

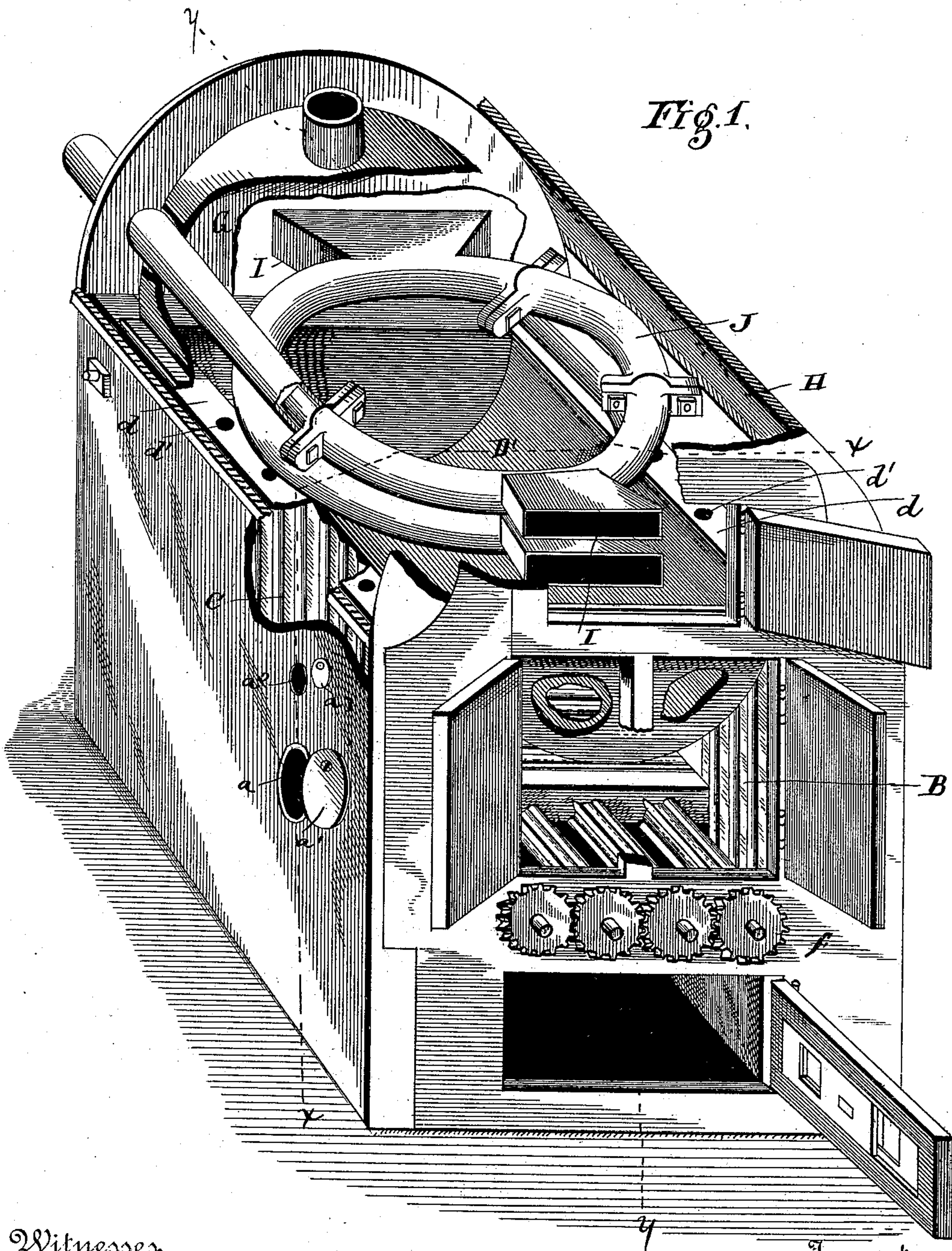
(No Model.)

2 Sheets—Sheet 1.

A. C. PATTON.
HOT AIR FURNACE.

No. 370,649.

Patented Sept. 27, 1887.



Witnesses.

