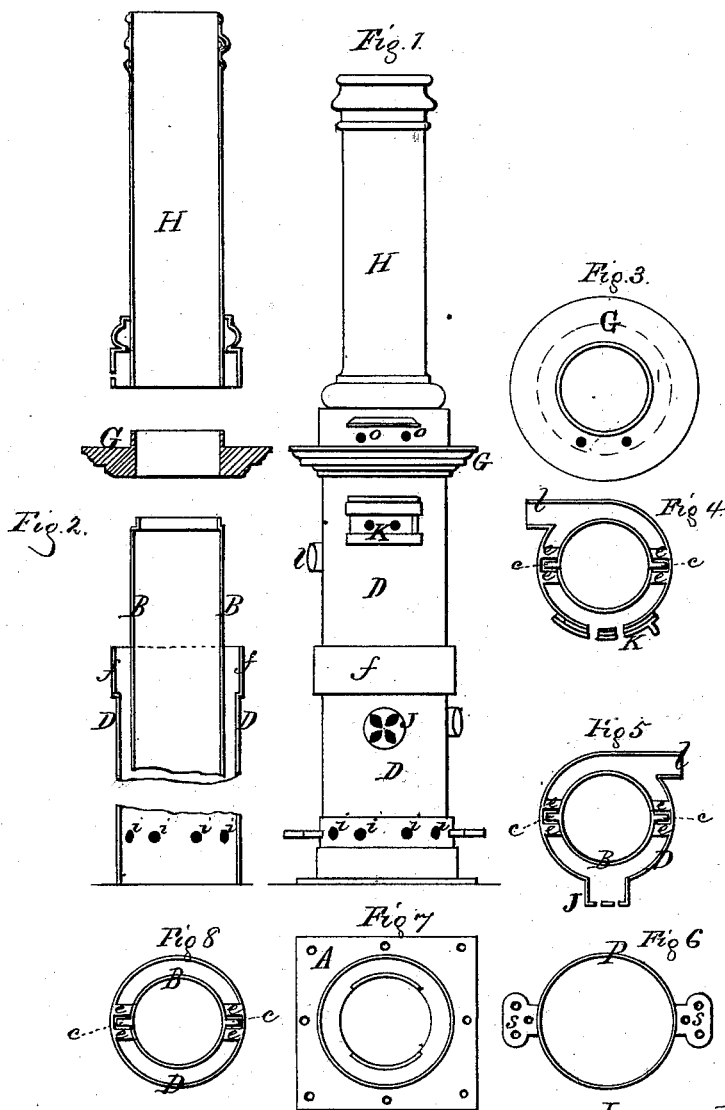


J. BROWELL.
 Heating and Ventilating Chimney.

No. 203,317.

Patented May 7, 1878.



Witnesses
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UNITED STATES PATENT OFFICE.

JEREMIAH BROWELL, OF SAN FRANCISCO, CALIFORNIA.

IMPROVEMENT IN HEATING AND VENTILATING CHIMNEYS.

Specification forming part of Letters Patent No. **203,317**, dated May 7, 1878; application filed March 28, 1878.

To all whom it may concern:

Be it known that I, JEREMIAH BROWELL, of the city and county of San Francisco, in the State of California, have invented a Combined Fire-Draft Heating and Ventilating Chimney; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the drawings accompanying this specification, and forming a part of the same.

My invention has reference to that class of chimneys known as "sectional chimneys," in which the stack or chimney is composed of a series of tubes placed one upon another, an inside tube, which forms the flue proper, and a larger outside tube or casing, which surrounds the inside tube at a short distance from it, so as to provide a space between the two tubes.

My invention relates to certain improvements upon this class of chimneys by which this annular or surrounding space between the two concentric tubes is utilized for the double purpose of heating and ventilating the rooms of a house, and to serve as a draft-flue for receiving and conducting to the open air above the house the foul vapors from water-closets, sinks, and other places where such vapors are generated. I therefore call my chimney a "sanitary chimney."

My chief object is to divide this surrounding annular space into two distinct and independent flues, which are entirely separate not only from each other, but also from the main flue, through which the smoke and products of combustion from the fire-place pass, and to provide means for converting one of these flues or passages into a ventilator or heater, as desired, while the other serves to conduct and draw off the foul vapors.

My invention also includes a novel arrangement for supporting and staying the chimney or stack, all as hereinafter more fully described.

Referring to the accompanying drawings, Figure 1 is a view of the chimney. Fig. 2 is a vertical section of the chimney with its parts separated. Figs. 3, 4, 5, 6, 7, and 8 are detail views.

