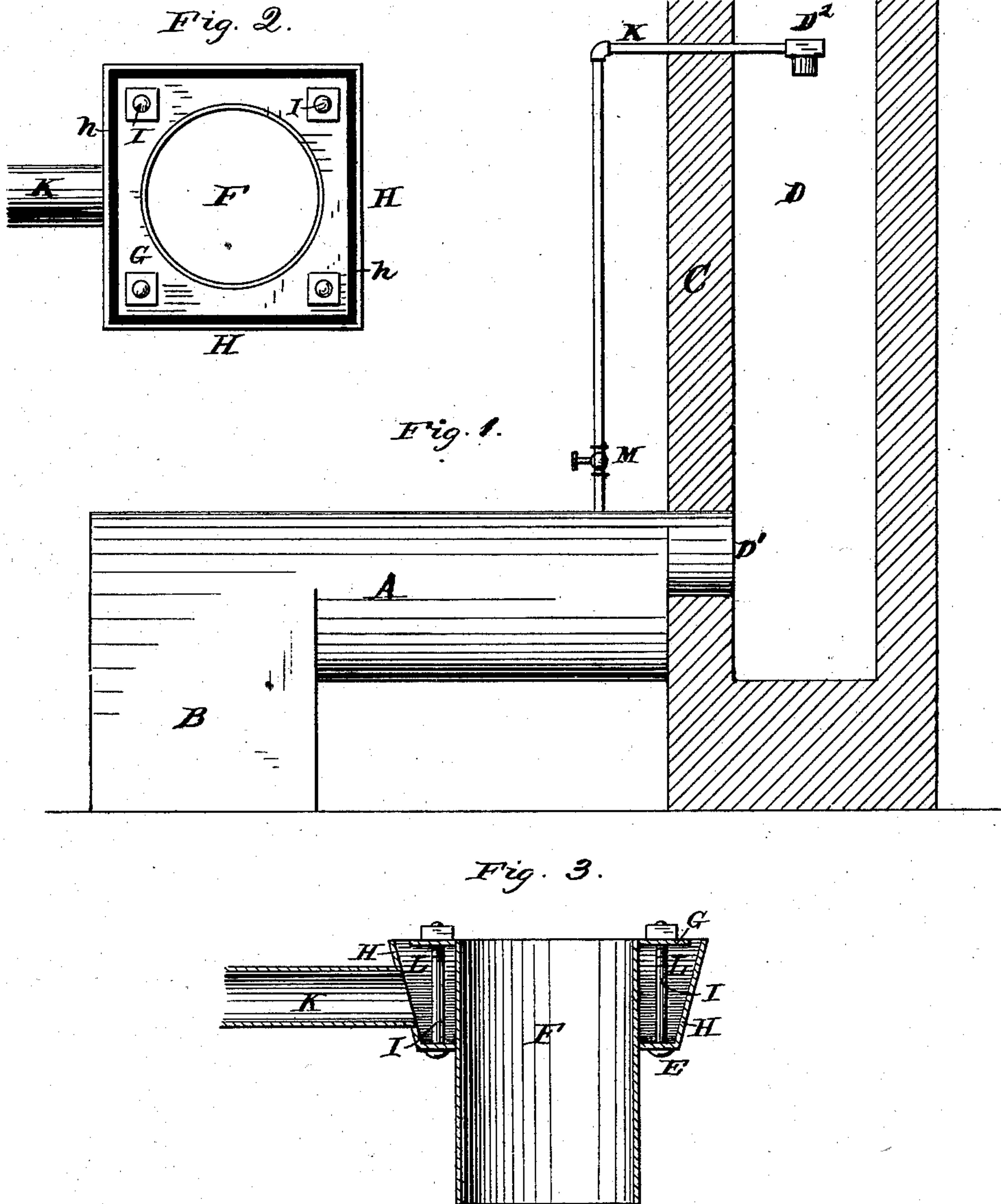


(No Model.)

J. HICINBOTHEN & H. M. DOUBLEDAY.
Draft Device for Chimneys.

No. 238,116.

Patented Feb. 22, 1881.



Witnesses:

H. A. Low

J. S. Barker.

Inventors:

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UNITED STATES PATENT OFFICE.

JAMES HICINBOTHEN AND HARRY M. DOUBLEDAY, OF BROOKLYN, N. Y.

DRAFT DEVICE FOR CHIMNEYS.

SPECIFICATION forming part of Letters Patent No. 238,116, dated February 22, 1881.

Application filed June 21, 1880. (No model.)

To all whom it may concern:

Be it known that we, JAMES HICINBOTHEN and HARRY M. DOUBLEDAY, of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Draft Devices for Chimneys; and I do hereby 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 letters of reference marked thereon, which form a part of this specification.

Figure 1 is a view of a boiler-furnace having our improved draft device attached, taken partly in elevation, partly in section. Fig. 2 is a top-plan view of the draft device detached. Fig. 3 is a vertical section of a slightly-modified construction.

In the drawings, A represents a steam-boiler; B, a furnace, and C a smoke-stack or chimney, all of which parts may be of any ordinary or preferred construction, their specific character constituting no essential part of this invention, our improved device being applicable to any furnace.

In the construction shown in the drawings, D represents the flue, and D' the lower part of the chimney, through which the air and products of combustion are conveyed from the furnace.

Within the vertical part D' of the draft-passage the draft device to be described is placed. It is formed with a horizontal diaphragm, E, supported near the center of the chimney.

F is a pipe passing vertically through the diaphragm E, it being of a diameter sufficiently large to permit a free passage of air and the products of combustion. The diaphragm E is cast upon the pipe F.

G represents a loose plate, situated around the air-pipe F, above the fixed diaphragm E. H H are walls projecting upwardly from the diaphragm E. The plate G is of somewhat less size in both directions than the space between the walls H H, leaving a narrow throat, h h. The walls H H may be inclined, as shown in Fig. 3, so that the width of the throat h h may be increased or diminished by simply

raising or lowering the plate E. This plate might be supported by means of adjusting-screws I I, rising from the diaphragm E.

K represents a steam-pipe communicating with the boiler and with the chamber L, formed between diaphragm E and the plate G, the pipe being provided with a stop-cock, M, suitable for controlling the passage of the steam.

In order to cause a draft in the chimney, the steam is allowed to pass from the boiler to the chamber L, whence it escapes with great force through the throat h. This results in the rapid expulsion of the air from the chimney, and induces a current of air through the furnace and the pipe F much more forcible than we have been able to obtain by any other means.

The plate G may be readily removed by taking off the nuts from the screw-bolts I I, when desired, for the purpose of cleaning the interior of the device or the throat h h.

It will be seen that not only does the hollow column of steam force air upward around the outside of the draft devices, but that it will also force a current of air, unmixed with steam, upward through the draft devices by means of the central air-pipe, F, so that the steam shall pass upward in a thin sheet without tending to the center of the chimney, as is the case when a vacuum is formed upon the inside of the column.

What we claim is—

In a device for promoting draft in chimneys, the combination, substantially as herein described, of the following elements: the central open air-pipe, F, through which air passes, unmixed with steam, the walls H, situated around said central air-pipe, F, and arranged to leave an open air-space around the draft device, the adjustable plate G, fitted around the central air-pipe, F, and movable independently of said pipe, and the steam-pipe K, communicating with the chamber formed around the central air-pipe by the plate G and the walls H.

In testimony that we claim the foregoing we have hereunto set our hands.

JAMES HICINBOTHEN.

HARRY M. DOUBLEDAY.

Witnesses:

IRA A. KIMBALL,

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