

(No Model.)

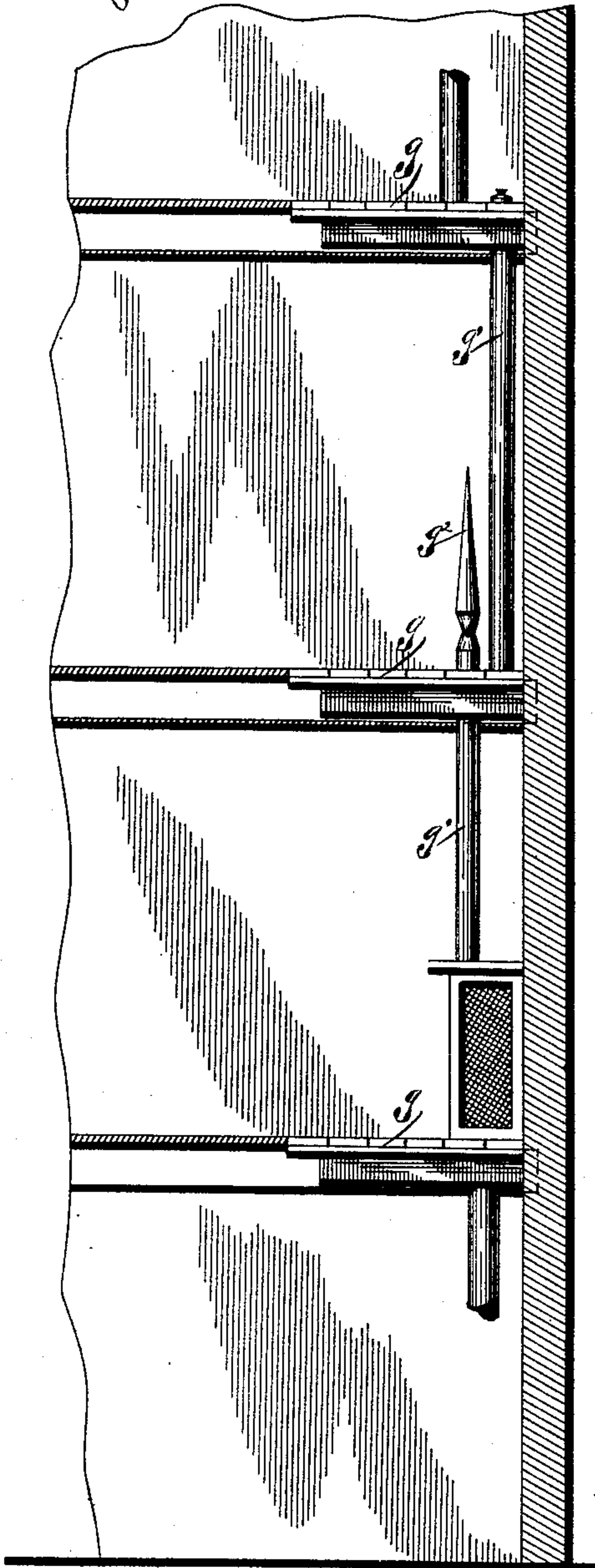
2 Sheets—Sheet 1.

