

G. H. HESS.  
Fire-Place.

No. 206,326.

Patented July 23, 1878.

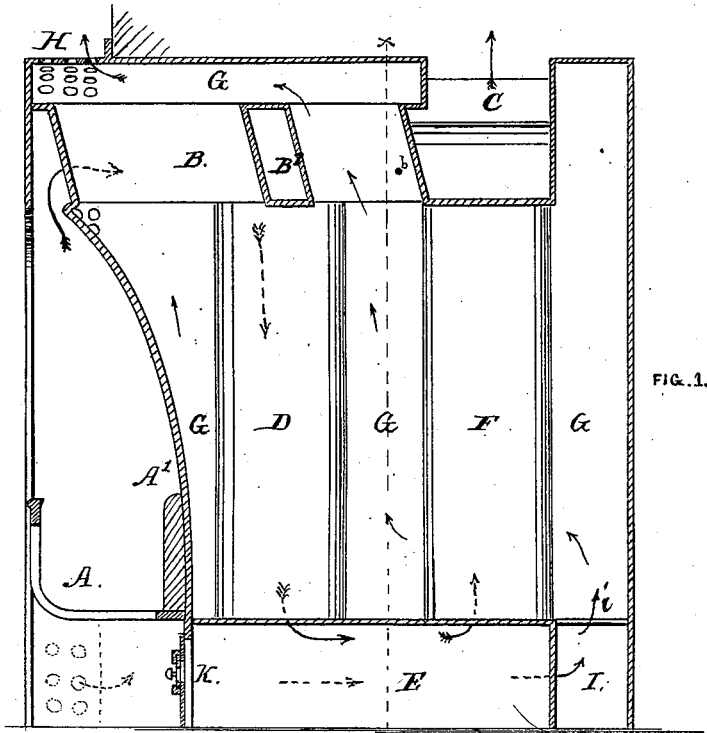


FIG. 1.

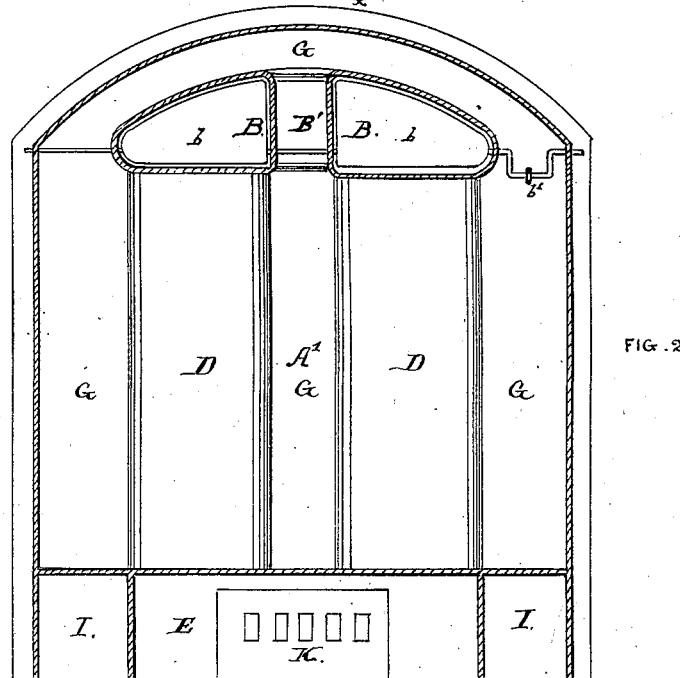


FIG. 2.

WITNESSES:  
*Jord R. Smith*  
*Hess & Story*

INVENTOR:  
*Geo. H. Hess*  
*by Monday & Everett*  
*his attys.*

# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN FIRE-PLACES.

Specification forming part of Letters Patent No. 206,326, dated July 23, 1878; application filed  
January 14, 1878.

*To all whom it may concern:*

Be it known that I, GEORGE H. HESS, of Chicago, in the county of Cook and State of Illinois, have invented certain Improvements in Fire-Places, of which the following is a specification:

The nature of this invention will be fully understood from the subjoined description and the accompanying drawings, forming a part of this specification, in which drawings—

Figure 1 is a central vertical section, from front to rear, of my improved fire-place; and Fig. 2 is a view of the same in cross-section upon the line *x x*, indicated in Fig. 1.

Like letters of reference made use of in said drawings indicate like parts in all the figures.

In the drawings, A represents the grate, and A' the back, of the fire-place proper, such parts being of the ordinary construction. At the top the fire-place opens into a horizontal flue, B, leading directly into the chimney-flue C. At the rear of the flue B, and just before it debouches into the chimney, is placed a damper, *b*, operated from the front by the rod *b'*. When this damper is open, the products of combustion pass unimpeded into the chimney; but when it is closed they are forced down the descending flue D, which connects with B at a point in front of the damper. From D the smoke passes into the chamber E at the bottom, and from thence into an ascending flue, F, whence it finds egress through the chimney. These flues B, D, and F are made of metal, in order that the heat passing through them may be utilized in heating the air in the chamber G, which surrounds them upon all sides. The back A' of the fire-place is also made of metal, for a similar reason.

If it is desired to obtain greater radiating-surface than single flues will afford, then they may be duplicated, with a space between them, and in such case the duplicate flues B may be connected by cross-ducts B', which are preferably set at an angle, as shown, to direct the ascending air in chamber G toward the outlet H, hereinafter mentioned. In any case the horizontal flue should be perforated for the direct passage of the hot air to the outlet H.

Air is drawn from near the floor of the room through a duct, I, placed at the bottom of the

side of the fire-place, and is by it conducted around to the rear of the flue F and discharged into the air-space G at the point *i*. When in G it comes in contact with the outside surfaces of the flues B, D, and F, and also with the back A' of the fire-place, and, as it becomes heated thereby, rises, and finds an outlet into the room through the opening II just over the grate.

It is intended that the openings I and II shall be open at all times; but they may be constructed so that the circulation of air through them may be controlled when the heat becomes too great. If desired, the air-duct I may be made to communicate, at any point in its course, with the external air, and to draw its supplies, either wholly or partially, therefrom.

Of course the heating-surface in the air-chamber G will be very much reduced when the direct draft through the flue B into the chimney is used, but there will still be enough to produce movement of the air through the chamber, and it is thus seen that no heat is allowed to escape through the chimney without doing some service toward heating the room.

At K, under the grate, is a door opening into the chamber E, to afford an opportunity for cleaning that chamber and the flues connecting therewith. This door I provide with a register, as shown, which will be found useful in that a suction is thereby created which draws into said chamber, and thence out through flue F, a large portion of the dust and ashes, which would otherwise find its way into the room.

The advantages attending my improvements, which I have found by experiment, are that they secure an admirable circulation of the air and even distribution of the heat throughout the room, and enable me to obtain much more heat from the same amount of fuel than can be obtained from the ordinary form of fire-place.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with an open fire-place, of the air space or chamber G, the flues B, D, and F, surrounded by and passing through

said chamber, the flue B being provided with the damper *b*, as specified, the chamber E, the air-duct I, and the outlet II, the whole arranged and constructed substantially as specified.

2. The combination, with the outlet II, of the air-passages formed between the duplicate flues B and connecting-ducts B', such air-passages being inclined, as shown, to conduct the air toward said outlet, substantially as herein specified.

3. The combination, with the air-chamber G, traversed by smoke-flues, substantially as described, of the inlet I and outlet II, placed or located and constructed as shown, substantially as and for the purposes specified.

GEO. H. HESS.

Witnesses:

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JOHN W. MUNDAY.