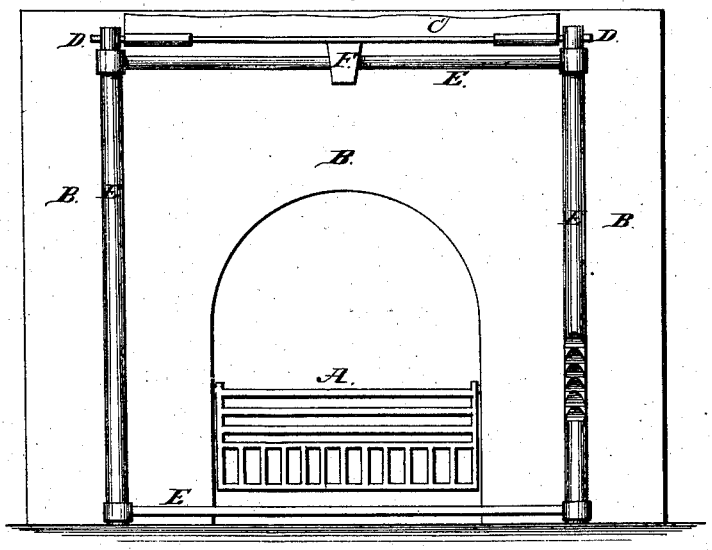
L. B. WOOLFOLK.

Heat-Reflector.

No. 165,048. Patented June 29, 1875.

Fig. 2.



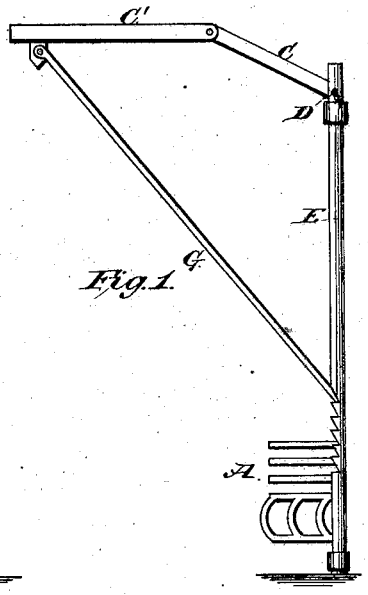
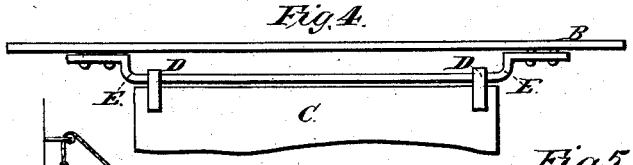




Fig. 1.

Fig. 4.



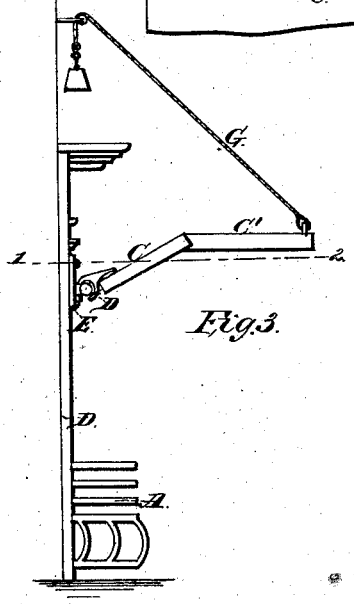
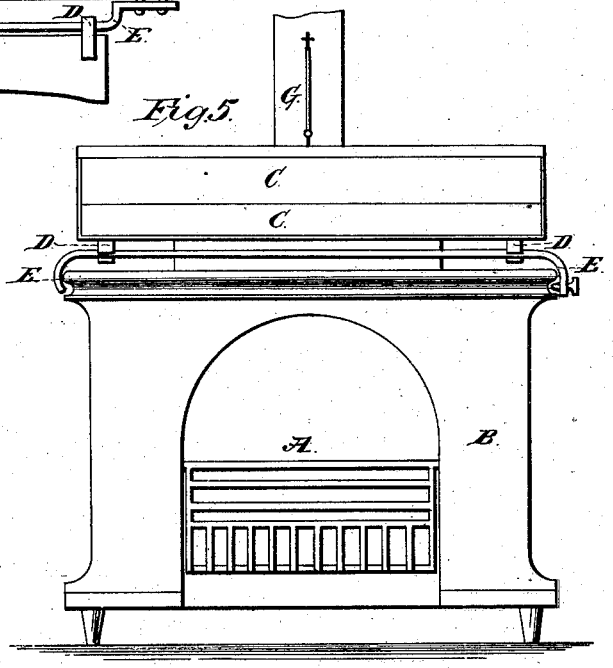




Fig. 3.

Fig. 5.

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# UNITED STATES PATENT OFFICE.

LUCIEN B. WOOLFOLK, OF LEXINGTON, KENTUCKY.

## IMPROVEMENT IN HEAT-REFLECTORS.

Specification forming part of Letters Patent No. **165,048**, dated June 29, 1875; application filed December 17, 1874.

