

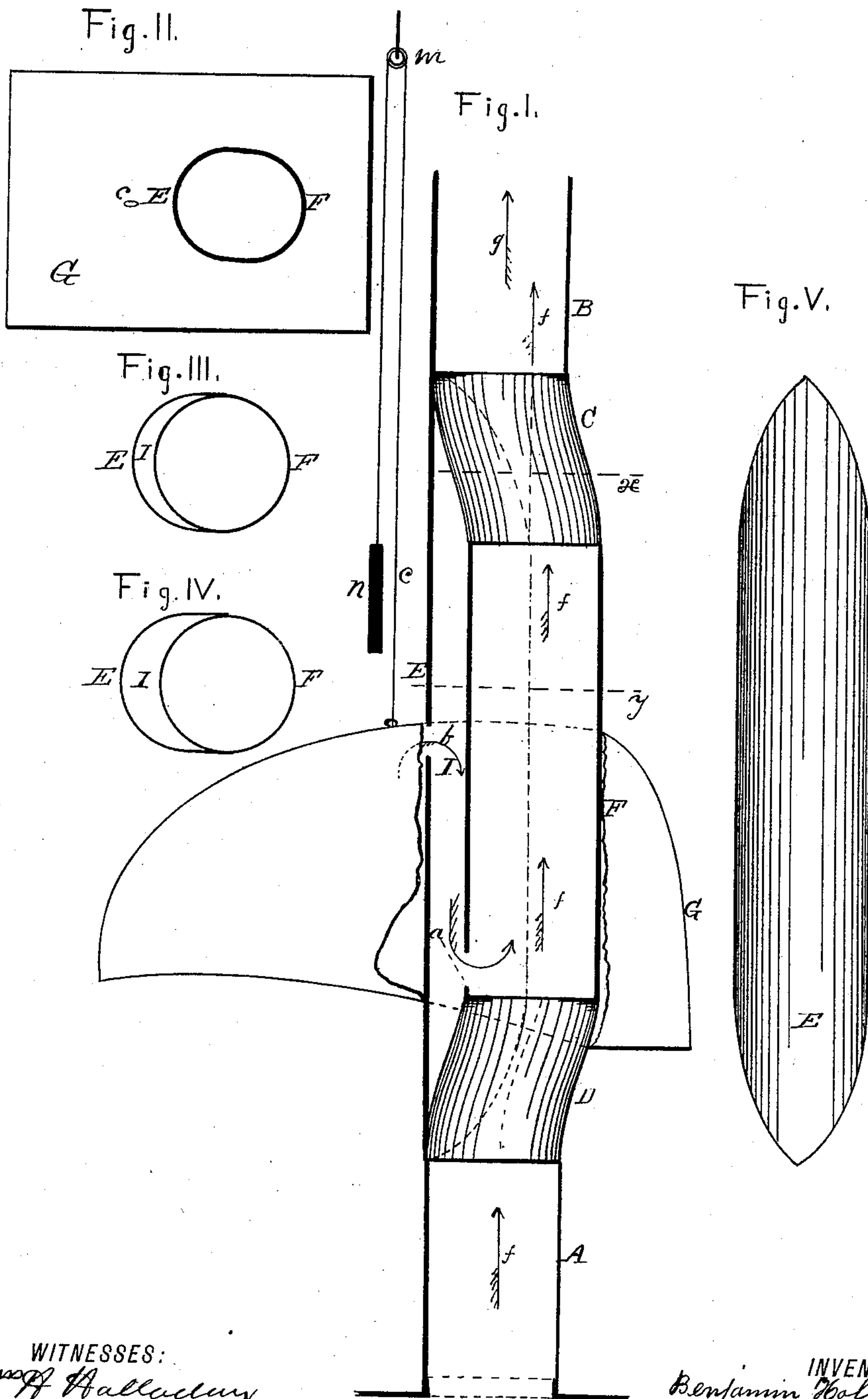
(No Model.)

B. HOLBROOK & C. E. NORCOTT.

SMOKE AND STEAM ESCAPE FOR HEATING APPARATUS.

No. 349,097.

Patented Sept. 14, 1886.



WITNESSES:  
*Wm A Halladay*  
*M K Dawson*

INVENTORS  
*Benjamin Holbrook.*  
*Charles E. Norcott.*  
BY *G. L. Chapin.*

ATTORNEY

# UNITED STATES PATENT OFFICE.

BENJAMIN HOLBROOK AND CHARLES E. NORCOTT, OF CHICAGO, ILLINOIS;  
SAID NORCOTT ASSIGNOR TO SAID HOLBROOK.

