

I. HESS.
FURNACE.

APPLICATION FILED NOV. 9, 1908.

Patented Feb. 7, 1911.

2 SHEETS—SHEET 1.

983,619.

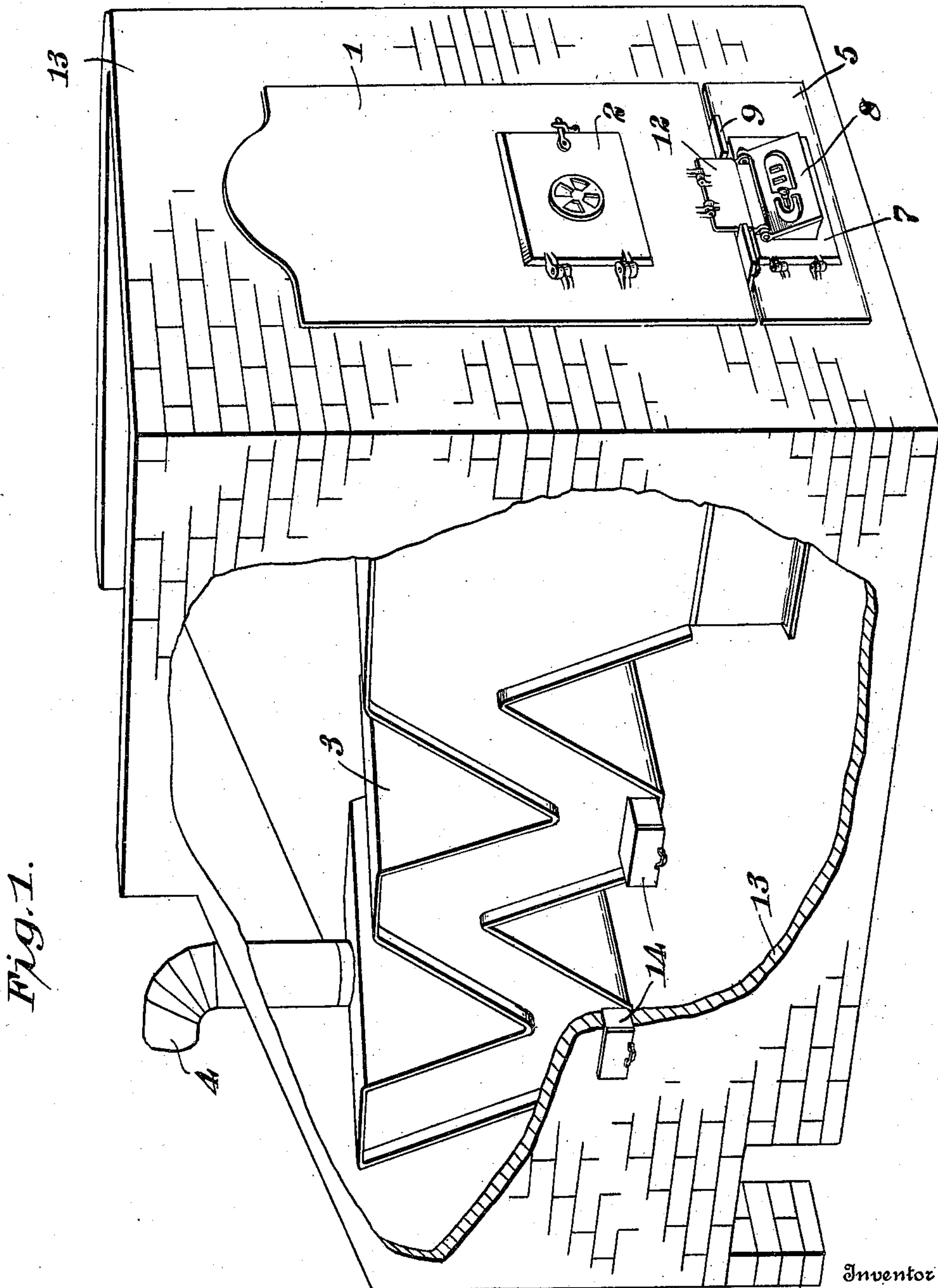


Fig. 1.