R. C. Loring

S. Specht

Inventor

Addison C. Patton

By his Attorneys

R. B. & A. P. Lacey

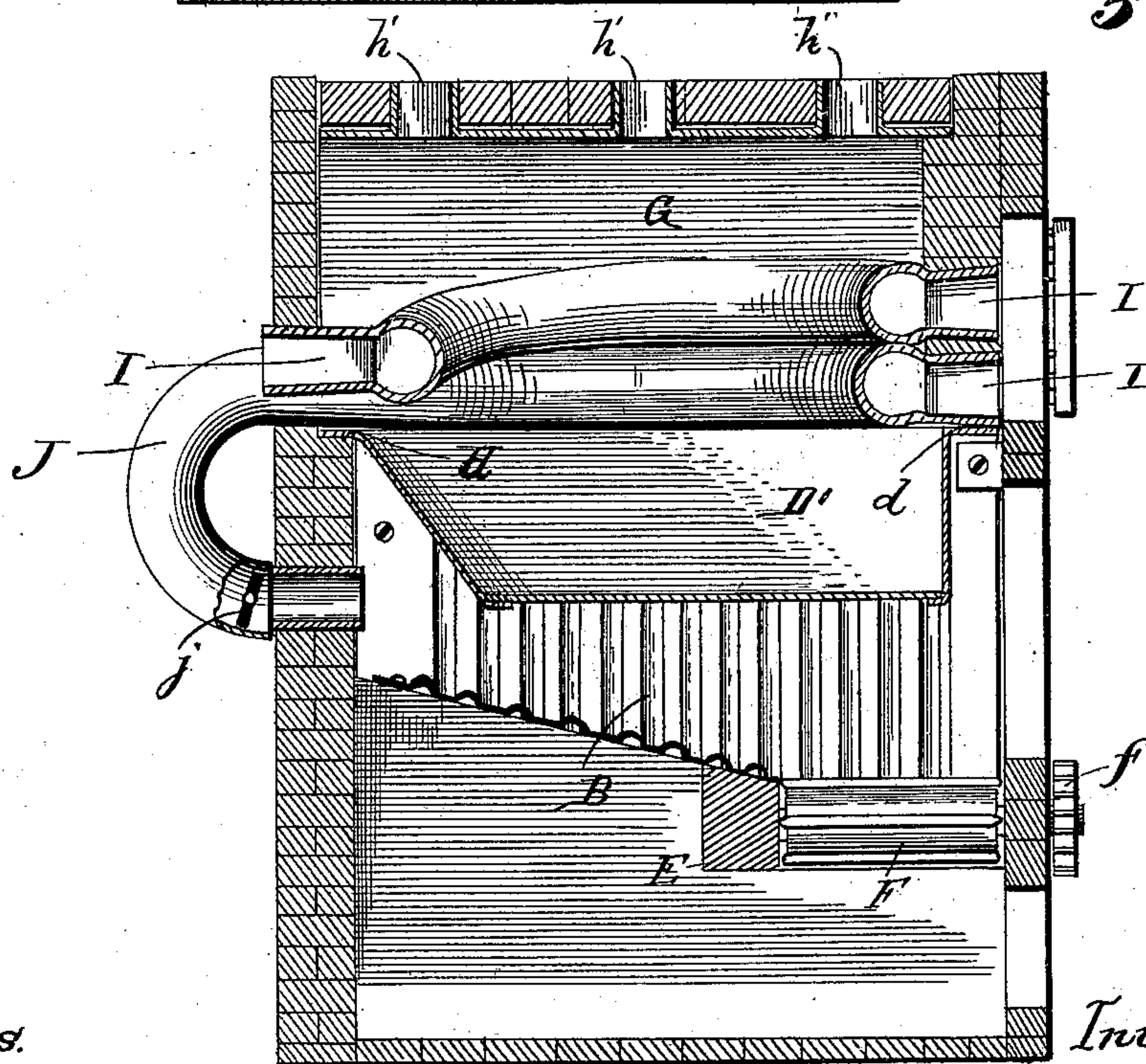