## SMOKE AND STEAM ESCAPE FOR HEATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 349,097, dated September 14, 1886.

Application filed February 26, 1886. Serial No. 193,315. (No model.)

*To all whom it may concern:*

Be it known that we, BENJAMIN HOLBROOK and CHARLES E. NORCOTT, citizens of the United States, and residents of Chicago, county of Cook and State of Illinois, have invented new and useful Improvements in Smoke and Steam Escape for Heating Apparatus, reference being had to the accompanying drawings, illustrating the invention, in which--

Figure I is a central sectional elevation of a mechanism embodying our invention. Fig. II is a plan or top view of the housing which deflects the smoke and steam into the pipe of the heating apparatus removed, it being about three-fifths of the size shown at Fig. I. Fig. III is a transverse section of Fig. I on line *x*; Fig. IV, a section of Fig. I on line *y*; Fig. V, an inside view of the plate which forms the exterior of the heating-chamber at the side of the pipe removed from the other parts.

The purpose of this invention is to remove smoke, steam, and obnoxious gases from apartments by means of devices attached to the pipes of the heater employed therein.

The improvement consists in an external heating-chamber at one side of the pipe, into which the smoke, steam, and obnoxious gases are drawn and by heat expanded so that a draft is formed equal to the draft in the pipe, or so nearly equal to it that smoke, steam, and gases are taken into the pipe without diminishing the draft of the stove or heater. In the matter of construction the opening to the exterior heating-chamber may be in its upper part, and the opening leading to the pipe in lower part of the chamber, or vice versa, and the latter has a heating-surface to the extent of about one-half of the circumference of the pipe, whereby the gases entering the exterior chamber become properly expanded before entering the pipe.

The following description points out one of the means we have devised to put our invention into practice.

A represents the joint of pipe connected with the stove or heater, and with our improved devices.

B is the connecting-pipe, above the pipe A, and is supposed to enter a chimney.

C D represent the upper and lower deflect-

ing joints of pipe, which may be either of cast-iron or sheet metal, as most convenient, and which connect, in the ordinary manner, with the joints of pipe A B, and with a central joint of pipe, F, so that there is a free passage through them, as in ordinary stove-pipe.

The purpose of the deflecting-pipes C D is to give proper depth to an exterior heating-chamber, I, and form the upper and lower ends thereof. The exterior of the chamber I is formed by a plate, E, whose curved ends are to be riveted to the deflecting-pipes C D, and its straight edges riveted to the central joint of pipe, F. In the upper portion of the plate E is formed an opening, *b*, for the entrance of steam, smoke, and obnoxious gases, and in the pipe F, in the lower part of chamber I, is formed an opening, *a*, for these gases to enter the main draft-flue and escape with the smoke and gases from the stove or heater. The chamber I may be formed in connection with a straight pipe; but such a chamber is more expensive, and its heating capacity diminished at its ends, as compared with the ends of the chamber formed by the deflecting-pipes C D.

G represents an ordinary housing, which is intended to deflect gases into the chamber I, or at least prevent their upward escape except through the said chamber. It is by means of a suitably-formed opening in its top part and a pulley and wire cord, *m c*, made vertically adjustable on the pipe F and plate E, as may be necessary when different vessels are used on a cooking stove or range, and a weight, *n*, may be attached to the free end of the cord *c* to balance the housing.

It is necessary to take into consideration the distance which the opening *b* is to be above the opening *a*. Experiments made show that for all ordinary stoves, heaters, and ranges the distance between the openings should be about fifteen inches. Experiments have also shown that the said openings may be so far apart as to increase the draft of a stove, and so close together as to diminish the draft. Openings have been made in pipes for the escape of gases. Therefore we claim openings only in connection with an external heating-chamber.



We claim as new and desire to secure by Letters Patent—

1. A heating-chamber, I, formed in connection with and exterior to the pipe of a stove or heater, with an upper exterior opening, *b*, leading into it, and an interior opening, *a*, leading from it to the pipe F, as specified.

2. The heating-chamber I, formed by the pipe F and plate E, in combination with the

deflecting-pipes C D, the pipe being provided with an opening, *a*, and the plate E with an opening, *b*, above the opening *a*, as and for the purpose specified.

BENJAMIN HOLBROOK.

CHARLES E. NORCOTT.

Witnesses:

G. L. CHAPIN,

FRANK A. HELMER.