

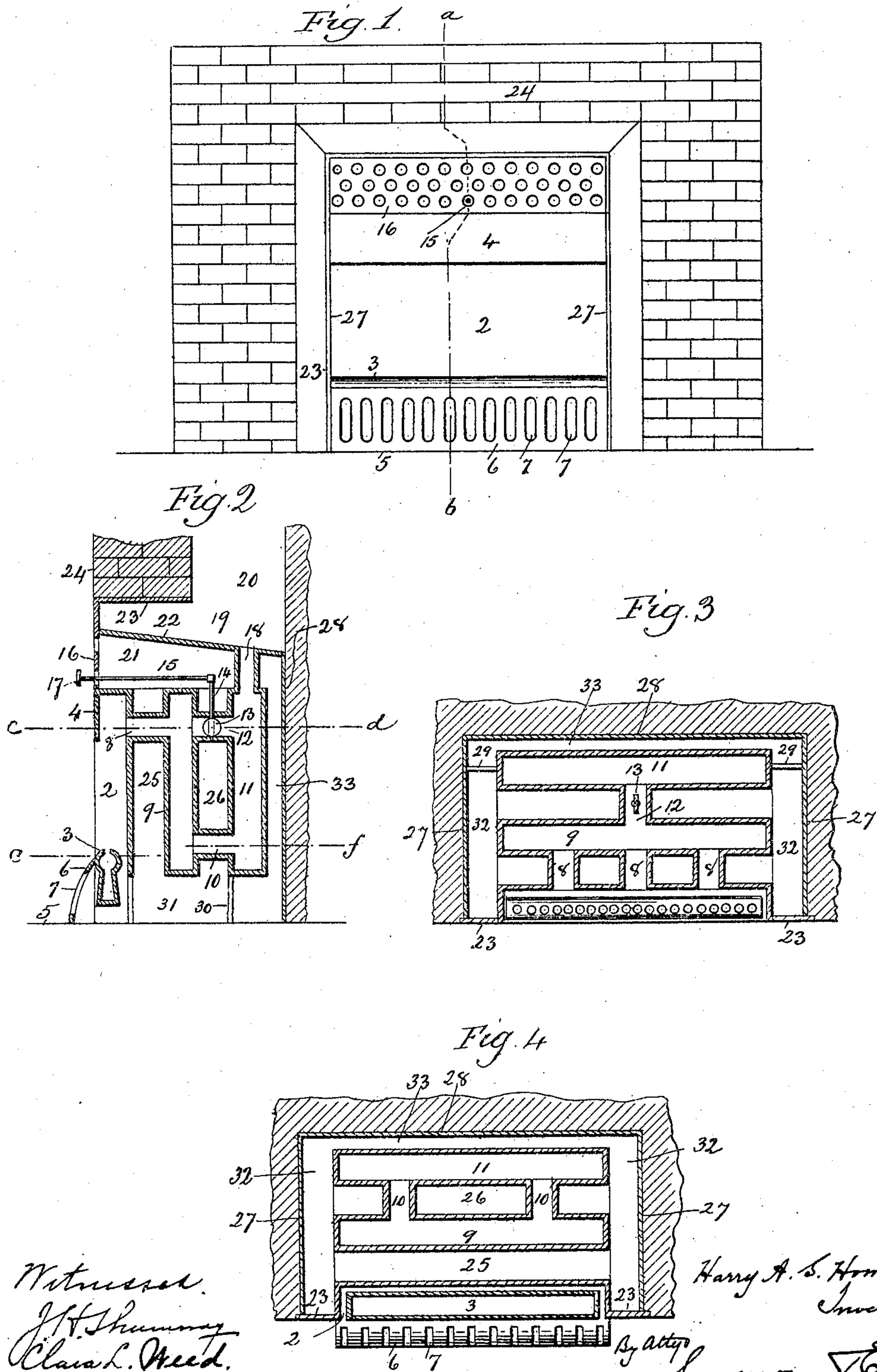
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H. A. S. HOWARTH.
GAS BURNING FIREPLACE STOVE.

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NO MODEL.



Witnessed.
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HARRY A. S. HOWARTH, OF SEWICKLEY, PENNSYLVANIA.

GAS-BURNING FIREPLACE-STOVE.

SPECIFICATION forming part of Letters Patent No. 775,656, dated November 22, 1904.

Application filed February 23, 1904. Serial No. 194,684. (No model.)

To all whom it may concern:

Be it known that I, HARRY A. S. HOWARTH, of Sewickley, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Gas-Burning Fireplace-Stoves; and I do hereby declare the following, when taken in connection with the accompanying drawings, and the figures of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a view in front elevation of a fireplace provided with my improved gas-burning fireplace-stove; Fig. 2, a view thereof in vertical section on the line *a b* of Fig. 1; Fig. 3, a view in horizontal section on the line *c d* of Fig. 2; Fig. 4, a corresponding view on the line *e f* of Fig. 2.

My invention relates to an improvement in gas-burning fireplace-stoves, the object being to produce at a low cost for manufacture a simple, convenient, durable, effective, and ornamental gas-burning fireplace-stove.

With these ends in view my invention consists in a gas-burning fireplace-stove having certain details of construction and combinations of parts, as will be hereinafter described, and pointed out in the claim.