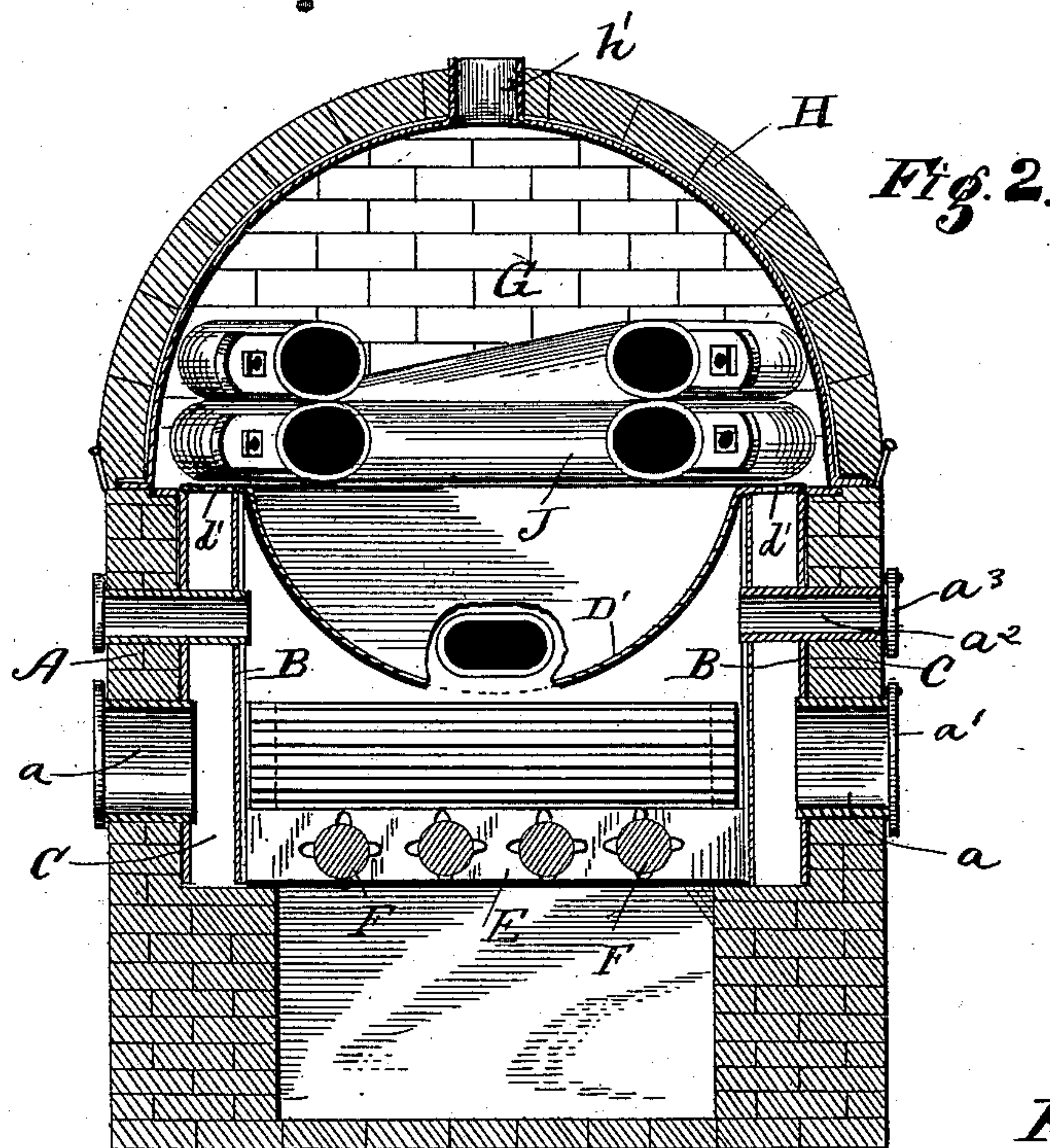
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Inventor
Addison C. Patton
By R. S. & A. Lacey