D. H. BURRELL.  
SYSTEM OF HEATING.

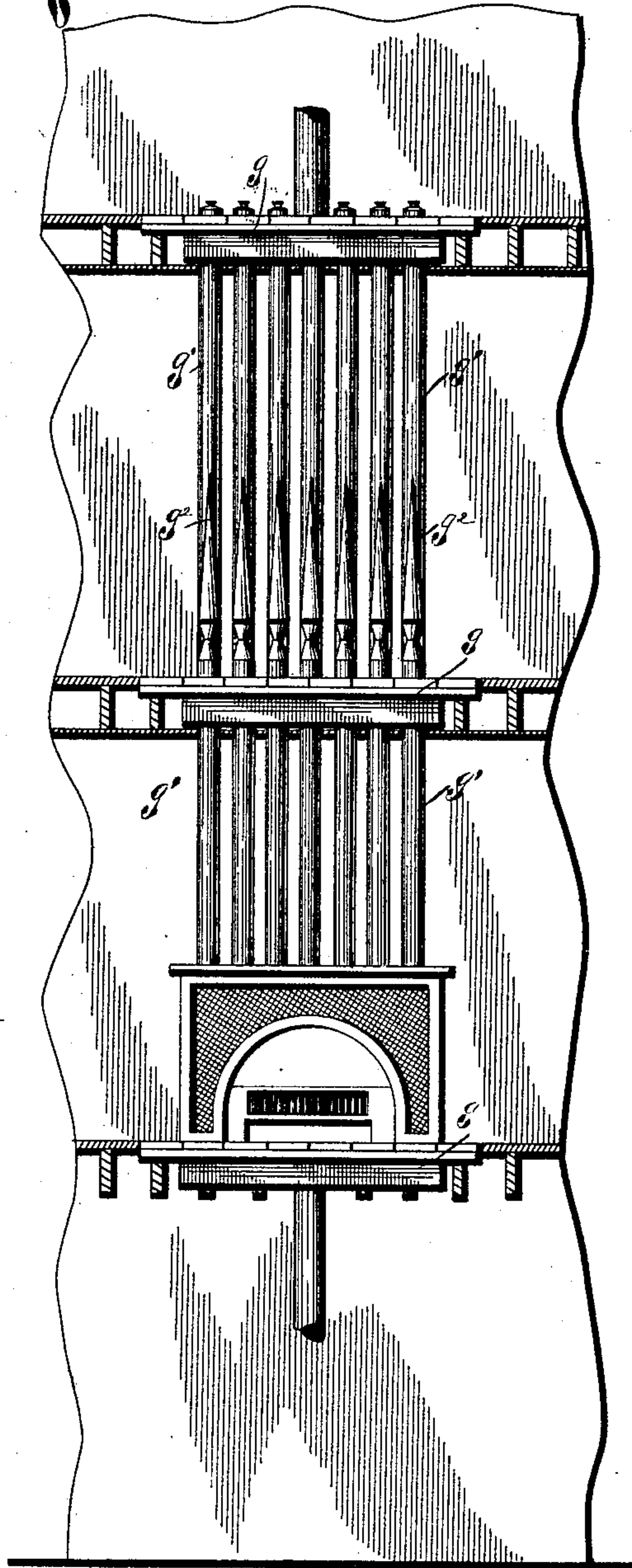
No. 480,903.

Patented Aug. 16, 1892.

*Fig. 1.*



*Fig. 2.*



WITNESSES:

*A. Parsons.*  
*H. C. Martin.*

INVENTOR

*David H. Burrell.*

BY

*Wm. H. Gibbs*

ATTORNEYS.

