

No. 786,713.

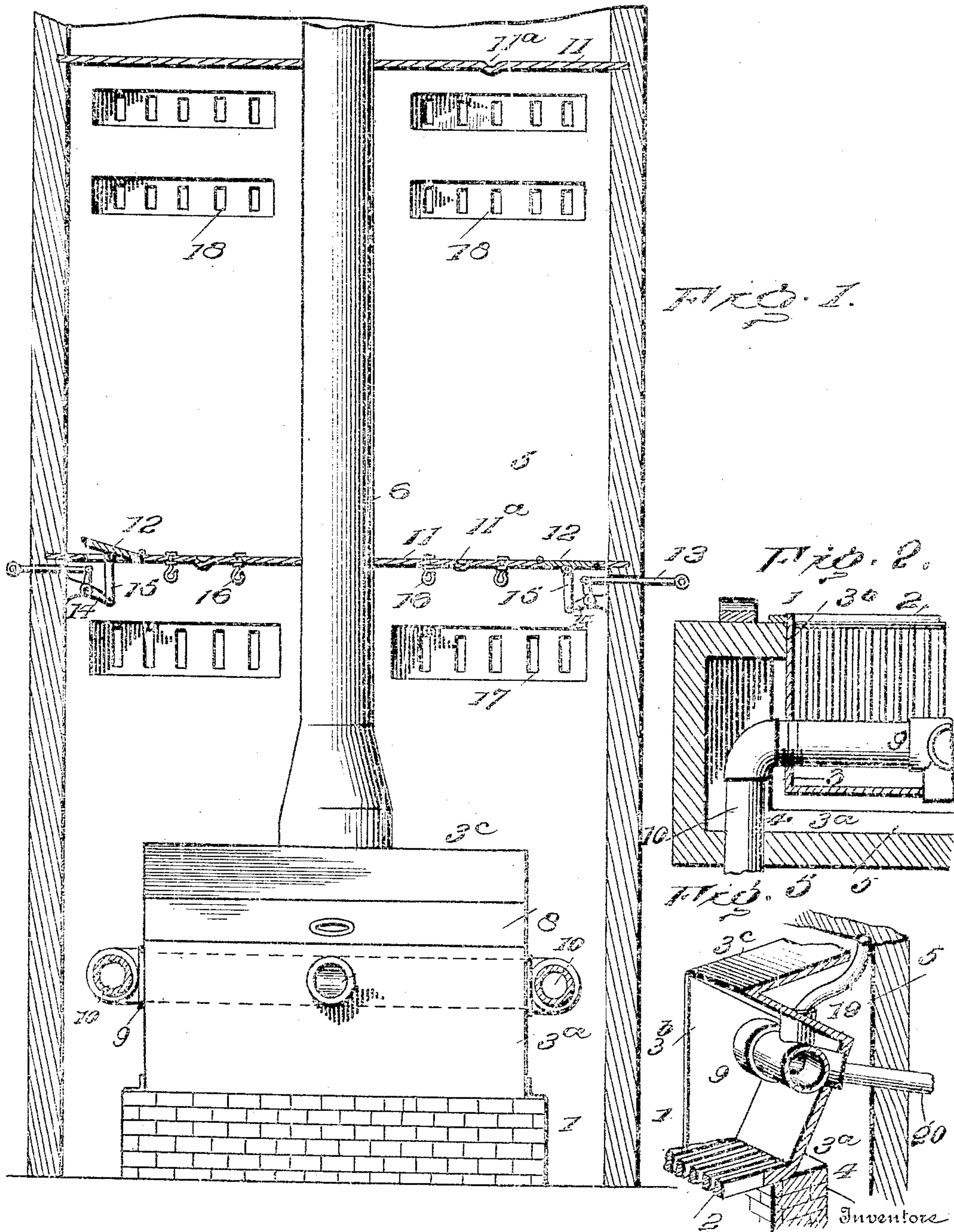
PATENTED APR. 4, 1905.

J. D. BACON & T. MCGARRIGAL.

FIREPLACE HEATER.

APPLICATION FILED MAY 3, 1904.