*To all whom it may concern:*

Be it known that I, LUCIEN B. WOOLFOLK, of Lexington, in the county of Fayette and State of Kentucky, have invented a new and useful Improvement in Heat-Reflectors for Fire-Places and Stoves, of which the following is a specification:

My invention consists in the use of an angular reflector, made of sheet metal, having a bright metallic surface, hinged and supported above and in front of an open stove or grate, for the purpose of intercepting the heat rays that emanate from the fire in an upward direction, and reflecting them outward and downward upon the floor.

Figure 1 is a side elevation, showing the reflector in connection with an open grate. Fig. 2 is a front elevation of the same, with the reflector represented as broken, the better to show the rack that supports it. Figs. 3 and 4 represent the reflector under a modification. Fig. 3 is a side elevation, and Fig. 4 is a vertical section taken through the line 1 2 of Fig. 3. Fig. 5 is a front elevation of the reflector as applied to an open stove. The reflector, in this figure, is represented as elevated, the better to show the attachments.

A represents the grate of any ordinary construction. B represents any common mantel or fire-front. C C′ is the angular reflector, having the two planes C and C′, which contain an obtuse angle, inclining upward, the better to reflect the upward rays of heat outward into the room. In Fig. 1 the reflector is jointed by a hinge at the angle contained by the two planes C and C′, so as to admit of being folded up when not in use. In Figs. 3 and 5 the reflector is a solid sheet of metal, merely bent at the angle contained by the planes C and C′, and secured at that angle by the flange being soldered, so as to retain it in that position. Whether the reflector be jointed at this angle, as in Fig. 1, or be made solid, as in Figs. 3 and 5, is immaterial, since its reflection of the upward rays of heat is precisely the same in both cases. The flange around the reflector serves to brace and strengthen it. D D are hinges, upon which the hinder part of the reflector rests, and upon which it is moved up and down, so as to be placed at any angle with the fire that may be desired. In Figs. 1 and 2 the hinges D D are round pivots, upon which the reflector rests, and which admit of its being removed at pleasure by lifting one of the pivots out of the slot in which it rests. In Figs. 3, 4, and 5 the hinges D have slot-mouths, which admit of their being readily removed from the support on which they rest. E is a rack, upon which the hinder part of the reflector is supported. In Figs. 1 and 2 this rack is a frame, made preferably of cast metal, and constructed in such a manner as to be readily taken apart. It is held in position by the fastening F, attached to the mantel. In one of its upright pieces is a slot, in the other a hole, for containing the hinges D, which, by this arrangement, may be readily removed out of position when the reflector is not needed. In Figs. 3 and 4 the rack E is simply an angular iron rod, fastened to the mantel with screws. In Fig. 5 the rack E is an iron rod, curved at each end to fit the top of the stove, and fastened in place by a set-screw. It is immaterial what style of rack is adopted upon which the hinges D may rest, since the operation of the reflector is the same whatever the nature of the rack upon which it is hinged. G is a support for holding up the front of the reflector. In Fig. 1 this support is a prop attached to the reflector, and resting in recesses formed in the rack E. In Figs. 3 and 5 the support is a cord and weight.

My invention has for its object to intercept the heat rays which radiate from the fire in an upward direction, striking the ceiling and the upper portion of the walls of the room, and are thus lost for heating purposes, and utilize them by reflecting them outward and downward upon the floor.

Since heat rays do not warm the air of a room in passing through it, but only heat the objects upon which they strike, it follows that the rays of heat which emanate from the fire in an upward direction only warm the ceiling and the upper walls. The air which is warmed by these portions of the room does not descend to the lower part of the room. Hence these upward heat rays only serve to superheat the upper stratum of air in the room, having no effect upon the lower-air stratum; but, by reflecting the heat rays down upon the floor, the floor is warmed, and imparts its heat

to the lower-air stratum, and thus heats the room efficiently throughout.

The reflector is constructed with an obtuse angle and two plane surfaces, C and C′, in order to reflect all the upward heat rays outward into the room. A reflector with a plane surface would reflect the upward heat rays down immediately in front of the grate, and the air heated by the floor or hearth at this point would be drawn up the chimney instead of heating the room; but, by having two planes containing an obtuse angle, the upward rays that strike the plane C are reflected by it upon the plane C′, and thence out upon the floor. By the use of the angular reflector the heat rays are reflected upon the floor at such a distance from the grate that the air warmed by the floor ascends into the room instead of at once escaping up the chimney.

The reflector is constructed to be hinged upon a rack, and to have its front upheld by a separate support. It is wholly immaterial upon what form of rack it is hinged, and equally immaterial by what form of support the front is upheld. I do not claim the style of support, but only the angular reflector hinged upon any suitable rack, and having its front upheld by any adjustable support.

I do not claim the reflector as a blower or register, or anything but a reflector to intercept the upward heat rays, and reflect them outward and downward upon the floor. It is not suited for a blower or register, inasmuch as exposure to excessive heat would burn and smoke the reflector, and so tarnish its brightness as to unfit it for being a reflector. The two uses are inconsistent with each other.

What I claim as my invention is—

In combination with the heat-reflector, composed of the two surfaces C C′, forming an obtuse angle with each other, the hinge D, support G, and frame E, sustaining the reflector in position for use, or permitting it to be raised up, substantially as described.

LUCIEN B. WOOLFOLK.

Witnesses:

H. L. WILLIAMS,

CHAS. GIBSON.