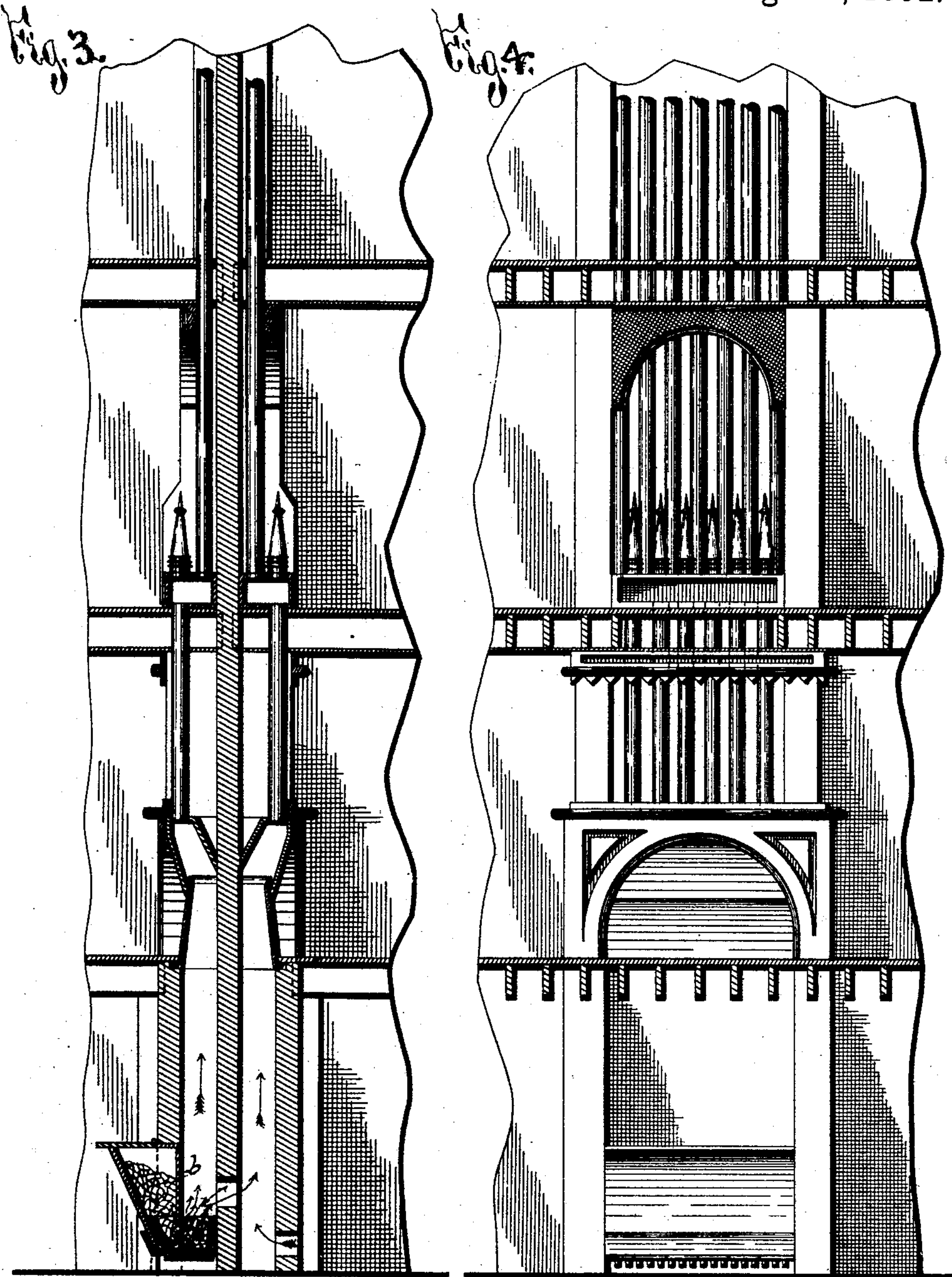
(No Model.)

2 Sheets—Sheet 2.

D. H. BURRELL.  
SYSTEM OF HEATING.

No. 480,903.

Patented Aug. 16, 1892.



WITNESSES:

*A. Parsons*  
*W. E. McArthur*

INVENTOR

*David H. Burrell*

BY *Hay & Gibbs*

ATTORNEYS.



# UNITED STATES PATENT OFFICE.

DAVID H. BURRELL, OF LITTLE FALLS, NEW YORK.

## SYSTEM OF HEATING.

SPECIFICATION forming part of Letters Patent No. 480,903, dated August 16, 1892.

Application filed March 5, 1888. Serial No. 266,271. (No model.)

*To all whom it may concern:*

Be it known that I, DAVID H. BURRELL, of Little Falls, in the county of Herkimer, in the State of New York, have invented new and  
5 useful Improvements in Systems of Heating, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to an improvement in  
10 heating apparatus; and it consists in certain peculiarities of the construction and arrangement of the same, substantially as will be hereinafter more fully set forth, and more fully pointed out in the claim.

15 In order to enable others skilled in the art to which my invention pertains to make and use the same, I will now proceed to describe its construction and use, referring to the accompanying drawings, in which—

20 Figure 1 is a vertical section, and Fig. 2 a front view, of an arrangement of my apparatus as built into a new house. Figs. 3 and 4 are similar views of another arrangement of the same intended to more fully illustrate  
25 the various effects that may be produced when the heating apparatus enters into and becomes a portion of the design and decoration of a house without in any degree injuring its usefulness for the real object of its ex-  
30 istence.

