

A. B. EWING  
Chimney Top.

No. 113,150.

Patented March 28, 1871.

Fig. 1.

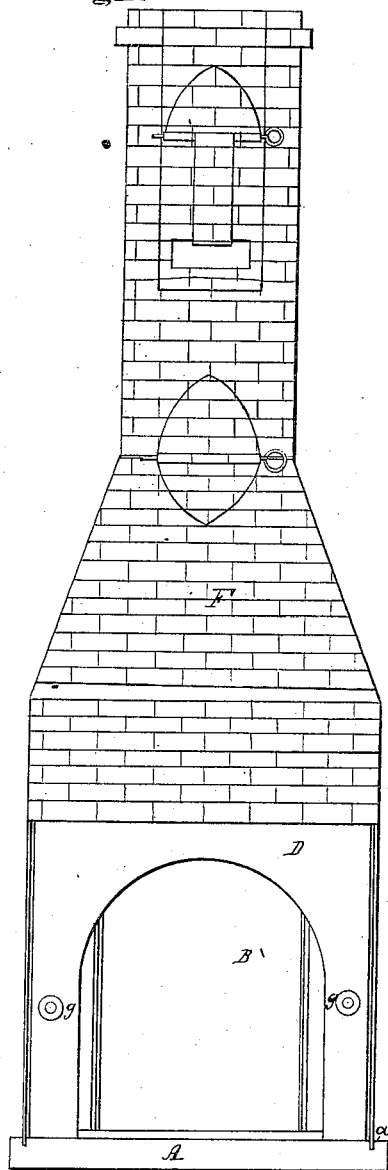


Fig. 2.

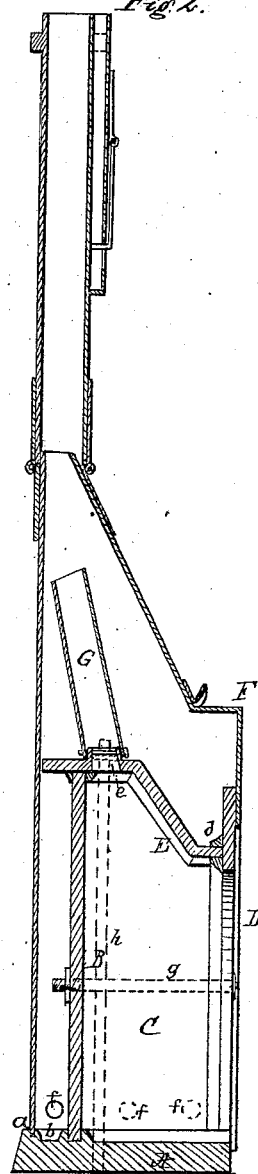
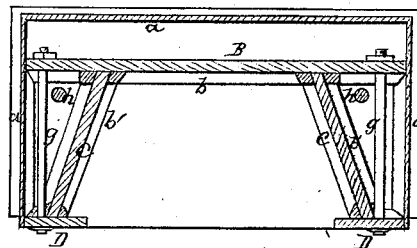


Fig. 3.



Witnesses

Harry King  
H. H. Tucker

Inventor.

Alvan B. Ewing.  
by Riedersheim & Hornsby  
his Atty

# UNITED STATES PATENT OFFICE.

ALVAN B. EWING, OF LEWISBURG, TENNESSEE.

## IMPROVEMENT IN CHIMNEYS.

Specification forming part of Letters Patent No. **113,150**, dated March 28, 1871.

*To all whom it may concern:*

Be it known that I, ALVAN B. EWING, of Lewisburg, in the county of Marshall and State of Tennessee, have invented a new and useful Improvement in Chimneys; and I do hereby declare the following to be a clear and exact description thereof, sufficient to enable others skilled in the art to which my invention appertains to make and use the same, reference being had to the accompanying drawing, forming part of this specification, in which—

Figure 1 is a front elevation of my device. Fig. 2 is a central vertical section, and Fig. 3 is a horizontal section through the fire-box.

My invention relates to certain improvements in cast-iron chimneys; and consists of a removable cast-iron fire-box, which may be taken to pieces and put up again in a few minutes, and which is placed within an outside casing, forming a lining also for the chimney-space built in the house in such a manner that the space between the fire-box and casing forms an air-space, whereby the heat is kept from the building.

