

(No Model.)

G. A. SMITH.

CONVERTIBLE OPEN FIRE GRATE AND STOVE.

No. 422,355.

Patented Feb. 25, 1890.

Fig I-

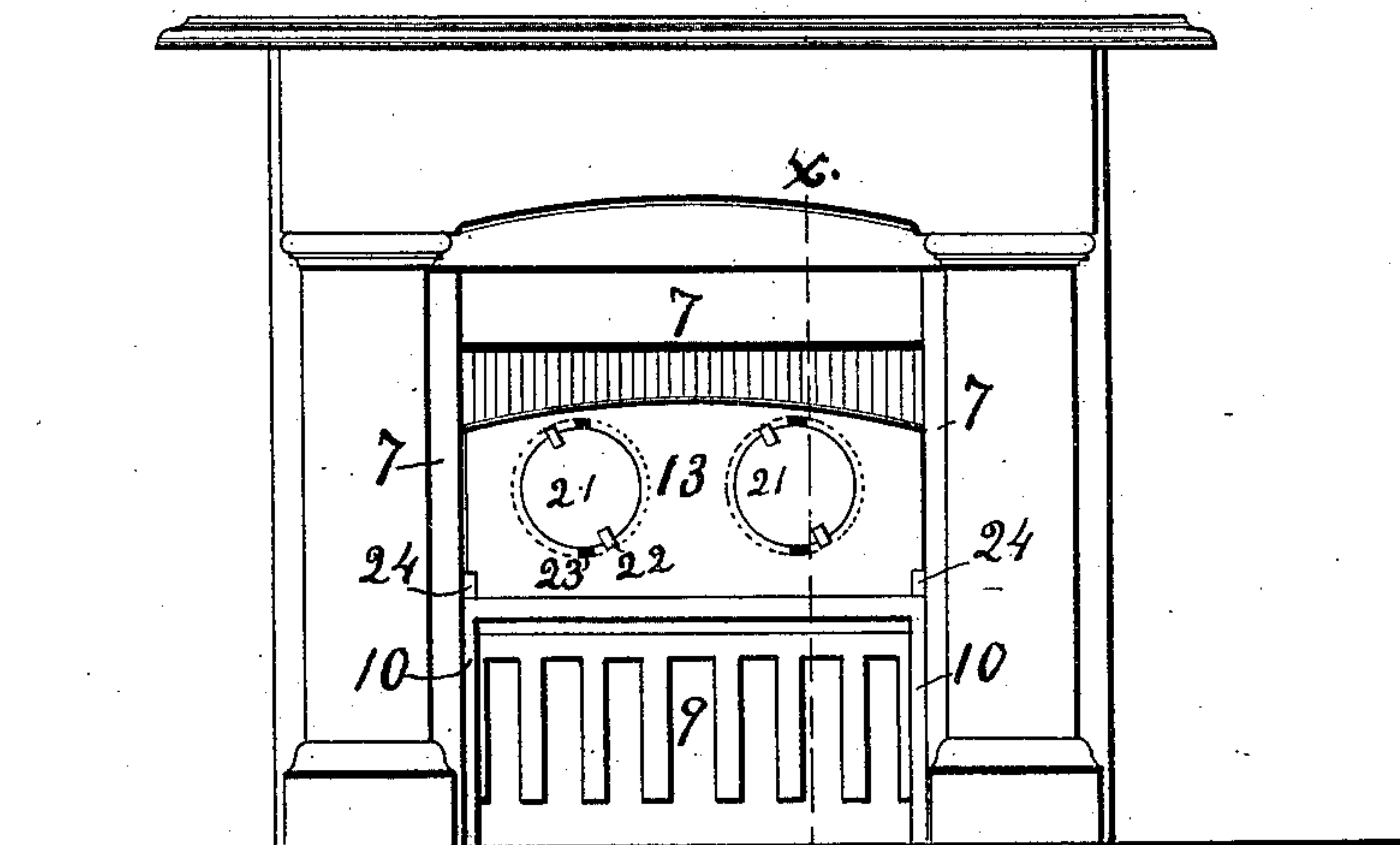


Fig II-

