(No Model.)

H. G. & W. R. DAWSON.

GAS BURNING FIREPLACE.

No. 544,029. Patented Aug. 6, 1895.

Fig 1

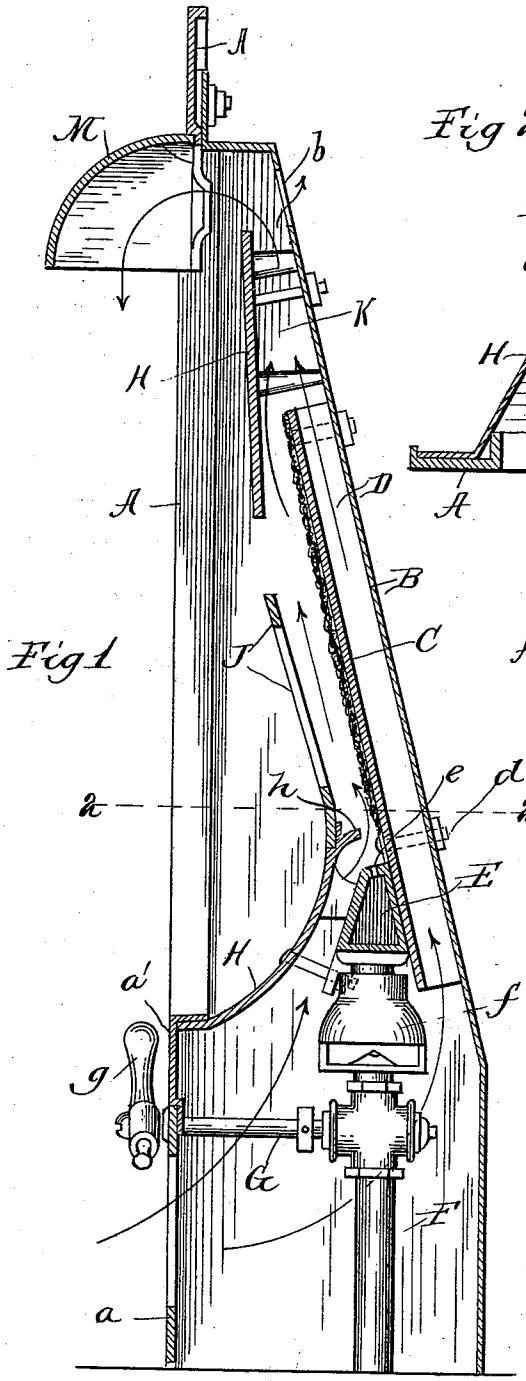


Fig 2

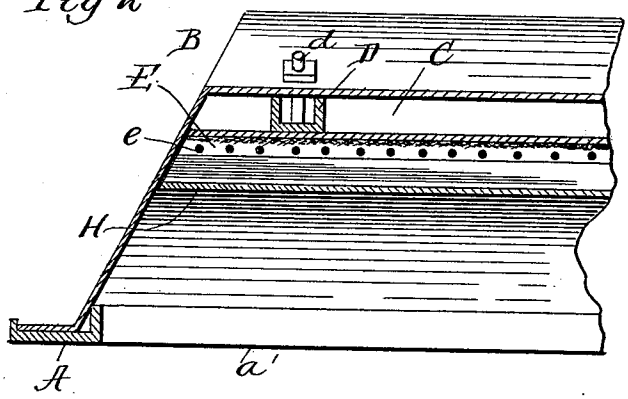


Fig 3

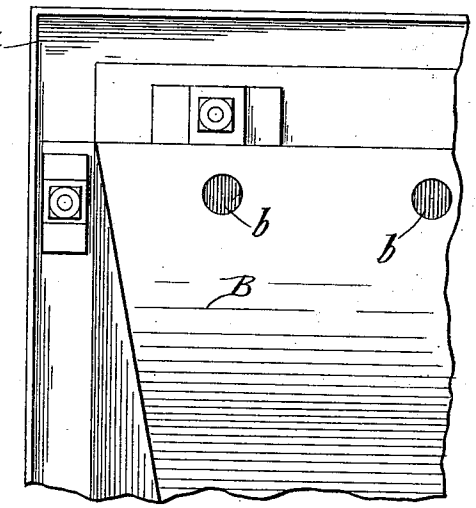
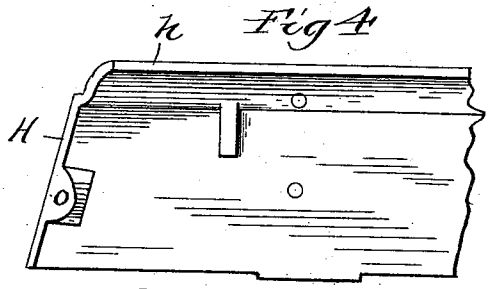


Fig 4



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UNITED STATES PATENT OFFICE.

HENRY G. DAWSON AND WILLIAM R. DAWSON, OF CHICAGO, ILLINOIS.

GAS-BURNING FIREPLACE.

SPECIFICATION forming part of Letters Patent No. 544,029, dated August 6, 1895.

Application filed October 25, 1894. Serial No. 526,932. (No model.)

To all whom it may concern:

Be it known that we, HENRY G. DAWSON and WILLIAM R. DAWSON, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Gas-Burning Fireplaces; and we do 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 same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

Our invention relates to gas-burning fireplaces. Its object is to secure complete combustion and consequent economy of fuel and simplicity and cheapness of construction.