In the drawing, A is a cast-iron base-plate or hearth, one inch, more or less, thick, and made of the size of the chimney in which it is to be placed. Its outer edge on three sides is provided with a grooved flange, *a*, in which the outside casing, F, is secured. B is a cast-iron plate set in a similar grooved flange, *b*, on the plate A, and forms the back plate of the fire-box. C C are the jambs or side plates, set in grooved flanges *b'* *b'* on the base-plate, and similar flanges on the back plate, B, and on a front plate, D, and cap-plate E. These side plates or jambs are preferably set at an angle to the back plate, so as to be wider at the front than at the rear, and thus have a broad open mouth to the fire-box.

The front plate, D, is made open in the usual manner, so as to expose the interior of the fire-box, and is provided with flanges to receive the jambs C C, and a horizontal flange, *d*, to receive the cap-plate E. The cap-plate E is bent in the form shown in Fig. 2, or may be made straight and inclined toward the front plate, and forms a radiating-surface in connection with the other plates, the incline also serving to throw the heat out at the mouth. This plate is provided with an opening, *e*,

through which the smoke escapes into the chimney. A short tube, G, is secured to or made with the plate E and set over this opening, so as to conduct the smoke up into the chimney, and also to provide a good draft. These several plates are made of cast or wrought iron, and of any desired thickness, which will be determined for the various kinds of houses in which they may be used.

The edges of the front, back, base, and cap plates are made to project beyond the jambs and form an irregular square, and the whole fire-box, constructed as described, is joined together by means of two or more rods, *h*, extending from and through the base-plate up through the cap-plate, and there secured by suitable nuts, and two or more similar but shorter rods, *g*, extending from and through the front and back plates and suitably secured. Over the structure thus reared I set a sheet-metal casing, F, made in sections, so as to be more readily put in place, and which is secured in the grooved flanges *a* of the base-plate. The front of this casing covers only a small portion of the front plate, but covers the rear and sides entire. This casing extends up through the house and forms a smooth even chimney, upon which very little soot will collect, and thus will very seldom become foul. Between the casing and fire-box on the sides and rear a space of from three to six inches, more or less, is left, which forms an air-space, air being admitted thereto through openings *f* in the lower part of the casing, and by filling this space with air the casing is kept comparatively cool, and the heat is prevented from reaching the wall of the building and injuring it. The foul air of the room also escapes through these openings.

When heated, the air passes up the chimney through perforations in the cap-plate; or it may be utilized, if so desired, as, for instance, by carrying it into the room for heating in winter.

The upper part of the casing may be provided with an additional flue, through which the smoke of the stove in the room above escapes; or a box may also be set in it.

If the chimney should become foul the upper part can be removed and cleaned, and replaced in a short time; and to secure it in

place a hinge is provided with a removable connecting-pin.

When my chimneys are to be placed in a house it is not necessary to lay a brick or stone foundation. A box filled with sand or other earth secured between posts is all that is required.

For cooking purposes suitable shelves may be arranged inside the fire-box; and for heating houses it will be found that greater heat is thrown out with less fuel than by any other similar devices, as the fire-box is made of such material as will absorb and radiate a very large percentage of the heat lost in grates and stoves.

My chimneys are light, durable, and portable, and do not require a mechanic to put them up, as they are so simple that they can readily be set in place by most any one, and as easily removed.

What I claim, and desire to secure by Letters Patent, is—

1. The combination, in a cast or wrought

metal fire-box, of the front and rear plates, B D, jambs or side plates *c*, base-plate A, and cap-plate E, united together by rods *g h*, substantially as described.

2. The sheet-metal casing F, in combination with the fire-box, and so arranged in relation thereto as to form an air-space, in the manner and for the purpose described.

3. The plates A B C D E, provided with grooved flanges *b b d*, in such a manner as that the several plates mutually support one another, as herein set forth and shown.

4. The cast or wrought metal fire-box, constructed as herein described, in combination with the tube G and casing F, in the manner and for the purpose specified.

To the above I have signed my name this 9th day of November, A. D. 1870.

ALVAN B. EWING.

Witnesses:

N. G. TUCKER,  
S. D. EWING.