Fig III-

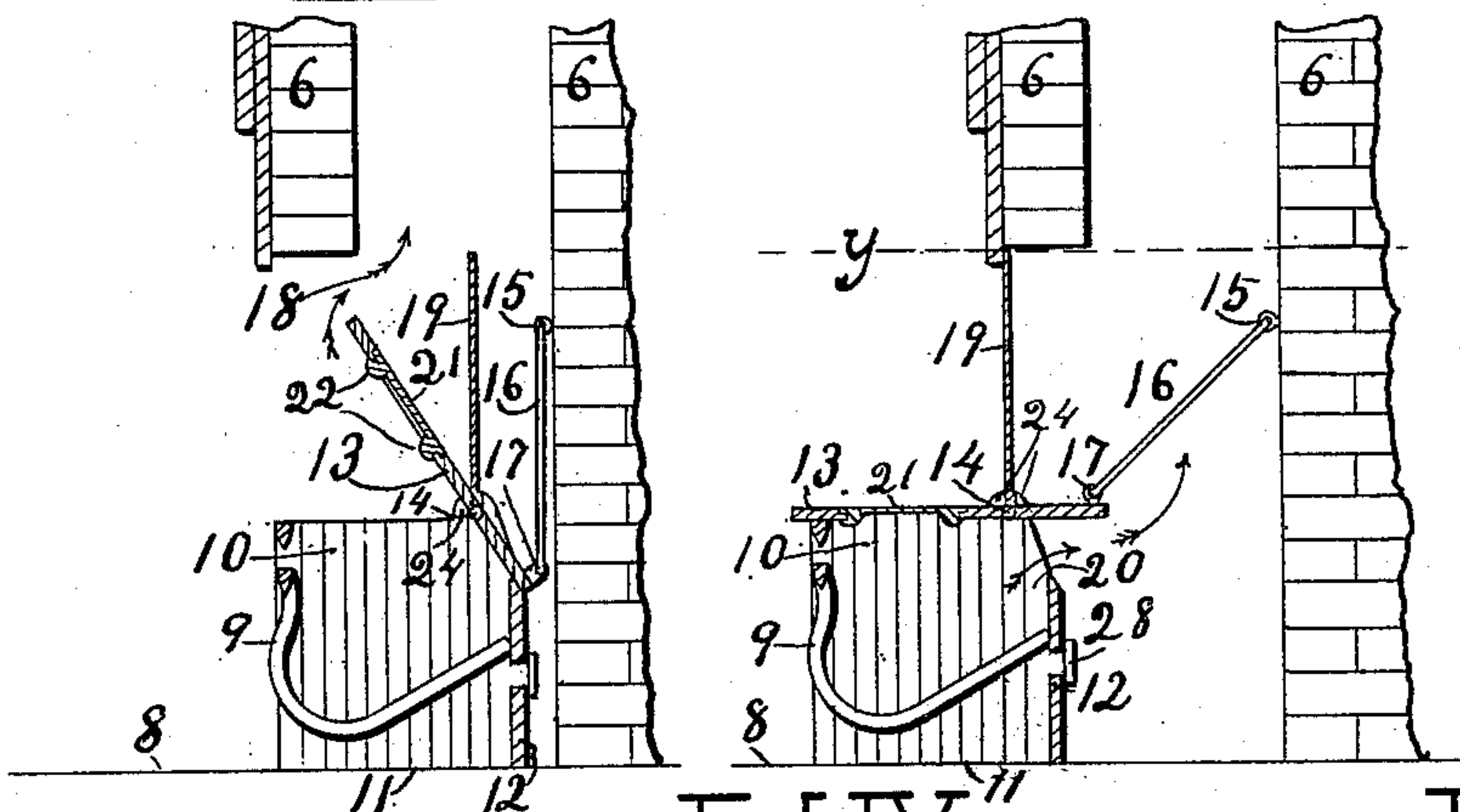
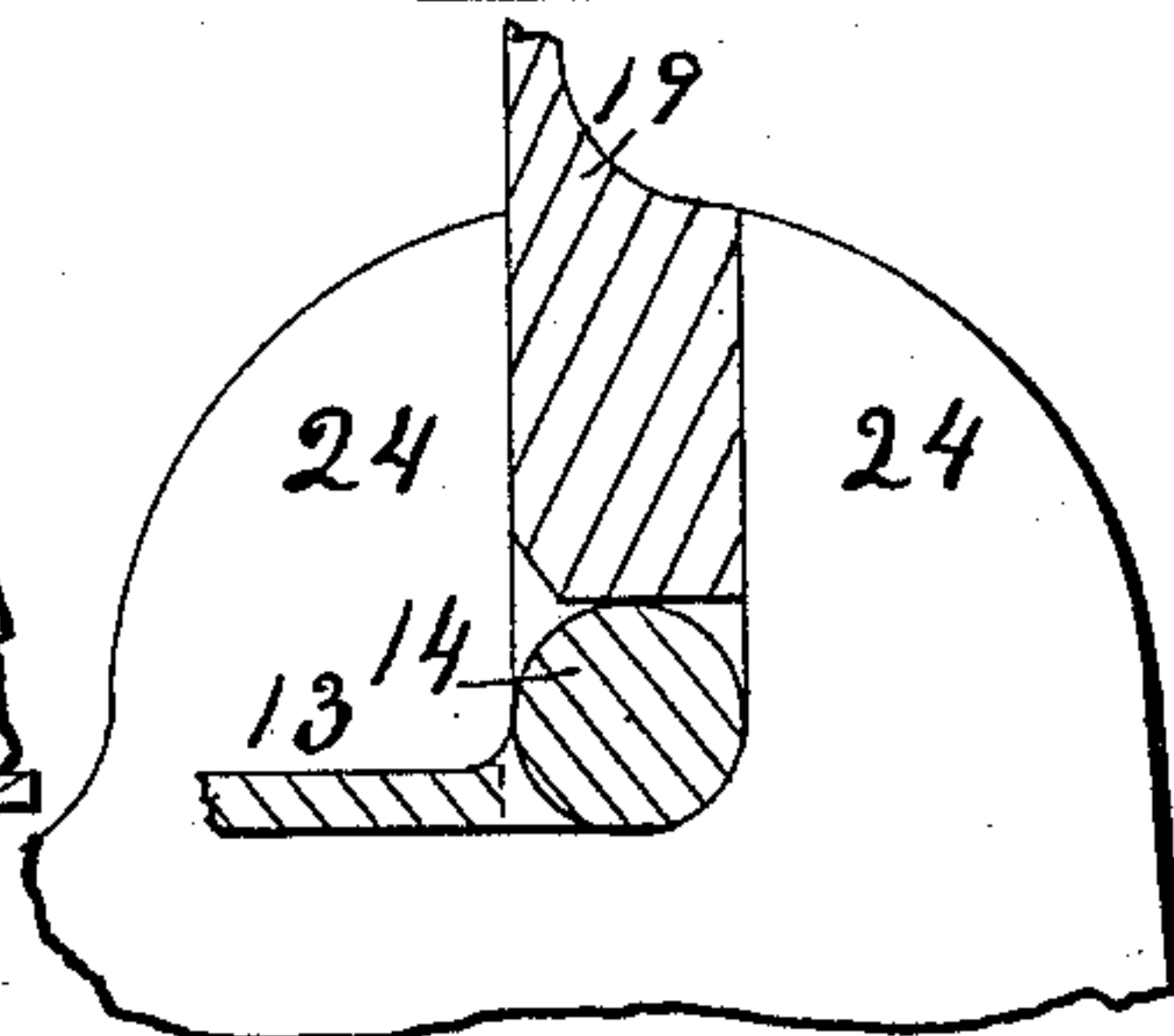
