

(No Model.)

E. S. MORSE.

WARMING AND VENTILATING APARTMENTS BY THE SUN'S RAYS.

No. 246,626.

Patented Sept. 6, 1881.

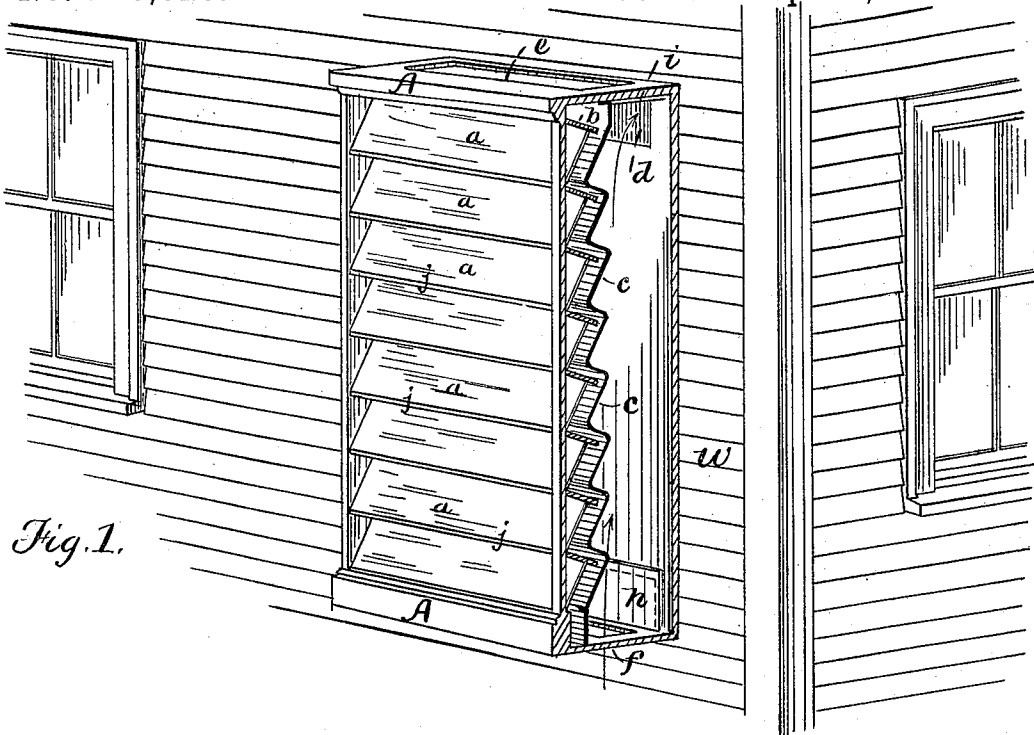


Fig. 1.

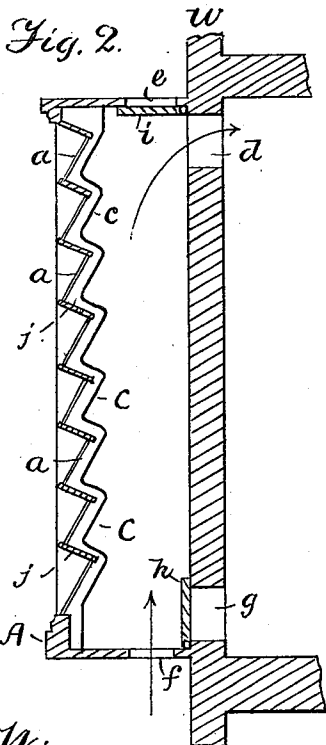


Fig. 2.

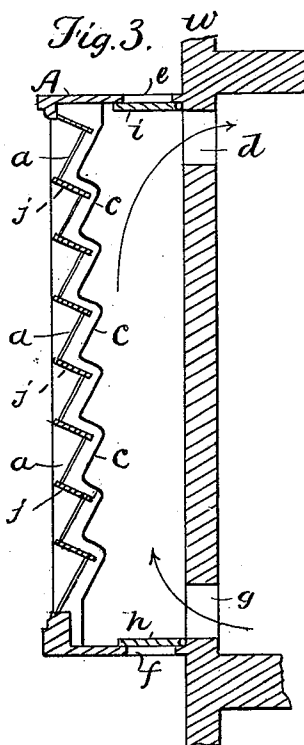


Fig. 3.

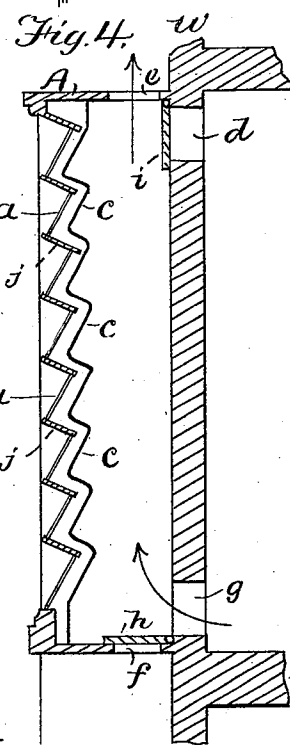


Fig. 4.