UNITED STATES PATENT OFFICE.

ADDISON C. PATTON, OF ABILENE, KANSAS.

HOT-AIR FURNACE.

SPECIFICATION forming part of Letters Patent No. 370,649, dated September 27, 1887.

Application filed May 28, 1887. Serial No. 239,680. (No model.)

To all whom it may concern:

Be it known that I, ADDISON C. PATTON, a citizen of the United States, residing at Abilene, in the county of Dickinson and State of Kansas, have invented certain new and useful Improvements in Hot-Air Furnaces; and I do 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 ap-
10 pertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to hot-air heating-fur-
15 naces for heating rooms, dwellings, and, in fact, for heating compartments and places where it is not convenient to have a heating apparatus or stove.

The improvement consists in the novel fea-
20 tures more fully hereinafter set forth and claimed, and shown in the annexed drawings, in which—

Figure 1 is a perspective view, parts being broken away; Fig. 2, a cross-section on the line
25 X X of Fig. 1; and Fig. 3, a longitudinal section, on the line Y Y of Fig. 1, of a furnace embodying my invention.

The furnace may be of any desired pattern, and is composed of an outer shell or casing, A, of brick-work or masonry, and an inner shell,
30 B, of sheet metal, which is preferably corrugated or fluted to give a more extended heating and radiating surface. Between these two shells is formed the hot-air space C, into which the air to be heated is admitted from the outside through flues *a* in the sides of the furnace. Pivoted dampers *a'* close the flues and regulate the amount of air admitted to the air-space C. The passage-ways *a''*, provided with suitable
40 dampers, *a'''*, extend entirely through the two shells and admit air to the combustion-chamber B, formed between the cap D', which is centrally depressed and provided with lateral flanges *d*, which fit over and close the hot-air
45 space C, and the bottom composed of the bridge-wall E and the grate-bars F, which separate the combustion-chamber from the ash-pit. The bridge-wall inclines upwardly from front to rear, and is formed of a piece of corrugated
50 sheet metal. The grate-bars are arranged between the front wall and the front edge of the

bridge lengthwise of the furnace, and are jour-
naled at each end. The front journals extend to the outside of the front wall, and are pro-
vided with intermeshing pinions *f*, so that the
55 series of grate-bars may be simultaneously rotated about their axis upon motion being imparted to any one grate-bar of the series. The grate-bars are longitudinally ribbed, and the ribs of one grate-bar are arranged to come op-
60 posite the space between two ribs of the adjacent grate-bars to more thoroughly crush clinkers when the grate-bars are rotated about their axis.

The hot-air compartment G, located between
65 the cap D' and the hood or coping H of the furnace, communicates with the hot-air space C through openings *d'*, made through the flanges *d* of the cap, and the heated air is conveyed from this compartment to the place de-
70 sired by pipes (not shown) applied to the short tubes *h'*, which extend through the coping, as shown. The smoke-pipe J extends within this hot-air compartment, and is formed into a coil therein to give a greater heat-radiating sur-
75 face. The coil is composed of a number of cast-metal sections. The end of one section is enlarged and the corresponding end of the adjacent section is reduced to fit in said enlarged end and form a snug joint. The approximate
80 ends of two sections are held together by bolts passing through lugs extended from each section. The convolutes of the coil are open at each end, and wide-mouthed cases I connected at their inner ends with the convolutes about
85 the openings, and extended through the walls of the furnace and closed by suitable devices, such as the doors shown. Same to be used for cleaning purposes. The depressed form of cap D' gives a larger area of heating-surface and
90 protects the coil from the direct action of the heat of the fire.

The smoke and products of combustion escape by way of smoke-pipe J, which is pro-
vided with a damper, *j*, to control the amount
95 of draft. The cold air admitted through the flues *a* is heated in the hot-air space C, and, rising, enters the hot-air compartment, when it is still further heated, and from which it is conveyed, as hereinbefore stated, for the pur-
100 pose desired.

Having thus described my invention, what I

claim, and desire to secure by Letters Patent, is—

1. In a furnace, the combination, with the inner and outer shells inclosing an air-space between them, and having the combustion-chamber formed wholly within the inner shell, the flues a , arranged in the outer shell for admitting air to the space, the flues a^2 , extending through the air-space and outer and inner shells for admitting air into the combustion-chamber, the dampers regulating the admission of air through said flues, and the cap D' , having a portion centrally depressed and closing the combustion-chamber and a portion extending over the space between the two shells and provided with openings d' opposite the space, of the hood fitted over and resting on the outer shell and communicating with said air-space through the openings d' , and forming, with cap D' , a hot-air compartment directly over the

combustion-chamber, and hot-air-exit pipes h' , arranged in the hood, substantially as and for the purpose described.

2. The combination, with the double-walled furnace having a hot-air space inclosed between the two walls, the centrally-depressed cap having perforated lateral flanges fitted over said air-space, and the hood or coping forming a hot-air chamber, of the smoke-pipe extended into said hot-air chamber and formed into a coil, and having openings at each end of the convolutes, and wide-mouth cases, and devices, substantially as set forth, for closing said cases, for the purpose specified.

In testimony whereof I affix my signature in presence of two witnesses.

ADDISON C. PATTON.

Witnesses:

J. T. COCHRAN,
H. L. HUMPHREY.