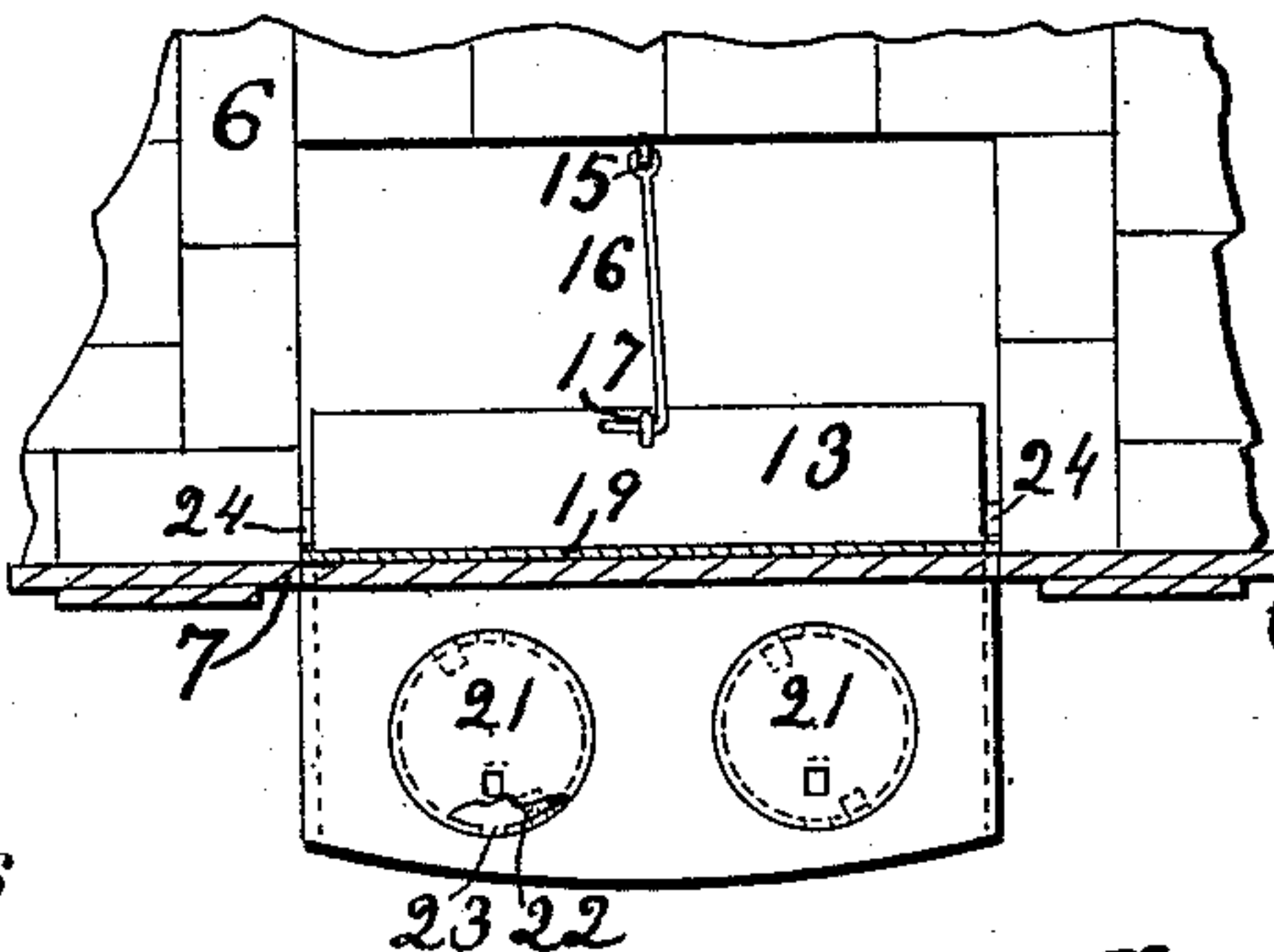
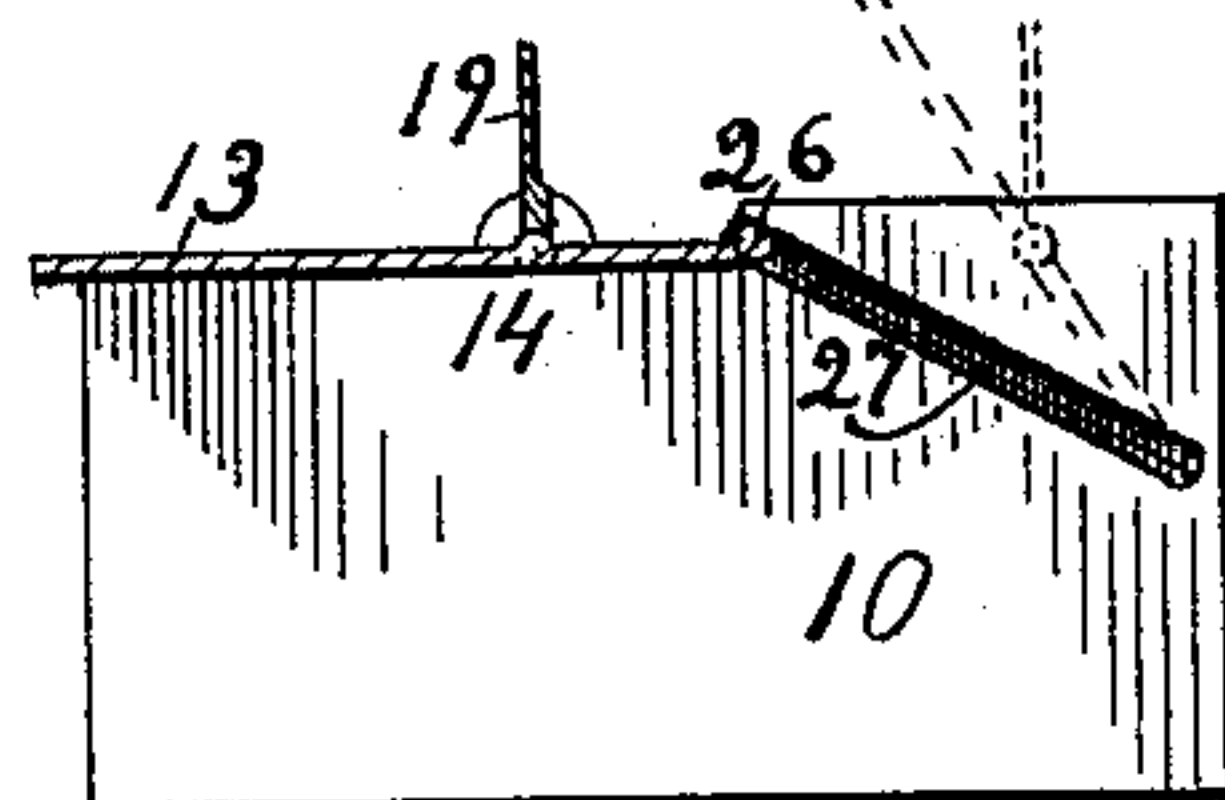