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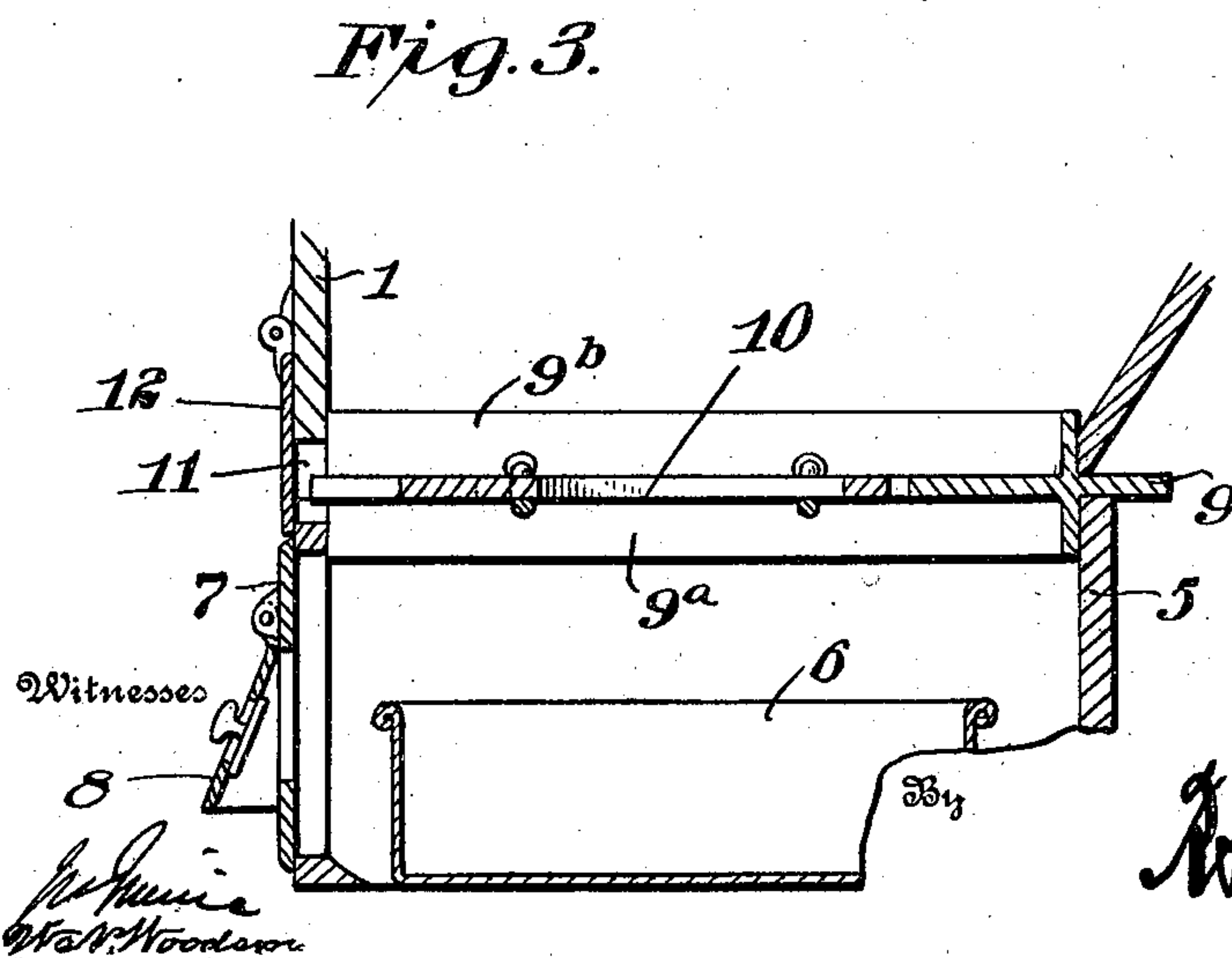
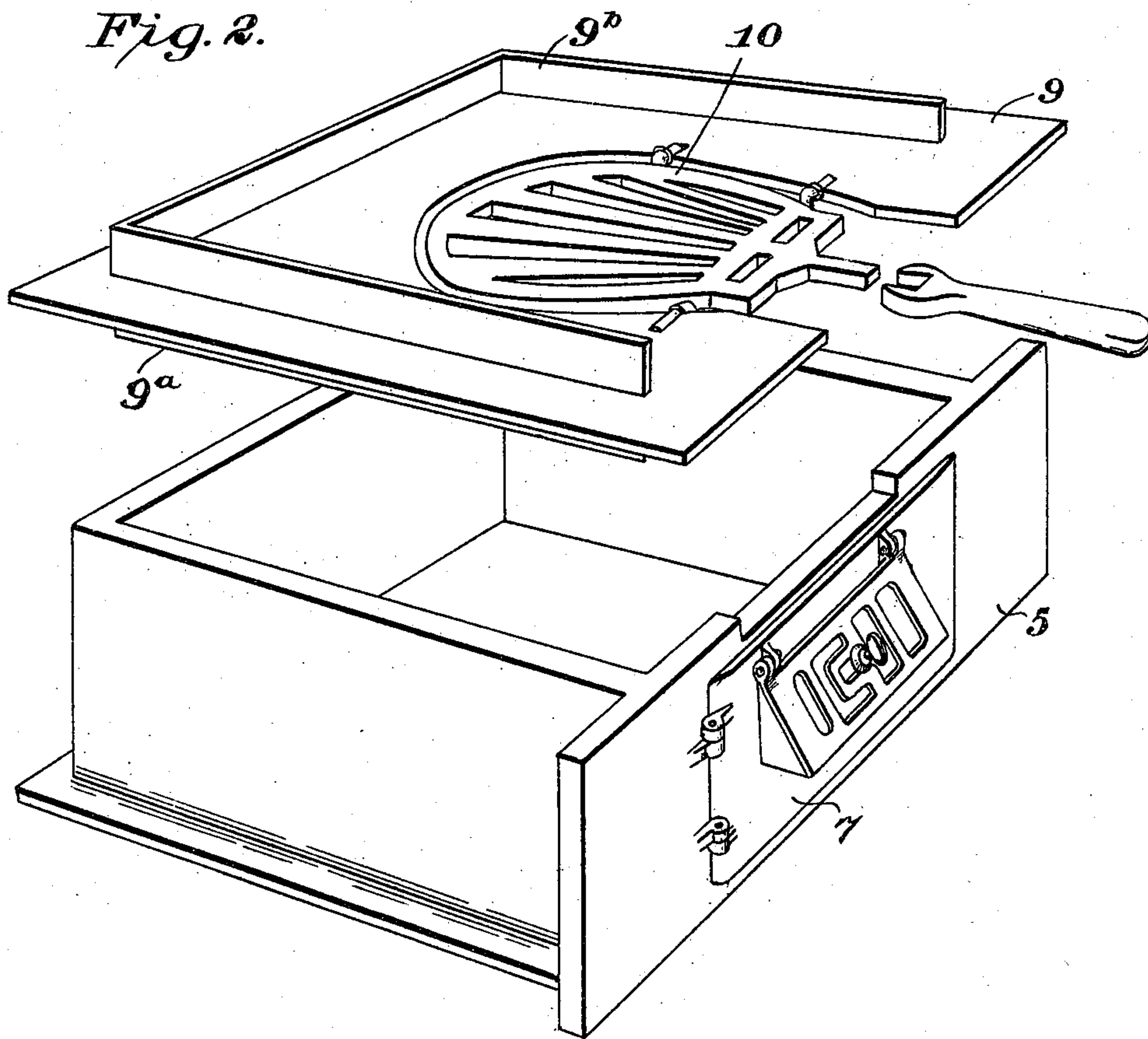
Attorney