2 SHEETS—SHEET 1.



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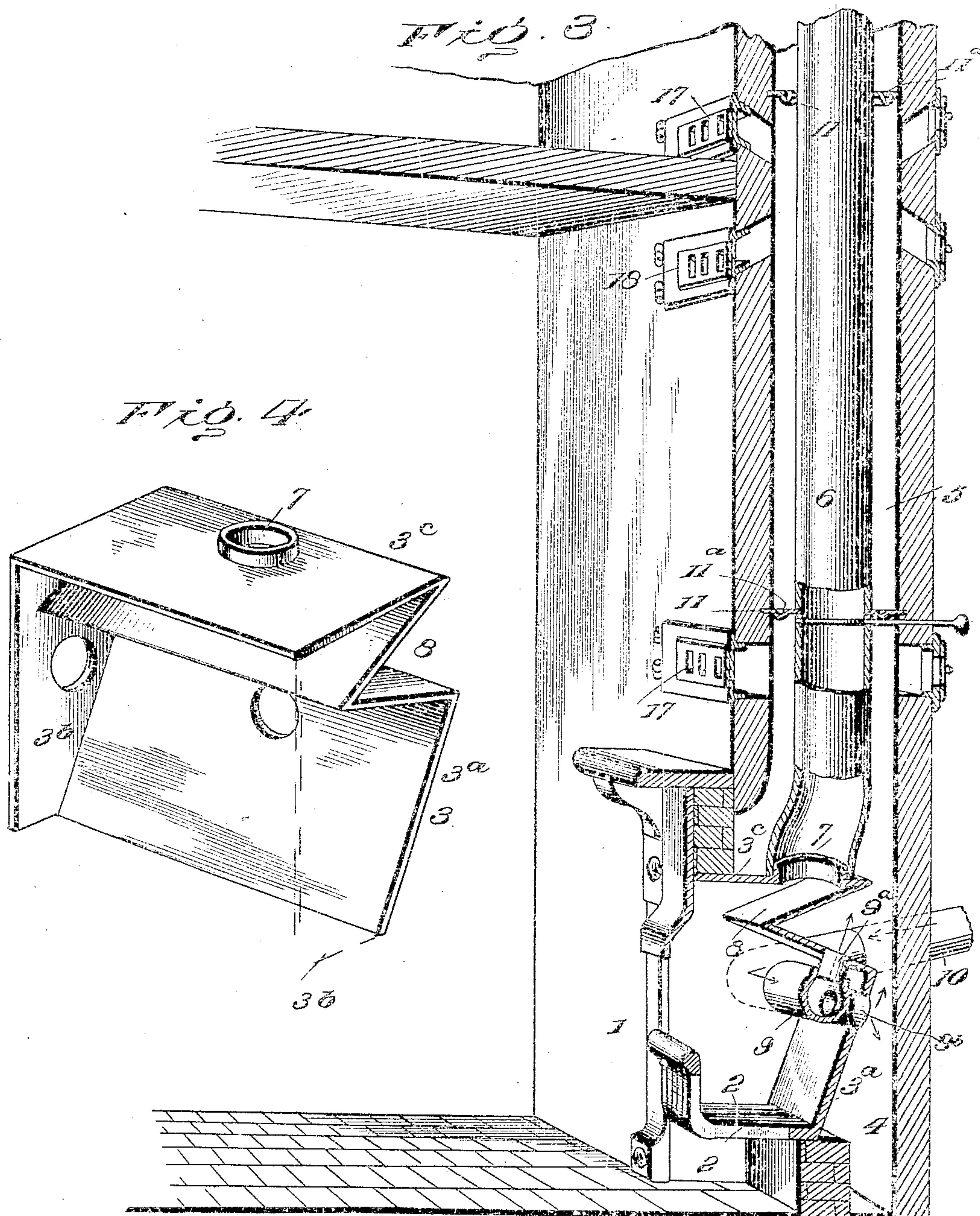
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2 SHEETS—SHEET 2.



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# UNITED STATES PATENT OFFICE.

JESSE D. BACON AND THOMAS MCGARRIGAL, OF PADUCAH, KENTUCKY.

## FIREPLACE-HEATER.

SPECIFICATION forming part of Letters Patent No. 786,713, dated April 4, 1905.

Application filed May 3, 1904. Serial No. 206,257.

*To all whom it may concern:*

Be it known that we, JESSE D. BACON and THOMAS MCGARRIGAL, citizens of the United States, residing at Paducah, in the county of McCracken and State of Kentucky, have invented certain new and useful Improvements in Fireplace-Heaters, of which the following is a specification.

This invention embodies a system of heating particularly adapted for dwelling-houses, the object in view being to provide a comparatively simple arrangement of warm-air-conducting flues in conjunction with a fireplace-heater, the latter being of a special construction similar to those at present in general use.