Fig VI-

Fig IV-

Fig V-



WITNESSES

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UNITED STATES PATENT OFFICE.

GEORGE A. SMITH, OF LOUISVILLE, KENTUCKY, ASSIGNOR OF ONE-HALF TO
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CONVERTIBLE OPEN FIRE-GRATE AND STOVE.

SPECIFICATION forming part of Letters Patent No. 422,355, dated February 25, 1890.

Application filed November 8, 1889. Serial No. 329,623. (No model.)

To all whom it may concern:

Be it known that I, GEORGE A. SMITH, a citizen of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented certain new and useful Improvements in a Convertible Open Fire-Grate and Stove; and I do hereby 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 appertains to make and use the same.

This invention relates to open fire-grates; and its object is to adapt a fire-grate, first, to set back in the fire-place with its front and top open in a manner similar to that of the common open fire-grate; second, to adapt the same grate to be readily drawn forward upon the hearth and in the act of so doing to automatically arrange upon itself a top and lids, whereby it is formed into a cooking-stove; also, to close by means of a door all that upper portion of the fire-place usually bounded by the fire-frame at the top and sides and by the grate below, so that all the draft must pass through the stove thus formed.

To this end my invention consists in the construction and combination of parts forming a convertible open fire-grate and stove, as hereinafter described and claimed, reference being had to the accompanying drawings, in which—

Figure I is a front view of my invention serving as an open fire-grate. Fig. II is a vertical section on the line *x*, Fig. I. Fig. III is a similar vertical section on the same plane as Fig. II, but showing the grate drawn forward upon the hearth and all parts in position to serve as a cooking-stove. Fig. IV is a view of the same, looking down, upon the horizontal section—line *y*, Fig. III. Fig. V shows certain details enlarged. Fig. VI shows a modification of the top section.

6 represents the brick-work around a fire-place upon a hearth 8, and 7 any usual fire frame or facing around the fire-place.

9 represents a fire-grate of any common or preferred construction provided with closed ends 10, adapted at their lower edges 11 to slide upon the hearth, and further provided with a closed back 12, which extends from

the hearth up to within about two or three inches of the level of the front of the grate.

13 represents the stove-top to my grate. It is pivoted at 14 in ears or projections 24 of the end portions 10, and is connected with an eye 15, which is fixed in the chimney back by means of a radial arm 16, having a hook at its lower end engaging an eye 17, fixed to the stove-top a little to the rear of the pivots 14.

In Fig. II the stove-top 13 is shown in service as a chimney back to the open grate, and it is intentionally slanted forward to perform the usual service of a downward deflector of heat and to narrow the throat 18 or draft into the chimney from the grate.