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UNITED STATES PATENT OFFICE.

ISAAC HESS, OF BUTLER, OHIO.

FURNACE.

983,619.

Specification of Letters Patent.

Patented Feb. 7, 1911.

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To all whom it may concern:

Be it known that I, ISAAC HESS, citizen of the United States, residing at Butler, in the county of Richland and State of Ohio, have invented certain new and useful Improvements in Furnaces, of which the following is a specification.

The present invention relates to improvements in stoves and furnaces in general and more particularly to furnaces of that type which are utilized for hot air heating.

The primary object of the invention is to provide a novel construction of furnace in which the fire box, ash pit and grate supporting frame or plate are formed as independent members so that they may be readily transported to the position where they are to be set up, and so that they can be readily placed in position and thus eliminate the difficulty incident to furnaces of the type illustrated where the furnaces are made in one piece.

Another object of the invention is to provide a very simple form of sectional furnace in which the ash pit is locked into proper register with the opening of the fire box by means of a grate section, this grate section also acting as a spacing member between the upper and lower face plates of the furnace and providing a space between these plates through which the handle of the grate may project.

For a full understanding of the invention and the merits thereof and also to acquire a knowledge of the details of construction and the means for effecting the result, reference is to be had to the following description and accompanying drawings, in which:

Figure 1 is a perspective view of a furnace embodying the invention, portions of the jacket being removed. Fig. 2 is a detail perspective view of the ash pit and grate carrying frame, and Fig. 3 is a transverse vertical sectional view through the ash pit, grate carrying frame, and the lower portion of the fire box.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

Specifically describing the present embodiment of the invention, the numeral 1 designates the body portion of the furnace or the fire box which may be lined in any suitable manner and within which the combustion takes place. The front of the fire box 1 is

provided with a door 2 through which fuel may be inserted in the same, while the back of the fire box communicates at the top thereof with a tortuous radiator 3 which serves to give a large radiating surface. This tortuous radiator 3 has a width corresponding to the width of the furnace and comprises a series of communicating sections arranged at an angle to each other. In the present instance the tortuous passage comprises four of these angular sections, although the number may be increased or reduced as desired, the last or end section communicating with the smoke pipe 4.