Let A represent the base-plate, upon which the lowermost section of the chimney rests.

This base-plate usually forms the top of the fire-place.

The chimney or stack is composed of an inside sectional tube and an outside sectional tube of larger diameter, as before stated. These tubes may be made of cement, earthenware, metal, or other suitable material.

The sections B B, of which the inner or main flue is constructed, are each provided in their manufacture with two exteriorly-projecting ribs or spines, *c c*, on opposite sides of the pipe, which extend longitudinally the entire length of each section.

The sections D D, of which the outside tube or pipe is constructed, are each provided with four internally-projecting ribs, *e e*, which are arranged in pairs on opposite sides of the tube, parallel with each other, as shown at Figs. 4, 5, and 8. The internal ribs *e e* on each side are placed at a sufficient distance apart to allow the external ribs *c c* of the inside pipes or tubes to slide freely down between them when the smaller inside pipes are inserted into the larger outside ones, after which I fill the spaces on each side between the ribs *c* and *e* with cement, so as to form two impervious partitions, one on each side of the chimney, thus dividing the annular space into two distinct compartments or passages.

In constructing the chimney I make the inside sections B break joints with the outside sections D, so that the inside stack needs no strengthening-bands or other support, as the interlocking ribs or spines and the cemented joints will not only hold them in place, but will practically bind them to the outside sections.

For covering the joints of the outside sections, I use any suitable band or binding, *f*, which serves more for the purpose of making the joints air-tight than for strengthening the stack.

Upon the top of the chimney, where it passes through the roof of the building, I place a diaphragm-ring, G, which is similar to the diaphragm-ring described in a former patent issued to me, and upon this diaphragm-ring I place the chimney-top H, as represented at Fig. 1. The lowermost section of this compound chimney rests upon the base-plate A, while the central hole in the base-plate allows

the heat and products of combustion from the fire-place to pass up into the inside or main flue. Near the bottom of the outside lower section D, I make a number of holes, *i i*, at intervals apart, so as to admit air into each of the outside passages.

The semi-annular passage on one side of the chimney I use as a ventilator or heater, as required, while the opposite passage I use as a draft-flue, with which to connect the pipes from water-closets and sinks.

J represents a register attached to the ventilating side of the chimney, and K represents a sliding damper or cut-off, which is arranged to move over holes in the ventilating side of the chimney, near its top. As many registers can be attached to the ventilating side of the chimney as desired.

When the damper K is open the passage serves as a ventilating-flue to withdraw heated and foul air from the rooms of the house; but when the damper is closed the air is prevented from escaping from the upper end of the passage, and the confined air, becoming heated by radiation from the inner flue, passes into the rooms, and causes the chamber thus formed to serve as a heater.

l l represent the pipe-connections with the water-closet and sink on the opposite side of the chimney. The air in this passage enters the holes *i i* near the bottom of the chimney, and passes up through holes in the diaphragm-band G, and thence out through holes *o o* in the base of the chimney-top. The draft thus created draws the foul vapors through the pipes *l l* from the water-closet and sink, and delivers them into the open air above the house.

Heretofore this class of chimneys were stayed or guyed by means of vertical rods passing down through ears or lugs which ex-

tended from bands firmly secured to the chimney. This answered as long as the chimney remained in its original condition, but when, from any cause, it settled, the bands, settling with it, would cause the ears to break off, after which the guy-rods would be useless.

Instead of securing the bands P, from which the ears *s* project, firmly to the chimney, I place them loosely around the chimney and guy them as before, so that the chimney can settle without affecting the bands.

I thus provide a chimney which has three separate passages or flues, each of which performs an independent duty, so that the drafts are independent, and there is no liability of either being affected by the other.

Having described my invention so that others skilled in the art can make and use the same, what I claim is—

1. A sectional double-wall chimney, having its outer annular space divided by partitions *c c* into two or more independent passages, which receive air through holes *i i* at or near the bottom, and discharge it above the roof of the house, substantially as and for the purpose above described.

2. The inside pipe-sections B, each of which is provided with the opposite external ribs *c c*, in combination with the outside pipe-sections D D, with their internal parallel ribs *e e* arranged in pairs on opposite sides, the spaces between said ribs being rendered impervious by a filling of cement, substantially as and for the purpose herein described.

In witness whereof I have hereunto set my hand and seal.

JEREMIAH BROWELL. [L. S.]

Witnesses:

W. F. CLARK,
J. V. DE VRY.