Now, let us suppose it is desirable to convert the open grate into a cooking-stove. Then, a common hook-shaped poker being placed in the grate, the whole device may be easily drawn forward into the position shown in Fig. III, the radial arm 16 pulling up the rear edge and causing the forward edge of the top 13 to close down upon the ends 10, thus closing it as a stove.

19 represents a screen or door which is fixed to the end portions 10, preferably by being fitted removably into the ears 24 above pivots 14. When the grate is drawn forward, as above described, this door is pressed against the back of the fire-frame 7 and closes the draft-space above the stove-top. The top 13 is so proportioned relatively to the back 12 of the grate that when the grate is forward to serve as a stove the throat or draft will be between the said top and the back, thus obtaining the full effect of a stove-draft, and when the grate is pushed back into the fire-place the radial arm 16 bears down upon the rear edge of the top 13 until the passage at 20 is closed and the passage at 18 reopened. In order that the stove-lids 21 may retain their normal position in the stove-top when the latter is raised, as in Fig. II, I have provided them with hook-lugs 22, adapted to pass through slight notches 23 in their rim-seats, so as to engage the underside of the said seats on being turned a little to the right or left, as shown in Fig. IV. The door 19 may be lifted out from its seat between the ears 24. Then

the stove-top, being released from the hook at 17, may also be lifted out of its bearings between the said ears, so that the whole grate and stove attachment are in practical knock-
 5 down shape for easy transportation, and little or no fitting is required to adapt it to any fire-place intended for an open grate, while its great convenience for light housekeeping or for doing a little cooking at short notice
 10 commends it to the favorable attention of all having to do with open fire-places.

It is evident that various equivalents for the radial arm 16 might be substituted to tip the top to and fro by the action of moving
 15 the grate out of and into the fire-place, and I have shown one such modification at Fig. VI, in which the top 13 is pivoted at 14, as before described; but the rear edge has one or more side projections 26 to enter grooves 27, made
 20 in something fixed to the side of the fire-place, the groove being so slanted rearward as to guide the projection 26 downward as the grate is pushed back, thus operating the top to rise and fall, as before. There may
 25 also be a sliding door 28 in the back 12 to permit the draft to pass freely into the chimney without going through the stove when a slow fire is required.

Having thus fully described my invention, 30 what I believe to be new, and desire to secure by Letters Patent, is the following:

1. The combination of a fire-grate having closed ends and a back closed for a portion of its height, a stove-top pivoted to the said
 35 ends, and a radial arm pivoted at one end to a fixture of the chimney and at its other end to the said stove-top, substantially as shown and described.

2. The combination of a fire-grate having
 40 an open front, closed ends, and a back closed to a height lower than the ends, and a stove-top pivoted to the said ends, substantially as shown and described, whereby the said top when closed into a horizontal position fits

closely upon the ends, but leaves a draft- 45 opening above the said back, and when the said top is raised it opens the fire-grate and closes the aforesaid draft-opening, forcing the draft now to pass over the front edge of the top itself. 50

3. The combination of a fire-grate fitted to slide out of and into a fire-place, a stove-top pivoted to the grate, and a radial arm pivoted at one end to the stove-top and adapted to be pivoted at the other end to a side of the fire- 55 place, substantially as shown and described.

4. The combination of a fire-grate fitted to slide into and out of a fire-place, a stove-top fitted upon the grate, and a screen or door fitted upon the grate to slide therewith, the 60 said grate being provided with a draft-opening behind the said door, substantially as shown and described, whereby the draft-space above the stove-top and within the fire-frame will be closed when the grate is drawn forward. 65

5. The combination of a fire-grate fitted to slide into and out of a fire-place and provided with vertically-slotted ears 24, a stove-top having journals fitted to enter and rotate in the said slots, and a door fitted to stand in 70 the said slots over the said journals, substantially as shown and described.

6. The combination of the open-front grate 9, the combined top and back 13, pivoted thereto, and the radial rod 16, pivoted to 75 swing, substantially as shown and described.

7. The combination of a fire-grate fitted to slide into and out of a fire-place, a stove-top pivoted to the grate, and means, substantially as described, for tipping the top to and fro 80 by the action of moving the grate out and in, substantially as shown and described.

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

GEORGE A. SMITH.

Witnesses:

JOHN SCHANG,
 J. A. DENNIS.