whereby to promote combustion. The draft-flues are so arranged that warm air, instead of cold, is supplied to promote combustion, and the formation of clinkers is thereby prevented and better combustion secured. The damper is also so arranged that it may be controlled by an operating cord or cable conducted to a room in the house and at a distance from the furnace.

In carrying out my invention I construct the furnace-front with the usual openings for fuel and to the ash-pit and provide said openings with doors. These openings preferably have box-like casings projecting beyond the plane of the furnace-front, and intermediate the fuel and ash-pit doors are located flues or ducts communicating through suitable openings with a common chamber, wherein is fitted a rocking damper adapted to be adjusted to varying positions, so as to direct the draft over or under the fire or to close it off entirely, or to supply a greater or less amount of draft either over or under the fire, as may be desired. This rocking damper is preferably in the form of a curved plate secured upon a shaft journaled in the end walls of the damper-chamber and provided with a pulley, to which is secured an operating-cord, the strands of which are carried to any desired point either in the vicinity of or remote from the furnace, and by the manipulation of which cord the position of the damper may be fixed.

In the accompanying drawings, Figure 1 is a perspective view showing the fuel-door open

and the ash-pit door closed and my improved damper in a position to shut off all draft into the furnace. Fig. 2 is a broken vertical section through the box surrounding the fuel and ash-pit openings and through the air-ducts and the walls of the damper-chamber, substantially on the line 2 2 of Fig. 1. Figs. 3, 4, and 5 are transverse sectional views through the damper-chamber and showing varying positions of the latter.

The furnace may be of any approved construction, that shown being fully described in my patent, No. 458,477, dated August 25, 1891.

A represents the furnace-front, which in the ordinary form will be a cast shell provided with fuel and ash-pit openings, and preferably with an aperture through which a stub of the radiator-pipe passes, forming a clean-out.

B represents a box-like projection surrounding the fuel-opening, and C a chamber communicating at *c* with the interior of the fuel-opening and at *c'* with a damper-chamber, the latter being open at its front.

D represents the damper, which in the form shown is a curved plate of such length as to close the damper-chamber and provided with end plates *d d*.

E is a shaft secured with said end plates and journaled in the end walls *ee* of the damper-chamber. This shaft may be provided with the pulley F, to which the cord or cable G is secured, or, if desired, the cable may be made to turn the pulley by friction or other suitable way. From the damper-chamber extend two air-ducts H H, having free communication with said chamber at their upper ends and with the ash-pit I at their lower ends. The fuel-door J and the ash-pit K will in the operation of the furnace be kept closed when the draft is to be controlled by the damper.

In Figs. 3, 4, and 5 I have shown three positions of the damper, but it may be placed in various other positions. In Fig. 3 the damper is so placed that the draft passes up through the chamber C over the fire. In Fig. 4 the check-draft is closed and the under draft open, while in Fig. 5 the damper is turned so as to close both the check and under drafts entirely. This manipulation of the damper may be made by hand or by the

cable, as described, and the damper is susceptible of such slight variations as to control the combustion in the furnace to give any desired degree of heat.

5 I do not of course limit my invention to the precise arrangement of the ducts, nor the exact constructions and arrangement of the damper, nor to the means for operating it, as the same may be varied without departing
10 from the spirit of my invention.

The invention may be readily applied to all kinds of furnaces and also to stoves and heaters generally.

I claim—

15 1. In combination with a furnace, an air-duct delivering into the furnace at or about the fuel-line and an air-duct also delivering into the furnace below the fire-pot, a common damper-chamber open to the atmosphere and
20 with which both of said ducts communicate, and a rocking damper adapted to be turned so as to partially or wholly open or close either of said ducts at will, and whereby the opening or closing of one duct correspondingly
25 closes or opens the other, substantially as described.

2. In combination with a furnace, a divided check-draft duct delivering into the furnace at or above the fire-level, a draft-supply duct communicating with the furnace below the
30 fire-chamber, an intermediate damper-chamber with which both of said ducts communicate, and a rocking damper located in said chamber and consisting of a curved plate adapted to be turned so as to close either or
35 both of said ducts at will, substantially as described.

3. In combination with a furnace, a check-draft duct delivering into the furnace at or above the fire-level, a draft-supply duct communicating with the furnace below the
40 fire-chamber, an intermediate damper-chamber with which both of said ducts communicate, a rocking damper located in said chamber and consisting of a curved plate adapted to
45 be turned so as to close either or both of said ducts at will, and an operating-cable for rocking said damper, substantially as described.

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