The invention consists in spacing the asbestos fireback ordinarily used in connection with such fireplaces apart from the back wall of the case, so as to form an air-flue; in providing an air-passage in front of the burner for bringing a current of air directly into contact with the flame; in providing a draft-plate in front of the upper part of the fireback, so as to form a flue into which is discharged the vapors ascending directly from the flame and the air conveyed through the flue behind the fireback, and in various minor features hereinafter specifically pointed out.

In the accompanying drawings, Figure 1 is a transverse vertical section of the fireback. Fig. 2 is a detail plan section on the line 2 2 of Fig. 1. Fig. 3 is a detail rear elevation of the fireplace. Fig. 4 is a rear elevation of the reflector-plate.

The face-plate or frame of the fireplace is shown at A, a perforated crown-piece or guard being shown at *a*, and a cross-bar uniting the sides of the frame at *a'*. A sheet-metal case B is secured to the inner surface of the face-plate A and extends backwardly and is adapted to fit within the usual fireplace-opening in a chimney, its back wall being inclined forwardly in the usual manner. The fireback C, formed of a sheet of asbestos, is secured to the front of the back wall of the case B, being carried by channel-irons D and secured by means of the bolts *d*. The use of channel-irons for carrying the fireback provides an air-flue between the fireback and the back wall of the casing B, and these channel-irons being upright the flue-space is obstructed by them to a very slight degree.

The gas-burner E is in the form of a tube, lying across the base of the fireback C and having along its upper side a series of small openings *e* for the discharge of gas-jets. The burner E is supplied with gas from a pipe F, which discharges a jet into an open globe *f*, which is in communication with the interior of the burner, thereby providing the ordinary form of Bunsen burner. The stem G of the valve in the pipe F extends forwardly through the feed-plate *a* and is provided with a handle *g*, with which it may be turned.

The reflector-plate H extends across the front of the fireplace and leads upwardly and backwardly from the top of the cross-bar *a'*, approximately to the level of the discharge-openings of the burner E, but is spaced apart from the burner, so as to allow an air-passage in front of the latter. A lip *h* extends from the top of the reflector-plate H backwardly above the burner, space being left between it and the fireback C for the escape of the flame. This lip throws the air which is drawn up through the passage in front of the burner directly into the flame and thereby insures a complete combustion of gas and the heating to a high degree of the excess of air beyond the requirements for combustion.

At J is shown an open fender, such as is commonly used across the front of gas-fireplaces.

The plate K is located across the upper part of the fireplace, somewhat in advance of the fireback C and extending upwardly beyond the top of the fireback, thereby forming a flue, into which is discharged the vapors ascending in front of the fireback and the air ascending through the flue behind the same and in which these two currents are mixed and from which they are discharged above the plate K into the apartment, a hood M being located across the top of the fireplace and extending downwardly and forwardly, so as to deflect these vapors downwardly. Across the upper portion of the back wall of the case B are a series of small openings *b*, adapted to communicate with the chimney-flue for the purpose of ventilating the apartment.

It is found that the use of a gas-fireplace is wholly objectionable unless perfect combustion of the gas is secured. This we obtain by supplementing the Bunsen burner with the copious supply of air conveyed to the flame through the passage between the burner and the reflector-plate H. The construction described, moreover, increases the quantity of air drawn into the burner by surrounding the globe F with the air-currents rather than drawing all of the air to a flue back of a burner.

The draft-plate K is not broadly new in this class of fireplaces, but is shown in Patent No. 495,786, issued April 18, 1893, to William R. Dawson, but it is new to use such a shield as forming the front wall of a flue, into which is discharged the vapors ascending from the flame and also the air passing through the flue back of the fireback.

One advantage of the present construction is an increased circulation through the air-flue behind the fireback, such circulation being stimulated by the discharge into the flue behind the draft-plate of the vapors ascending from the fire at great velocity.

We claim as our invention—

1. The combination in a fire place having an air flue behind its fire back, of a draft plate K, before the upper part of the fire back spaced apart therefrom, and extending upwardly to form a flue with the back of the fire place, the air flue behind the fire back discharging in the said flue behind the draft plate.

2. In a gas fire place the combination with the case B, the asbestos fire back C, and the bars D, secured to the back wall of the case and carrying the fire back, of the gas burner E, the plate H, in front of and spaced apart from the burner so as to form therewith an air flue, the lip *h*, being a continuation of the plate H, and overhanging the burner, and the draft plate K, before and spaced apart from the top of the fire back and extending upwardly therefrom, substantially as described and for the purpose set forth.

3. A gas burning fire place having a fire back adapted to have a flame spread over its front surface, an air circulating flue behind the fire back and discharging forwardly above the fire back into the apartment, and a passage leading from before the fire back into the body of the air flue whereby the circulation of the air is promoted, substantially as described and for the purpose specified.

In testimony whereof we affix our signatures in presence of two witnesses.

HENRY G. DAWSON.
WILLIAM R. DAWSON.

Witnesses as to signature of H. G. Dawson:
SPENCER WARD,
LOUIS K. GILLSON.

Witnesses as to signature of Wm. R. Dawson:
JOS. J. PTAK,
C. C. MCCLOSKEY.