

No. 765,901.

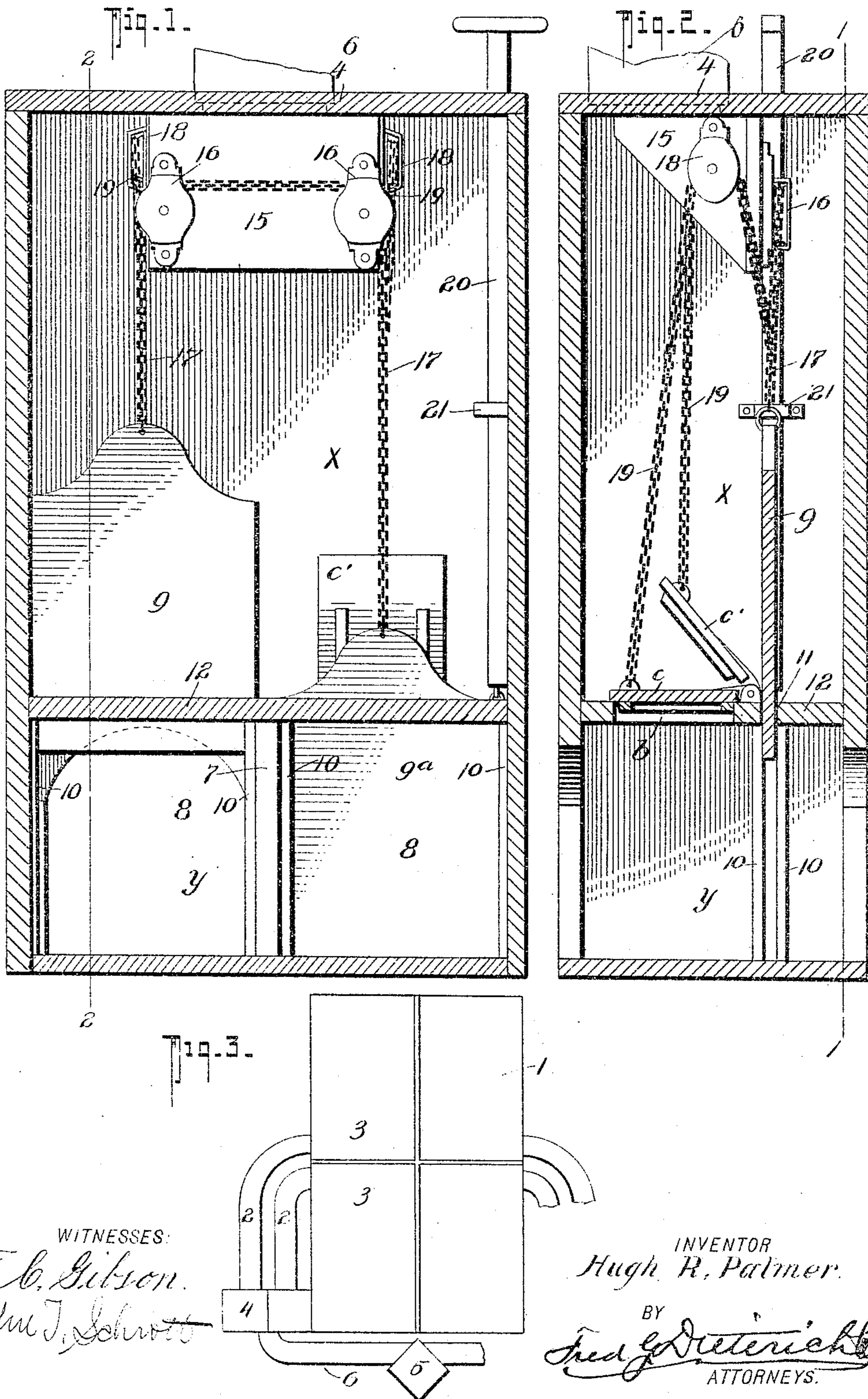
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H. R. PALMER.

VALVE MECHANISM FOR GAS BURNING FURNACES.

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NO MODEL.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

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## VALVE MECHANISM FOR GAS-BURNING FURNACES.

SPECIFICATION forming part of Letters Patent No. 765,901, dated July 26, 1904.

Application filed June 8, 1903. Renewed May 5, 1904. Serial No. 206,575. (No model.)

*To all whom it may concern:*

Be it known that I, HUGH R. PALMER, a citizen of the United States, residing at Sharpsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and Improved Valve Mechanism for Gas-Burning Furnaces, of which the following is a specification.

My invention comprehends a new and improved air-valve mechanism for gas-consuming furnaces of a simple and economical construction which can be easily adjusted to effectively operate for its intended purposes; and the said invention in its generic nature embodies a peculiar coöperative arrangement of a pair of flueways or furnace-throats, a slide-valve for each throat or flueway, each of said valves being mounted independent of the other, and a single actuating mechanism common to both slide-valves and adapted to shift the said valves in alternate directions, whereby as one valve is elevated to an open position the other valve is allowed to gravitate to a closing position, a supplemental valve or cut-off member being also combined with each of the main or sliding valves adapted as the said main or sliding valves with which they coöperate close or open to alternately open and close; and in its more subordinate features my invention consists in certain details of construction and combination of parts, all of which will hereinafter be fully explained and specifically pointed out in the appended claims, reference being had to the accompanying drawings, in which—

Figure 1 is a vertical section elevation of my improved air-valve mechanism, taken substantially on the line 1 1 of Fig. 2. Fig. 2 is a vertical transverse section of the same on the line 2 2 of Fig. 1, and Fig. 3 is a diagram illustrating the general position of my improved valve mechanism with relation to the gas-furnaces.

In the drawings, 1 designates the gas-consuming furnace, which may be of any approved type, in which is included a pair of flues or feedways 2 2, that join with the gas-chambers 3 3 and with a collecting space or

box 4, the upper end of which communicates with the stack 5.

My improved air-valve and operating devices therefor are located within the space or box 4, and the construction thereof is best illustrated in Figs. 1 and 2 of the drawings, by reference to which it will be seen the said box has an upper compartment *x*, with which the stack off-take 6 connects, and a lower compartment *y*, centrally divided by a partition 7, whereby to produce two separate passages or throatways 8 8, that connect with the two feedways 2 2, as diagrammatically shown in Fig. 3.

Each throatway or passage 8 8 is controlled by a cut-off slide or valve of a width sufficient to cover the said passages 8 when they are at their lower or closure position, and the said cut-off slides or valves 9 9<sup>a</sup> have their edges made to engage guide-cleats 10 10, and their upper ends pass through slots 11 11 in the bottom member 12 of the upper compartment of the box 4.

The bottom plate or portion 12, which separates the upper and lower compartments of the box 4, is also provided with openings *b b'*, that communicate with the separate passages or throatways 8 8, and with each of the openings *b b'* coacts a gravity-dropped hinged valve *c c'*.

The two valves or gates 9 9 are arranged to be operated in unison and together with the hinged valve *c c'*, but in alternate directions, the valves *c c'* being, however, so disposed with relation to their respective gates or valves 9 9<sup>a</sup>, with which they coöperate, that they move to their open position as their coacting slide valve or gate drops to a closure position, and vice versa, and the two gates or valves 9 9<sup>a</sup> are arranged so that when adjusted in unison to move in opposite directions as one closes the other opens.

To effect the aforesaid operations of the several valves in a simple, effective, and convenient manner, I provide a support 15 within the upper end of the box 4, which overhangs the several valves before referred to, upon one side of which is mounted a pair of

