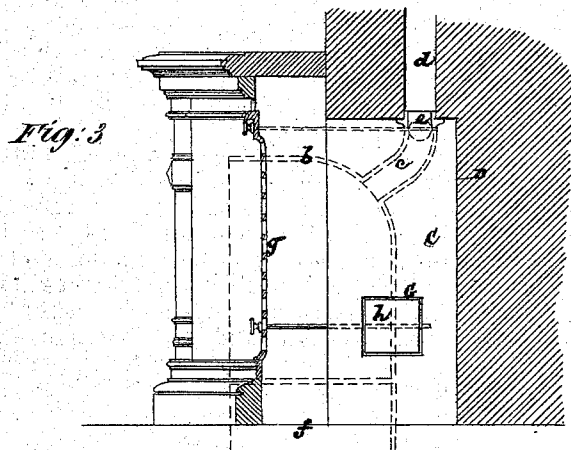
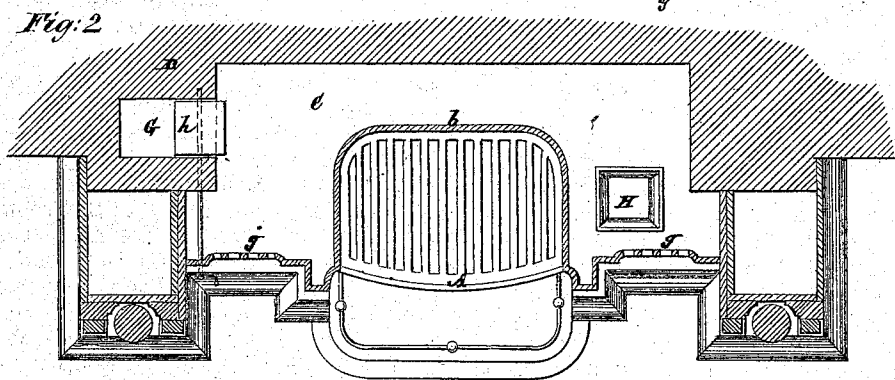
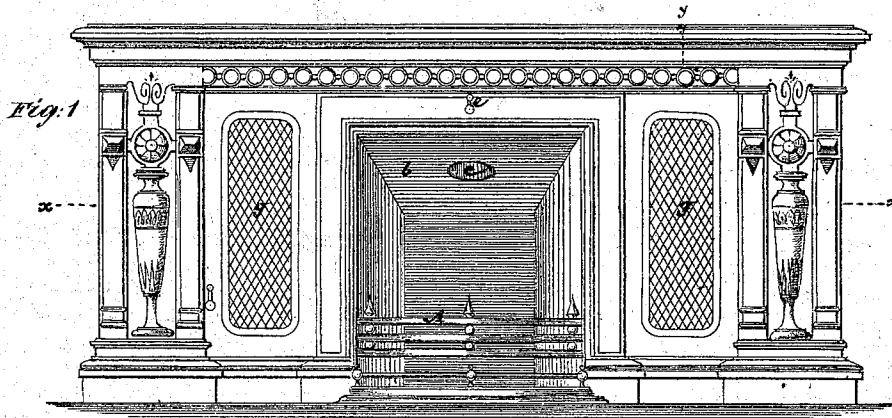


J. H. SHERWOOD.

Grate Fire-Places and Hot-Air Furnaces.

No. 136,775.

Patented March 11, 1873



Witnesses:
Wm. H. Hays
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UNITED STATES PATENT OFFICE.

JOHN H. SHERWOOD, OF NEW YORK, N. Y.

IMPROVEMENT IN GRATE FIRE-PLACES AND HOT-AIR FURNACES.

Specification forming part of Letters Patent No. 126,775, dated March 11, 1873.

To all whom it may concern:

Be it known that I, JOHN H. SHERWOOD, of the city, county, and State of New York, have invented a Combined Grate Fire-Place and Hot-Air Furnace, of which the following is a specification:

This invention consists in a grate fire-place arranged with an air-chamber having perforated distributors, and which is connected by a flue with a hot-air furnace, whereby a room may be heated from the grate alone, or from the furnace alone through the air-chamber in which the grate is incased, or from both the grate and furnace in addition to the direct heat of the grate, by causing the heat which is derived from the shell of the grate to give additional warmth to the hot air passing from the furnace through the air-chamber that incases the grate. By this combination there is not only great economy of fuel but enlarged capacity of the fire-place to suit extreme or variable temperatures of weather.

In the accompanying drawing, Figure 1 represents a front view of a fire-place having my improvement applied; Fig. 2, a horizontal section of the same on the line *x x*; and Fig. 3, a vertical transverse section on the line *y y*.

Similar letters of reference indicate corresponding parts.

A is the grate of the fire-place, constructed, in part, of a shell or body, *b*, which is seated within an air-chamber, C, that is formed by the side fronts of the fire-place or grate and chimney-breast D combined. The shell *b* is a fire-box, open only in front, and connected by a pipe, *c*, with the chimney-opening *d*, the draft to which may be controlled by a damper, *e*. Furthermore, said shell or body *b* has its ash-pit *f* arranged to extend below the floor of the fire-place, whereby the products of combustion are prevented from passing into the air-chamber C, and from thence through perforated hot-air distributors *g g* in the sides of the fire-place front to the room. This arrange-

ment guards against accident from fire and excludes much dust from entering the room; also makes the chamber C a pure heater of the air by the hot shell or body *b* for circulation within it and out through the distributors *g g* to the room, in addition to the direct heat from the fire in the grate. G is a hot-air flue arranged to connect the air-chamber C with a furnace in a cellar below or elsewhere, subject to the control of a register or damper, *h*, capable of operation from the front of the fire-place; and, whereby, in addition to the heat derived from the grate of the fire-place, both directly and indirectly, as described, the heat from the furnace may be more or less increased within the air-chamber C before passing through the distributors *g g* to the room; or by letting the fire in the grate A out the furnace heat may alone be used for warming the apartment; or, again, by closing the register or damper *h*, the room may be heated exclusively by the grate. The furnace-flue G I prefer to arrange in the chimney-breast D, as shown, whereby there is not only less risk of accident from fire to the building, but all disfigurement of the wall of the room by the flue is done away with. H is a water-vessel arranged within the air-chamber C for moistening the heated air before its passage to the room.

What is here claimed, and desired to be secured by Letters Patent, is—

The air-chamber C, forming a hot-air casing to the back sides and top of the grate fire-place A, in combination with the hot-air flue G of the furnace, the register or damper *h*, and the perforated distributors *g*, the whole constructed and arranged substantially as herein described, for the purpose set forth.

JOHN H. SHERWOOD.

Witnesses:

MICHAEL RYAN,
FRED. HAYNES.