Our invention relates to that class of heaters in which cold air is primarily heated, after which the same is passed into a hot-air chamber and flue, being distributed from the latter to the various rooms or parts of the dwelling which are to be heated.

An important feature of our invention resides in the fact that pure air is constantly distributed, so that thorough ventilation is always had, and it is contemplated to provide means for imparting a certain degree of moisture to the air to overcome unhealthy dryness of the same when necessary.

For a full description of the invention and the merits thereof and also to acquire a knowledge of the details of construction of the means for effecting the result reference is to be had to the following description and accompanying drawings.

While the essential and characteristic features of the invention are susceptible of modification, still the preferred embodiment of the invention is illustrated in the accompanying drawings, in which—

Figure 1 is a vertical section showing a fireplace-heater constructed in accordance with our invention. Fig. 2 is a broken horizontal sectional view through the fireplace. Fig. 3 is a vertical sectional view bringing out more clearly the arrangement of the hot-air and smoke flues and the inlet and outlet flues extending from the hot-air flue. Fig. 4 is a detail perspective view of the jacket or shell

which extends in rear of and at the sides of the fireplace. Fig. 5 is a detail view embodying a modified construction of shell and drum carried thereby.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

In the drawings the invention is shown in its application to an ordinary fireplace 1, within which is located a grate 2. The fireplace is shown located in an ordinary room, and it will be understood that any heater of analogous type may be employed in accordance with our invention so far as the operative principles thereof are concerned. A jacket or shell 3 extends in rear of and at the sides of the fireplace 1, and this shell is of a peculiar form specially adapted for use in carrying out the objects of our invention. The jacket or shell 3 comprises a rear somewhat inclined wall 3<sup>a</sup>, side walls 3<sup>b</sup>, and an upper horizontally-disposed cover 3<sup>c</sup>. In rear of the shell 3 and partly formed thereby is located a hot-air space or chamber 4, from which extends a hot-air flue 5. It is preferred that the flue 5 extend the entire height of the building within which the invention is being employed and that warm-air flues lead from this hot-air flue 5 into the various rooms adjoining and distant therefrom, as the same may be. From the cover-wall 3<sup>c</sup> of the shell 3 extends the smoke-flue 6, which latter is to be connected at its lower end with the wall 3<sup>a</sup> by any suitable means. The wall 3<sup>a</sup> is provided with an opening 7, through which the smoke and products of combustion pass to the smoke-flue 6. Projected from the rear wall 3<sup>a</sup> of the shell 3 is a hollow extension 8, which may be described as of angular or V form in cross-section, and beneath the extension 8 aforesaid is located a heating-drum 9. The heating-drum 9 is of tubular form and is transversely disposed with respect to the fireplace, having its ends passed through the side walls 3<sup>b</sup> of the shell 3, so as to admit in the preferred construction of the invention of the passage there-through of cold air. The heating-drum 9 is connected with fresh-air-supply pipes 10, said



pipes 10 being connected with the ends of the drum and passing through the rear wall 3<sup>a</sup> of the shell 3. The fresh-air-supply pipes 10 may lead from any point outside of the building, so as to continuously supply the pure air, which is heated previous to distribution throughout the building. The ends of the drum 9 are preferably threaded into openings in the side walls 3<sup>b</sup> of the shell 3, and it will be noted that the drum is disposed in the angle formed at the point of juncture of the lower portion of the extension 8 with the rear wall 3<sup>a</sup> of the shell. The drum because of its location thus receives a maximum amount of heat, so as to quickly heat the fresh air passing thereinto from the communicating supply-pipes 10. The supply-pipes 10 are connected with the drum 9 at the ends of the latter, and the air passing into the drum is conducted therefrom through air-pipes 9<sup>a</sup> and 9<sup>b</sup>, the pipe 9<sup>a</sup> extending through the lower wall of the extension 8, whereas the pipe 9<sup>b</sup> passes through the rear wall 3<sup>a</sup> of the shell 3. Both pipes 9<sup>a</sup> and 9<sup>b</sup> lead into the warm-air space 4. Describing more clearly the advantages of the location of the drum, it may be said that the lower wall of the extension 8 comprises a deflector to confine the heat in that portion of the shell within which the drum is located, the smoke and products of combustion, however, being adapted to pass above the extension 8 into the smoke-flue 6 in a manner which will be readily seen.