Located under the fire box 1 and made separate therefrom, is the removable ash pit section 5 which is designed to receive the ash pan 6 within which the ashes are collected. This ash pan is removable through a door 7 in the front of the ash pit and this door is formed with a draft opening controlled by a swinging closure 8.

Interposed between the fire box and the ash pit is a grate carrying frame 9 which is formed independent of the two members and has the grate 10 mounted thereon in any approved manner. In the present instance this grate carrying frame 9 is shown as provided with a downwardly projecting flange 9^a which fits within and engages the top of the ash pit section 5, and an upwardly projecting flange 9^b which fits within and engages the bottom of the fire box, the said flanges 9^a and 9^b extending merely around the back and sides of the grate carrying frame, and leaving the front of the frame unobstructed. In this manner both the fire box and ash pit are held accurately in position with respect to each other, and may be readily separated when desired. The grate 10 is designed to be operated by means of a wrench or similar tool which is inserted through an opening 11 formed in the front of the furnace by corresponding notches in the fire box and ash pit section respectively. This opening 11 is normally closed by a door 12 carried by the fire box.

Both the fire box, ash pit section, and tortuous passage 3, are designed to be inclosed within a casing 13 so that the cold air received within the exterior of the building may be caused to circulate around these members and become thoroughly heated before being delivered to the various parts of the interior of the building. The ashes and cinders which may accumulate within the

lower portions of the tortuous passage 3, are designed to be removed through openings formed in opposite ends thereof, the said openings communicating with the sleeves 14 5 which extend to the exterior of the jacket 13. With such a construction it will be obvious that a furnace may be readily kept in perfect condition since access can be had thereto either for cleaning or repairing purposes. 10

It will be seen that my construction provides a furnace in which the radiator and fire box are made in one piece while the ash pit is entirely separate and independent 15 from any portion of the radiator and is attached to the lower section of the front plate of the furnace, the two parts being held from each other and yet locked into register by means of the intermediate grate supporting plate, this plate projecting beyond the 20 wall of the fire box on all four sides and being provided with the upwardly projecting flanges 9^b upon its upper face and the downwardly projecting flanges 9^a upon its lower face, these flanges engaging respectively 25 with the wall of the ash pit and with the opening of the radiator or fire box, thus locking the ash pit to the fire box and preventing any shifting of the two parts, even though they are entirely independent of 30 each other. At the same time this is accomplished without the necessity of bolting or clamping the sections to each other, thus avoiding a great deal of expense and trouble. Furthermore, the projecting margins 35 of the grate supporting member or plate together with the flanges 9^a and 9^b act to prevent the entrance of dust or the passage of smoke, thus preventing the passage of dust 40 or smoke into the hot air pipes and so into the rooms that are to be heated. Furthermore, the construction of this furnace in sections permits the separate sections to be carried down into the cellars of dwelling 45 houses, even where such cellars are not provided with cellar doors. Furthermore, this construction provides for a very easy setting of the furnace.

The furnace has to be set perfectly level

and it will be plain that it is easier to first set the ash box perfectly level and adjust it to the conditions of any particular case and then place the radiator upon it, than to have to set the ash box and radiator both at the same time. With my construction the ash 55 pit or ash box may be first placed in position and leveled; the grate frame or plate is then placed on top and then the radiator section placed on top of the grate frame, and when so placed the flanges 9^a and 9^b as before 60 stated, act not only to form an air-tight joint but prevent this section from shifting.

Having thus described the invention, what is claimed as new is:

A furnace having a front plate formed of 65 two independent sections disconnected from each other, a radiator attached to and extending rearward from the upper section of the front plate, the bottom of the radiator at its front end being open, an ash box entirely 70 separate from the radiator and attached to and forming part of the lower section of the front plate and extending beneath the open end of the radiator, a grate supporting plate independent of both the radiator and the 75 ash box extending over and resting upon the latter, the front and center of said plate being cut away to accommodate an oscillating grate, the upper and lower faces of the grate supporting plate being provided with up- 80 wardly and downwardly extending flanges respectively, said flanges extending across the rear of the grate plate and from the rear along the sides thereof nearly to the front edge of the plate but leaving the front mar- 85 gin of the plate to project between the upper and lower sections of the front plate and forming spacing members therefor, and an oscillating grate supported on the said plate and having a handle extending out between 90 said upper and lower sections of the front plate.

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

ISAAC HESS. [L. s.]

Witnesses:

L. C. RAMSEY,
S. M. OBERLIN.