No. 688,703. Patented Dec. 10, 1901.

H. SENASAC, SR.

HOT AIR FURNACE.

(Application filed July 6, 1901.)

(No Model.)

Fig. 1.

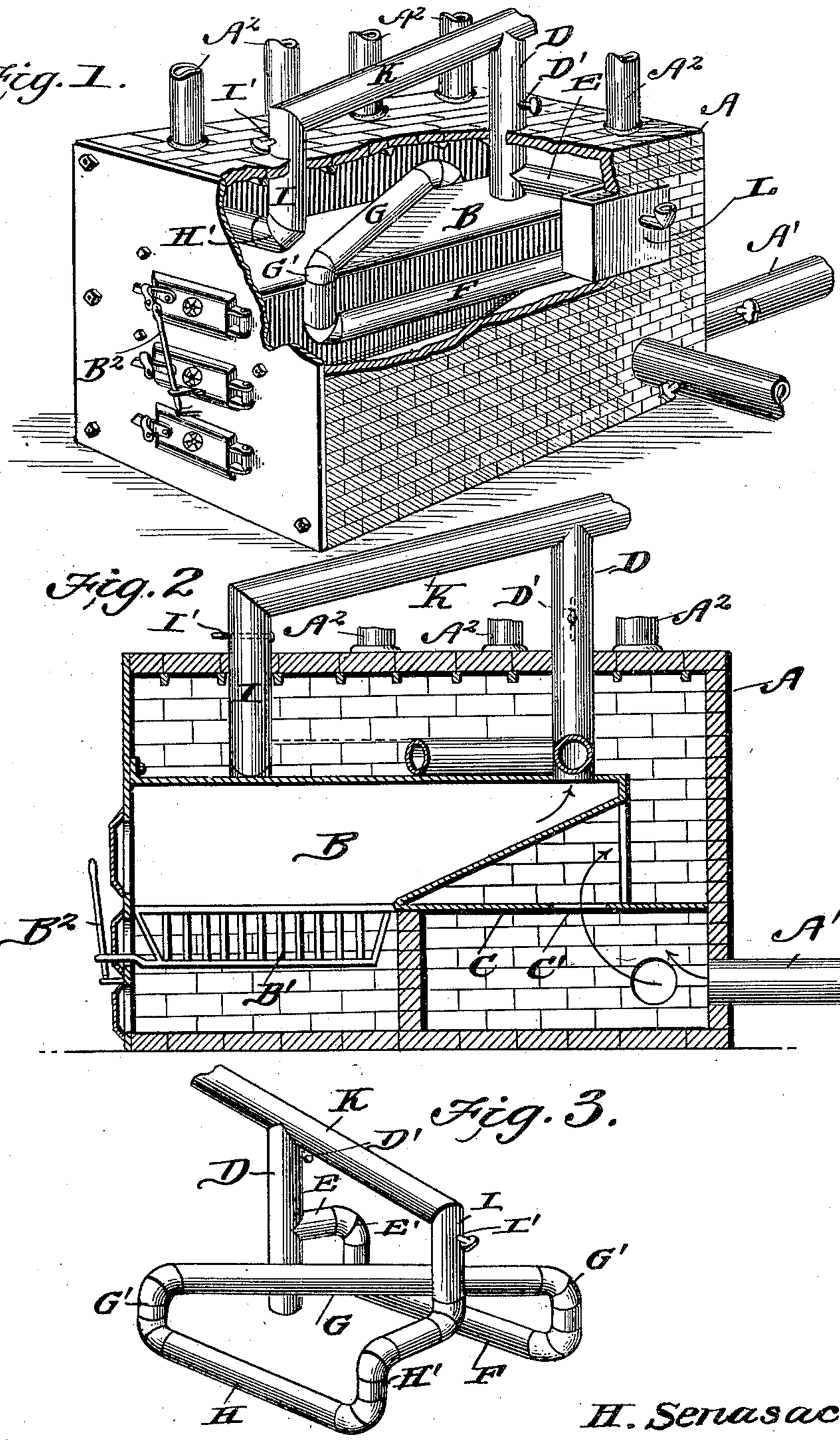

Fig. 2.

Fig. 3.

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HENRY SENASAC, SR., OF KANKAKEE, ILLINOIS.

HOT-AIR FURNACE.

SPECIFICATION forming part of Letters Patent No. 688,703, dated December 10, 1901.

Application filed July 6, 1901. Serial No. 67,310. (No model.)