The object I have in view is to so control the temperature of a room or house as to keep it as nearly as possible of an even temperature during the whole year independent  
35 of the extreme changes that may occur in the outside atmosphere, and to do this I use an apparatus which is in no sense portable, but which when applied becomes a permanent fixture and a part of the house in which it is  
40 placed. I also aim in heating the house or building to utilize the large amount of heat which is ordinarily wasted by being passed off up the flue with the smoke and products of combustion, and I effect this by passing  
45 said products of combustion through the rooms to be heated in a series of tubes, which I prefer to construct of thicker material than sheet metal in order that they may act as res-  
50 ervoirs in which the heat is stored and from which it is given off with greater evenness than would be the case with pipes made of sheet metal.

In carrying out my invention in practical application to buildings the form and arrangement may and will be varied greatly, 55 partly to accommodate the varying conditions of different buildings and partly to more perfectly harmonize with the design, arrangement, and decoration of the house, as is particularly desirable in an apparatus which be- 60 comes a permanent part of the building, but which in no way departs from the principle of my invention.

In the accompanying drawings I have represented a section of a portion of a building, 65 in which—

$a$  represents the main or first floor, and  $a'$   $a^2$  the second and third floors, respectively.

In the lower story or basement I have shown a heater or furnace  $b$ , which may be of any 70 desired kind, and has its smoke-pipe connected to the flue, as usual.

In Figs. 1 and 2 I have shown an arrangement of my invention in which the apparatus is arranged in a new house without any flue 75 or chimney and arranged to heat the tier of rooms one above the other, as shown. In this case each room is provided with a manifold in the hearth, as at  $g$ , and each is provided with a flange to support a border of ornamental 80 tiles.

The manifolds are connected by a series of vertical tubes  $g'$ , which pass up through the rooms, and it will be noted that each series is set off or not in line with the other and that 85 each manifold is provided with a series of removable caps  $g^2$ , which are removed at pleasure for clearing the tubes, besides acting as additional heating-surface, and may be made quite ornamental. 90

In Figs. 3 and 4 I have shown still another arrangement applied to new houses, in which I have shown a different form of heater in the basement and double flue connected there- with and built up only to the first floor, where 95 the manifold and pipe connections are made, as before explained. These various arrangements serve well to show the character of my improvement and the adaptability to an ornamental interweaving with the house, which 100 does not interfere with its practical usefulness.

The invention will therefore be understood as the permanent application through the



house of a series of shallow pans or manifolds in which the smoke and heat are permitted to expand and spread and the series of tubes connecting the manifolds passing  
 5 through the rooms and serving to heat the same by the storage and radiation of the heat that would otherwise be wasted.

In all the manifolds and connections I prefer to use metal of some thickness—say one-  
 10 eighth inch and upward—because I find by practice that the mass of metal contained therein acts to store the heat and give it off again slowly and with great evenness, saving in fuel and keeping the temperature more  
 15 nearly at one point; but I do not desire to wholly confine myself to thick and heavy pipes, as the thickness will often be varied with the material used, iron, copper, brass, and other material being used, according to the desired  
 20 cost and variance of decorative effect, and the thickness of the pipes will be varied according to the cost and conductivity of the metal used.

It will be noted that I do not confine my in-  
 25 vention simply to heating; but in summer when a cooler atmosphere is desired by disconnecting my heater or providing a separate opening into the flue I procure through the system a draft of the cool damp air of the  
 30 basement, which tends to reduce the tempera-

ture of the system below that of the surrounding air, and has thus a cooling tendency and effect without introducing any foul or impure air into the rooms.

I make no claim herein to any system of  
 35 heating-pipes which are not fixtures in the building and a permanent part thereof.

Having thus fully described my invention, what I claim as new, and desire to secure by  
 Letters Patent, is—

The combination of a building having rooms  
 40 one above the other, a heater, a pipe for conducting the products of combustion from said heater, a heating-chamber connected to said pipe and supported between said rooms and  
 45 above the ceiling of the lower room, an outlet-pipe leading from said chamber and out of line with said former pipe, and a radiating-cap removably secured to said chamber above  
 50 and in line with said former pipe, substantially as and for the purpose specified.

In testimony whereof I have hereunto signed my name, in the presence of two attesting witnesses, at Little Falls, in the county of Herkimer, in the State of New York, this 30th day  
 55 of January, 1888.

DAVID H. BURRELL.

Witnesses:

WM. P. MALONEY,  
 GEO. W. SEARLES.