In carrying out my invention as herein shown I construct a stove having a vertically-arranged comparatively shallow forwardly-opening combustion-chamber 2, in the lower end of which a horizontal gas-burner 3 is located, this being of any approved construction. The upper end of the said chamber 2 is overhung by a hood 4, having a vertical outer member. Resting upon the hearth 5 is a removable concavo-convex fender 6, having perforations 7 rising nearly to the top of the burner 3. From the upper portion of the combustion-chamber at a point in line with the lower portion of the hood 4 three horizontal smoke-flues 8 lead into the upper portion of a vertically-arranged front heating-drum 9, from near the lower end of which two corresponding horizontal smoke-flues 10 lead into the lower portion of the vertically-arranged rear heating-drum 11. Of course the number of smoke-flues and drums may be varied as

found expedient. A horizontally-arranged damper-flue 12, connecting the upper portions of the two drums 9 and 11 and arranged in line with the central flue of the three smoke-flues 8, is furnished with a damper 13, operated by a rod 14, suitably connected at its upper end with the rear end of a rod 15, projecting at its forward end through a perforated hot-air-delivery plate 16, located above and in line with the front of the hood 4, the outer end of the rod 15 being furnished with an operating-handle 17. A single vertical smoke-flue 18 leads from the top of the rear heating-drum 11 into the upper portion of the recess 19, forming the fireplace proper, and thence into the chimney-flue 20. The plate 16 forms the front wall of a horizontal hot-air chamber 21, the top of which is formed by an inclined hot-air-deflecting plate 22, which constitutes, as it were, the top of the stove which is constructed to fit within the fireplace-frame 23, which sets into the recess 19, forming the fireplace proper. The front of the hood 4, the plate 16, and the front flange of the frame 23 are all in the plane of the front of the chimney-breast 24, with which the front of the stove is flush except for the fender 6, which projects forward upon the hearth. This construction and arrangement of parts secures a good appearance, but is in no wise vital. The combustion-chamber 2 is separated from the front heating-drum by a vertical hot-air passage 25, open at its upper and lower ends, corresponding in width to the width of the stove from end to end and interrupted only by the smoke-flues 8, while the front drum 9 and the rear drum 11 are separated from each other by a vertical air-passage 26, opening at its upper and lower ends, corresponding to the width of the stove from end to end and interrupted only by the smoke-flues 10 and the damper-flue 12.

As shown, the stove structure above described is located in a casing having sides 27 and a back 28, this casing being adapted to fit within a fixed rectangular fireplace-frame 23. It will be understood that the sides 27 and back 28 of the casing terminate at the air-deflecting plate 22. The stove structure is supported in this casing by means of two struts

29, interposed between the ends of the rear drum 11 and the sides 27 of the casing, and by means of a leg 30, depending from the forward edge of the rear drum; but it is to be understood that this casing is not necessary, as the stove structure may be set directly into the frame 23 and allowed to rest against the back of the fireplace, or it may be propped up in any way therein. At its forward end the stove structure is supported by a combustion-chamber the sides of which rest upon the hearth, though its rear wall does not extend down below the lower ends of the front and rear drums. Otherwise the rear wall of the combustion-chamber would interfere with the air-intake passage 31, lying horizontally under the stove in line with the fender. From this passage 31 the air is turned upward into the intermediate vertical passages 25 and 26 into the side air-spaces 32 32, which flank the stove structure at the sides, and into the rear air-space 33, which is located back of the stove structure.

It will be seen by reference to the drawings that in the stove shown I have five parallel radiating-surfaces in the vertical plane—namely, the rear wall of the combustion-chamber and the front and rear walls of the front and rear drums.

To start the stove, the damper 13 is opened, so as to make a more direct draft from the combustion-chamber 2 into the chimney-flue 20. After the stove has been well started the damper 13 is closed. The hot burned products of combustion will then collect under the hood 4, from which they will be drawn rearward through the horizontal smoke-flues 8 into the upper portion of the front heating-drum 9, in which they will be deflected downward and pass through the horizontal smoke-flues 10 into the lower portion of the rear heating-drum 11, in which they will ascend and pass through the vertical smoke-flue 18 into the upper portion of the fireplace-recess and thence into the chimney-flue 20. As soon as the stove gets hot the cold air will be drawn from the bottom of the room through the perforated fender 7 into the horizontal air-intake passage 26, from which it will rise through the open vertical air-passages 25 and 26 through the two air-spaces 32 and the air-space 33. In rising through these several air-passages and spaces the air will be heated and then emerge into the hot-air chamber 21, in which it will be further heated and then deflected by the inclined top 22 of the said chamber through the hot-air-delivery plate 16 into

the room. On account of the described construction and arrangement of the combustion-chamber, smoke-flues, front and rear drums, and air-passages I secure the maximum area of heating and radiating surfaces for heating the air which is drawn into the bottom of the stove, passed up through the same, and then delivered forward from the top of the same into the room.

My stove is very simple in its construction, convenient of operation, and not liable to be in any way clogged or deranged.

It is apparent that in carrying out my invention some changes from the construction herein shown and described may be made. I would therefore have it understood that I do not limit myself thereto, but hold myself at liberty to make such departures therefrom as fairly fall within the spirit and scope of my invention.

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

A gas-burning fireplace-stove having a vertical forwardly-opening combustion-chamber, a gas-burner located at the lower end thereof, a hood located at the upper end of the said chamber, vertical front and rear heating-drums located directly back of the said combustion-chamber, and arranged parallel therewith, one or more smoke-flues connecting the upper portion of the combustion-chamber with the upper portion of the front heating-drum, one or more smoke-flues connecting the lower portion of the front heating-drum with the lower portion of the rear heating-drum, a smoke-flue leading from the upper portion of the rear heating-drum to the chimney-flue, a horizontal air-intake passage located at the bottom of the stove and taking air through its front end, a hot-air chamber located at the top of the stove and delivering heated air from its front end, and vertically-arranged air-passages located at the ends of the said heating-drums and between the said combustion-chamber and the front heating-drum and between the two drums and back of the rear heating-drum, and all leading from the said air-intake passage upward to the said hot-air chamber.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

HARRY A. S. HOWARTH.

Witnesses:

REUBEN BREWER,
SPRINGER H. MOORE.