(No Model.)

W. KENYON.

HOT AIR RADIATOR.

No. 550,002. Patented Nov. 19, 1895.

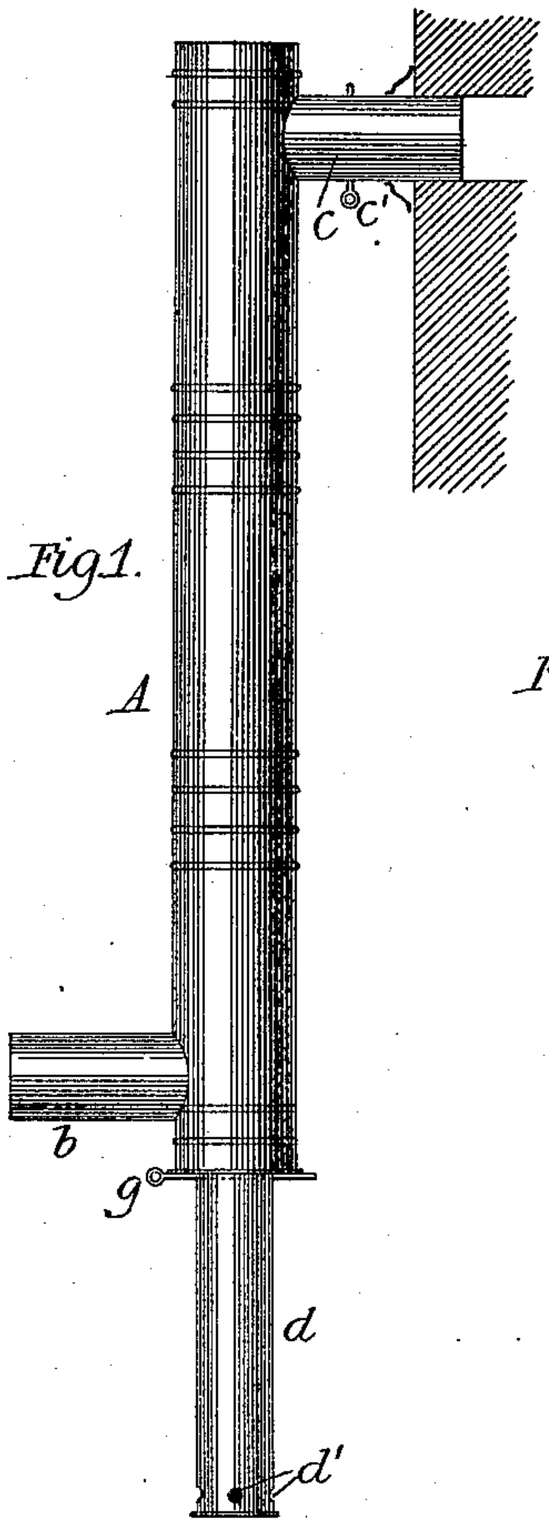

Fig. 1.