Surrounding the smoke-flue 6 and between the smoke-flue and the walls of the warm or hot air flue 5 and at points in the length of the smoke-flue are disposed a plurality of diaphragms 11, which latter confine the heat in certain portions of the hot-air flue in a manner which will be more clearly described. The diaphragms 11 rigidly reinforce the smoke-flue to support the same within the hot-air flue 5, and to afford greater rigidity of the diaphragms same are annularly depressed or corrugated, as shown at 11<sup>a</sup>. The diaphragms 11 may be provided with dampers 12 pivoted thereto, as shown most clearly in Fig. 1, and the said dampers 12 are operated by means of handles 13, conveniently located for operation. The handles 13 of the dampers are connected with bell-crank levers 14 at corresponding ends of said levers, and connecting-bars 15 directly connect the opposite ends of the bell-crank levers with the dampers. Operation of the dampers to open same will admit of direct passage of warm air from the hot-air space 4 up the warm-air flue 5 as found necessary. Secured to the diaphragms 11 are a plurality of supporting members 16 in the form of hooks, and these hooks are utilized to support water-receptacles should it be desired to impart moisture to the dry air which is passing up to the warm-air flue 5 from the hot-air space or chamber 4. The supporting

members 16, however, may be utilized for various purposes, since they are located in a hot-air space, and articles of food might be readily and quickly warmed by suspension of the cooking vessels from the members 16 in a manner which will be readily comprehended.

The preferred manner of distributing the warm air from the hot-air space 4 consists in the provision of inlets 17, which lead from the warm-air space 5 at a point near the lower portion of the rooms, and the said inlets may be closed by registers or any suitable means for governing the supply of warm air. The warm air after passing into the rooms is adapted to pass from the rooms through outlets 18, located near the ceiling of each of said rooms, and this warm air in passing off is again received in the warm-air flue 5, being mixed with any warm air which may already be located in this flue. The inlets and outlets 17 and 18 may also be provided with governing-registers of any suitable type found preferable and suitable for the purpose of our invention. It will be noted by reference to Figs. 1 and 3 that the outlet-openings through which the warm air passes into the rooms are of such a size as to readily admit of disposal of any receptacles or vessels upon the supporting members 16 wherever this is found desirable in accordance with the purposes above described. The outlet and inlet means provided in connection with our warm-air flue may lead therefrom in any direction found necessary in order to properly convey the air to its destination, and the warm-air flue 5 may be connected by pipes to rooms situated at a distance therefrom.

In the modification shown in Fig. 5 our heating-drum is utilized to contain water to heat same for distribution through pipes under the low or high pressure systems, and when thus used the ends of the same may be closed by caps or suitable means and a pipe or pipes 19 led from the said drum upwardly through the extension 8, passing to any part of the building which it may be desired to heat. A second water-supply pipe 20 is used in the modified invention above mentioned, and this pipe is connected with any convenient reservoirs or source of supply. The pipe 20 would preferably pass through the wall 3<sup>a</sup> of the shell 3 and is coupled to the drum or reservoir 9 at the point at which the air-pipe 9<sup>a</sup> is ordinarily attached when drum 9 is used for air-heating purposes.

It will be noted that the air-pipes 9<sup>a</sup> and 9<sup>b</sup>, which lead from a point about intermediate the ends of the drum 9, so as to conduct the heated air into the hot-air space, are so arranged that the draft through the pipe 9<sup>b</sup> greatly increases the draft through the pipe 9<sup>a</sup>, since the hot air in passing into the hot-air space through the pipe 9<sup>b</sup> must pass upwardly adjacent the point at which the pipe 9<sup>a</sup> leads into the extension 8. Also it will be



readily seen that a maximum amount of cold air is admitted into the drum because of the location of the inlet-pipes 10.

5 Having thus described the invention, what is claimed as new is—

10 In a fireplace, the combination of a fireplace, a jacket or shell consisting of a rear wall, side walls and an uppermost horizontal cover-wall, a hot-air space adjacent the shell, a hot-air flue leading from the hot-air space, the upper wall of the shell being provided with a smoke-outlet opening, a smoke-flue leading from said opening of the shell, a hollow extension projected from the rear wall of the shell adjacent the upper portion thereof and extending above the combustion-chamber

of the fireplace, a drum beneath the hollow extension aforesaid and having its ends leading through the side walls of the shell, cold-air-supply pipes leading into the ends of the drum aforesaid, and outlet air-pipes leading from the drum to the hot-air space, one of said outlet-pipes leading into the hollow extension and the other through the wall of the shell.

25 In testimony whereof we affix our signatures in presence of two witnesses.

JESSE D. BACON. [L. s.]

THOMAS MCGARRIGAL. [L. s.]

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