Witnesses.  
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Att'y-

# UNITED STATES PATENT OFFICE.

EDWARD S. MORSE, OF SALEM, MASSACHUSETTS.

## WARMING AND VENTILATING APARTMENTS BY THE SUN'S RAYS.

SPECIFICATION forming part of Letters Patent No. 246,626, dated September 6, 1881.

Application filed April 11, 1881. (No model.)

To all whom it may concern:

Be it known that I, EDWARD S. MORSE, of Salem, in the county of Essex and State of Massachusetts, have invented a new and useful Method and Means of Warming and Ventilating Apartments by the Sun's Rays, of which the following is a specification.

My invention relates to a means for utilizing the rays of the sun for the purpose of heating and ventilating rooms and apartments of buildings.

The invention consists in the employment of a casing attached to the outer wall of a building, and provided with a blackened surface of metal, earthenware, or other suitable material, having either a flat or corrugated surface protected by glass in front of the same, and so arranged as to allow the rays of the sun to fall as directly as practicable upon the said blackened surface. Behind the blackened surface is an inclosed air space or flue communicating by apertures at the upper and lower ends with corresponding openings of an apartment or room of a building, and also by separate openings with the outer atmosphere. The action of the sun's rays upon the blackened surface heats the air in the space or flue at the rear, which heated air, as it ascends, may be directed into the room or building, so as to warm the same, or it may serve to draw the air from the room, and thus occasion ventilation.

Referring to the accompanying drawings, Figure 1 is a perspective view of my invention as applied to a building. Figs. 2, 3, and 4 are sectional views of my device, indicating the different directions of the air for heating and ventilating an apartment or building.

A A represent a casing, shown as attached to the outside of a house or building, *w*, at any suitable part of the same which may be exposed to the sun's rays. The sides of the casing are to be closed. In Fig. 1 one side is left open to show its internal arrangement.

*c c* represent a plate extending from the top to the bottom of the casing and presenting series of inclined surfaces, as shown, and designed to be arranged so that the rays of the sun will fall upon them to the greatest advantage. The said plate is to have a blackened surface in front, and to be composed of metal, earthenware, or other suitable material.

In front of this blackened surface is arranged a series of glass plates or strips, *a a*, parallel with the inclined portions *c c*, and set in sashes or strips of wood *jj*.

At the top and bottom of the casing A, respectively, are openings *e* and *f*, and in the wall or side of the building, at the upper and lower ends of the casing, respectively, are apertures *d* and *g*. Between the opening *e* and aperture *d* above and the opening *f* and aperture *g* below are hinged the lids or covers *i* and *h*, so arranged as to close either aperture or opening above or below while the other is open.

The casing A is designed to be placed on the side of the building most exposed to sun's rays, and when properly arranged a very considerable amount of heat will be imparted to the air within the casing, as has been proved by actual experiment.

When a room or apartment is to be heated the lid *h* at the bottom of the casing is opened, thus closing the aperture *g*, and the lid *i* at the top closes the opening *e*, leaving the aperture *d* open, as shown in Fig. 1. The air passing into *f* becomes warmed in its passage through the casing and enters the apartment at aperture *d*.

In Fig. 3 the openings *e* and *f* are shown as closed; the air entering the casing from the apartment and passing through the casing re-enters the apartment, and so continuing the circulation and adding to the supply of heated air in the apartment.

When ventilation only is required the bottom opening, *f*, is closed by lid *h*, leaving aperture *g* open. Aperture *d* is then closed by lid *i*, leaving *e* open, as shown in Fig. 4. As the air becomes heated it passes up and out of opening *e*, drawing air all the time from the apartment through aperture *g*.

My invention may be applied to a house already built. In adapting it to a house while building the casing may be so arranged as to admit of its being turned to adapt the blackened surface to the changing position of the sun.

Instead of the corrugated plate showing a series of inclined surfaces, and a corresponding glass covering, the blackened plate may be of an entire plane surface with a plane plate of glass.

What I claim as my invention is—

1. The combination, with the outer wall of a building provided with openings *d g*, of a casing, *A*, provided with a blackened plate, and having a flue-space provided with openings *e f* and lids *h* and *i* at the top and bottom, substantially as and for the purpose set forth.
2. A blackened plate having a series of surfaces, *c c*, in combination with a casing, *A*, provided with openings *e f* and lids *h i*, and attached to the wall of a building having apertures *d g*, substantially as set forth.
3. The combination, with a blackened plate

having surfaces *c c*, of a glass covering or protector, *a j*, as set forth.

4. The lids *i h*, in combination with the openings *e f* in the casing *A*, and apertures *d g* in rear of the casing, as and for the purpose specified.

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

EDW. S. MORSE.

Witnesses:

JOS. H. ADAMS,  
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