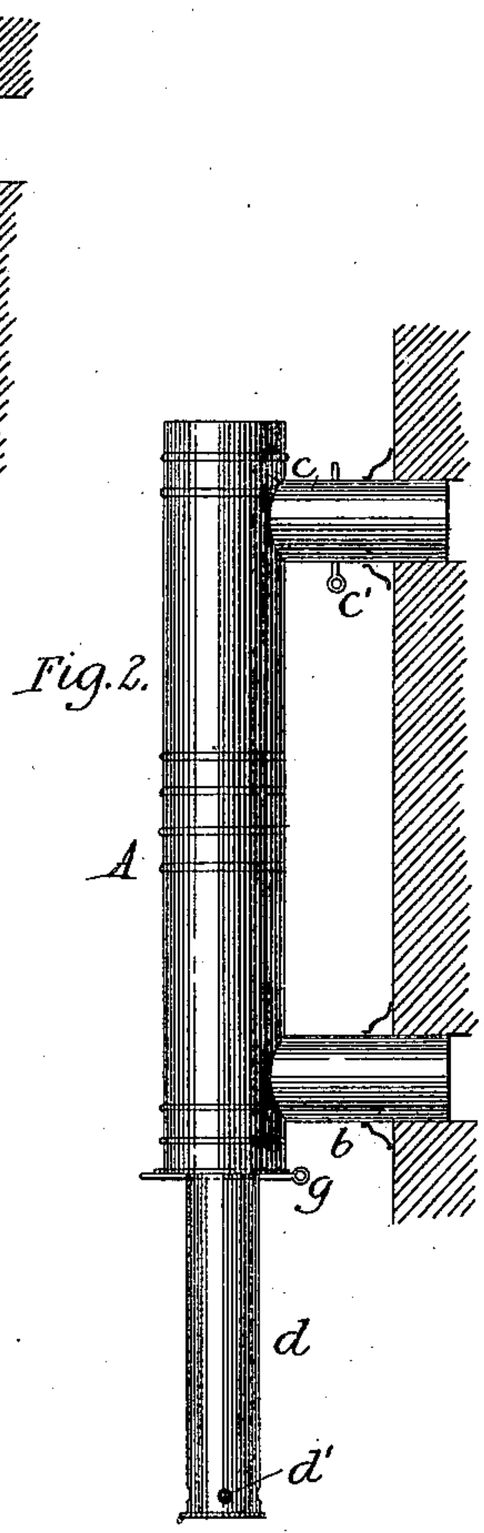

Fig. 2.

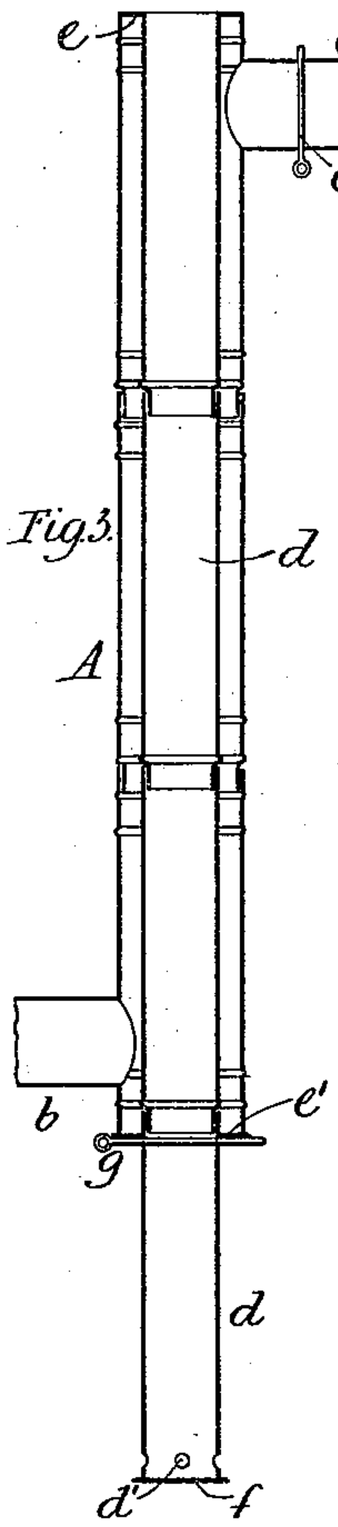

Fig. 3.

Fig. 4.

Witnesses
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UNITED STATES PATENT OFFICE.

WILEY KENYON, OF CRAWFORDSVILLE, INDIANA, ASSIGNOR OF ONE-HALF TO HATTIE E. HAUSER, OF SAME PLACE.

HOT-AIR RADIATOR.

SPECIFICATION forming part of Letters Patent No. 550,002, dated November 19, 1895.

Application filed January 2, 1895. Serial No. 533,585. (No model.)

To all whom it may concern:

Be it known that I, WILEY KENYON, a citizen of the United States, residing at Crawfordsville, in the county of Montgomery and State of Indiana, have invented certain new and useful Improvements in Hot-Air Heaters; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to local heating devices; and it has for its object the production of means whereby the heat-units of the products of combustion, which are usually wasted, are utilized to the maximum extent for heating purposes.

