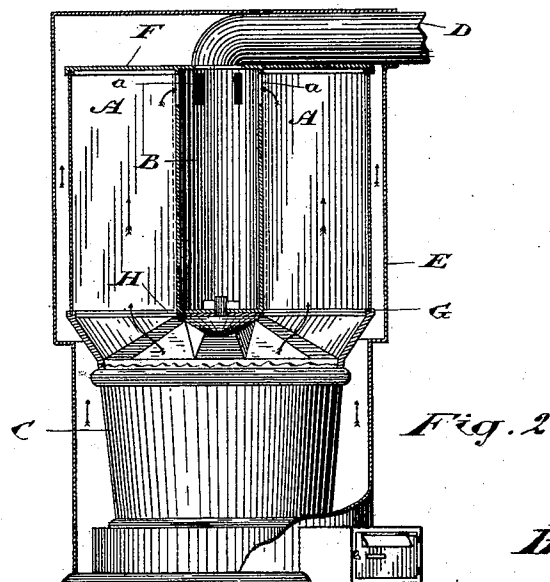
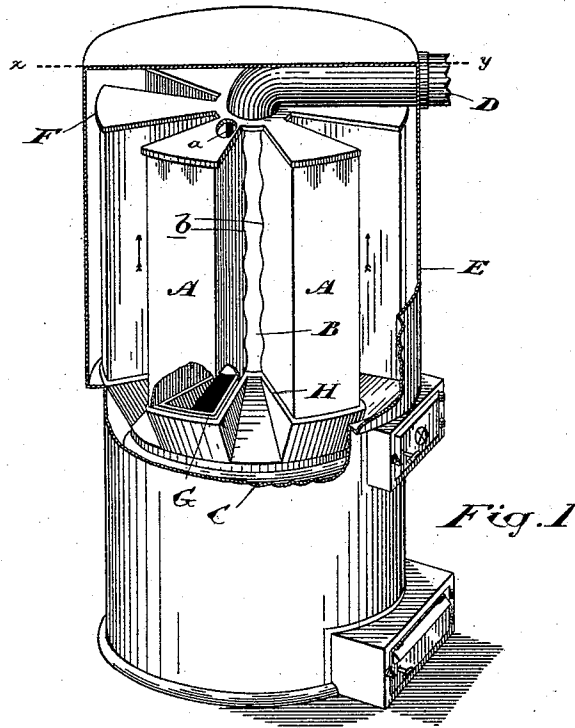


(No Model.)

A. BRAKE.
HOT AIR FURNACE.

No. 471,664.

Patented Mar. 29, 1892.



Witnesses

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Archibald Brake
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UNITED STATES PATENT OFFICE.

ARCHIBALD BRAKE, OF TORONTO, CANADA.

HOT-AIR FURNACE.

SPECIFICATION forming part of Letters Patent No. 471,664, dated March 29, 1892.

Application filed January 16, 1891. Serial No. 378,010. (No model.)

To all whom it may concern:

Be it known that I, ARCHIBALD BRAKE, molder, of the city of Toronto, in the county of York, in the Province of Ontario, Canada, have invented a certain new and Improved Hot-Air Furnace, of which the following is a specification.

The object of the invention is to construct a hot-air furnace in which the heated gases ascending from the fire-pot will be utilized to the fullest extent for the purpose of heating the air in passing through the hot-air chamber; and it consists, essentially, of a series of hollow wings arranged in a circle around a hollow column immediately over the center of the fire-pot. The lower end of this hollow column is closed, while the lower ends of the wings are open, so that the heated gases must pass up into the wings and through holes made near their top into the hollow column, whence they pass into the smoke-flue connected with the said column, substantially as hereinafter more particularly explained and then definitely claimed.

Figure 1 is a perspective view, partially broken away to expose the construction of my improved hot-air furnace. Fig. 2 is a sectional view through xy .

A represents a series of hollow wings arranged around a hollow column B, located immediately over the center of the fire-pot C. The lower end of the column B is closed, while the lower ends of the wings A are open. The smoke-flue D connects with the upper end of the column B. The heated gases ascending from the fire-pot C are directed into the hollow wings A as the bottom of the column of smoke is closed. At or near the top of each wing A, I make an opening a into the hollow column B. Through these openings the heated gases pass into the upper end of the column B and thence into the smoke-flue D. An outer casing E surrounds the wings A, forming an airspace, through which the air to be heated passes, and in its passage circulates through the spaces formed between the hollow wings. It is well known that the center of a column

of smoke is its hottest point, and it is with the view of splitting, as it were, the column of smoke and heated gases ascending from the fire-pot that my arrangement of hollow wings is designed, giving an enormous heating-surface to utilize the heated gases for the purpose of warming the air surrounding the wings. I prefer to make the column B of cast-iron, cast integral with the plate F, which forms a cover for each of the wings A. The wings A, I make of light sheet-steel and set them in the mold for the column B and plate F, thus permanently securing the wings to said column and plate. By thus casting the wings with the column a waving joint b (see Fig. 1) between the two will be formed by the contraction of the metal in the column. In consequence of this form of joint the expansion and contraction of the metal in the furnace will not break the joint. It will be observed that the lower end of each of the wings A is fitted into a socket G, formed on the top plate H, which covers the fire-pot C. The joint between each wing and its socket must of course be made gas-tight.

What I claim as my invention is—

1. A hot-air furnace comprising a series of hollow wings arranged around and opening into a hollow column having its lower end closed and united to said hollow wings, said column and wings being directly over and supported by the fire-pot and the wings opening directly into the same, whereby said column and wings may be removed without disturbing the fire-pot, substantially as described.

2. A hot-air furnace comprising a series of hollow wings arranged around and opening into a hollow column having its lower end closed and united to said hollow wings, said column and wings being directly over and supported by the fire-pot and the wings opening directly into the same, and a casing surrounding the fire-pot, column, and wings, substantially as described.

3. A series of hollow wings A, made of sheet-steel and permanently secured to the column

B and plate F by casting said column and plate onto said wings, substantially as and for the purpose specified.

- 5 4. A hot-air furnace comprising a fire-pot having a dome provided with a series of openings at the top surrounding a hollow column closed at the bottom and resting on said dome, and a series of hollow wings set in sockets surrounding the openings in the dome and

communicating at top with the central hollow column through openings in the sides of said column, substantially as described.

Toronto, January 8, 1891.

ARCHIBALD BRAKE.

In presence of—

CHARLES C. BALDWIN,
JOHN E. CAMERON.