To all whom it may concern:

Be it known that I, HENRY SENASAC, Sr., a citizen of the United States, residing at Kankakee, in the county of Kankakee and State of Illinois, have invented a new and useful Hot-Air Furnace, of which the following is a specification.

This invention is an improved hot-air furnace, the object being to provide a simple and highly efficient construction of furnace by means of which the air can be thoroughly heated before passing into the hot-air flues, and another object is to provide a passage for conveying the products of combustion directly to the chimney, whereby the air will be heated to a less extent, thereby enabling the furnace to be regulated so as to furnish air of different degrees of temperature.

With these objects in view the invention consists, essentially, in arranging a combustion-chamber within a suitable casing, attaching a tube or flue to the said chamber at its rear end, which tube or flue communicates with the chamber, and in arranging a series of pipes connected with each other and also with the flue-pipe, said series of pipes being arranged alongside and across the combustion-chamber, said flue-pipe and series of pipes being provided with dampers for regulating the passage of the products of combustion.

The invention consists also in certain details of construction and novelties of combination, all of which will be fully described hereinafter and pointed out in the claims.

In the drawings forming part of this specification, Figure 1 is a perspective view of a hot-air furnace constructed in accordance with my invention, the side of the furnace being broken away to illustrate the location and arrangement of the flue-pipes. Fig. 2 is a vertical longitudinal section. Fig. 3 is a perspective view of the flue-pipe and connections.

In carrying out my invention I employ the outer case A, which is preferably built of brick and provided with a metal front having the usual doors for feeding the furnace, raking the same, and removing the ashes. An air-supply pipe A′ communicates with the rear lower portion of the casing, and hot-air pipes A^2 are connected to the upper portion of the casing for the purpose of carrying off the air after it has been heated.

B indicates the combustion-chamber, which is arranged within the outer casing and suitably supported, said chamber having a grate B′, the bottom of which is adapted to move back and forth for the purpose of shaking the fuel, said grate being operated by means of a lever B^2. A diaphragm C is arranged within the casing to the rear of the combustion-chamber, said diaphragm having an opening C′, through which the cold air enters, and it will be noted that the grate or fire-pot is below this diaphragm. A main flue D is connected to the combustion-chamber at the rear upper end for the purpose of carrying off the products of combustion, said flue having a damper D′ arranged therein, said damper being located above the outer casing, as most clearly shown in Figs. 1 and 2. A short section of pipe E is connected to the main flue D adjacent to its lower end, said pipe E being connected to a pipe F by means of an elbow E′. The pipe F is arranged upon one side of the combustion-chamber, between said chamber and the side walls of the casing, and is connected to a cross-pipe G by means of an elbow G′, said pipe G extending diagonally across the top of the combustion-chamber and connected to a pipe H by means of an elbow G′. The said pipe H is in turn connected to an upright pipe I by means of an elbow H′, said pipe I having a damper I′ arranged therein above the top of the casing, and a pipe K connects the upper end of the pipe I with the upper end of the flue D and extends directly to the chimney. Whenever it is desired to heat the air as much as possible before having it pass through the pipes A^2, the damper D′ is closed and the damper I′ opened, thus causing the products of combustion to circulate through the series of pipes before passing to the chimney, and thereby heat the air as it circulates around the combustion-chamber and passes to the pipes A^2. In case it is not desired to heat the air to such an extent the damper I′ is closed and the damper D is opened, thereby permitting the products of combustion to pass directly to the chimney without traversing the series of pipes arranged about the combustion-chamber and within the casing.

A suitable water-tank L is arranged inside of the casing for the purpose of supplying the necessary moisture to the air.

The rear wall of the combustion-chamber is made inclined, as shown, for the purpose of directing the products of combustion to the flue and also permitting the air to come in contact with the said heated rear wall as it enters through the opening C′, the fire-pot being supported by means of a bridged wall and located below.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a hot-air furnace, the combination with the casing of the combustion-chamber arranged therein, the flue leading from the combustion-chamber, a pipe connected to the upper end of said flue, a pipe connected to the lower end of said flue, said pipe extending alongside the combustion-chamber and across the top of the same and alongside the opposite side of the combustion-chamber and then connected to the pipe connecting with the upper end of the flue, said flue and pipe having dampers for regulating the passage of the products of combustion, substantially as described.

2. The combination with the case, a combustion-chamber, of the flue D having the damper arranged therein, the side pipes F and H and connecting-pipe G, the elbows connecting the said side and cross pipes, the pipe I having a damper, and the pipe or flue K connecting the flue D and pipe I and leading to the chimney, substantially as shown and described.

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