The nature of my invention will appear from a reading of the subjoined description, when taken in connection with the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is an elevation of my improved heating device as applied to a stove, the latter being omitted. Fig. 2 is a modified application of the device. Fig. 3 is a vertical central sectional view, and Fig. 4 is a modified arrangement showing a duplication of the parts.

Referring to the said drawings by letter, A denotes a pipe of comparatively large diameter, preferably built up of sections having slip-joint connections, by which arrangement the length of pipe may be changed at will to suit varying conditions. Near the lower end of the lowermost section of pipe is a branch pipe *b* for connection with a stove or with the chimney, as will be presently explained. Near the upper end of the top section is a branch pipe *c*, having a damper *c'*, and this branch connects with the chimney and forms the outlet for the products of combustion, which are taken in from the stove or other source of generation through the inlet branch pipe *b*.

Within the pipe A and concentric therewith is a pipe *d* of such a diameter as that an annular passage is provided between the two pipes for the products of combustion. This inner pipe is also composed of sections and terminates at its top coincident with the top of the outer pipe, the annular passage being closed at this point by a ring-plate *e*. The inner pipe projects beyond the lower end, which is closed by a ring-plate *e'*, and the lower end of said inner pipe rests on the floor and is closed by a plate *f*. Above the plate, however, are a series of perforations *d' d'*, which form the inlet to said pipe, the upper end of the pipe being entirely open and forming the outlet. The device is supported by the inner pipe, and the outer pipe is supported thereon by a key *g*, which is passed through pipe *d* and readily removed to permit of dismembering the device for cleaning purposes.

In the application of my invention, referring first to Fig. 1, the sections of the outer pipe are so arranged as to permit of the branches *b* and *c* being respectively connected with the stove and chimney-hole. The products of combustion, as they pass through the branch *b* and between the pipes to the chimney, diffuse a portion of the heat carried thereby by radiation from the outer pipe, while at the same time the inner pipe is heated and cold air entering said inner pipe through the perforations is raised in temperature as it passes upward through and out of said inner pipe into the room.

In the arrangement shown in Fig. 2 the chimney is tapped, and by the use of my improved device the products of combustion are deflected from said chimney and pass through the device and are returned, minus a considerable amount of heat, which is radiated into the room. The same device is used in this arrangement, the sectional character of the piping permitting the joints to be turned in the same direction. Above the branch *b* the chimney is closed by a damper or analogous device, and all of the products pass by said branch into the device in a manner similar to that just described, and said products are finally returned to the chimney above the damper through the upper branch. The damper in the upper branch enables the complete control of the device at all times. In the arrangement shown in Fig. 4 the device

is duplicated, and when so arranged may be utilized in either of the ways described, or may be employed where the stove is at an unusual distance from the chimney-hole.

The sectional nature of the device renders it possible to shorten or lengthen the pipe, and even to insert one or more double elbows, or, in other words, the device is practically universal.

The contracted inlet for the air at the coolest plane in a room insures the heating of the air to a high degree and a constant circulation. The device, besides being very efficient, is simply and cheaply made and is easily applied and not liable to disorder.

I claim as my invention—

A heating device comprising an outer pipe built up of detachable sections and having a lateral branch pipe near its lower, and a lateral branch pipe near its upper end, having a damper, said branch pipes being adapted to be turned in the same direction or in relatively different directions, an inner air pipe providing an annular space between the two pipes, said air pipe being made in detachable sections conforming in length to the sections of the outer pipe whereby the length of the device may be changed, and being open at its top and having its lower end projecting below the outer pipe and closed at the end but provided with a series of air inlets near said end, ring plates *e*, *e'* closing the outer pipe, and a key passed through said inner pipe for supporting said outer pipe, the combination permitting the convertibility and applications shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

WILEY KENYON.

Witnesses:

ARCH BAILY,

WALLACE SPARKS.