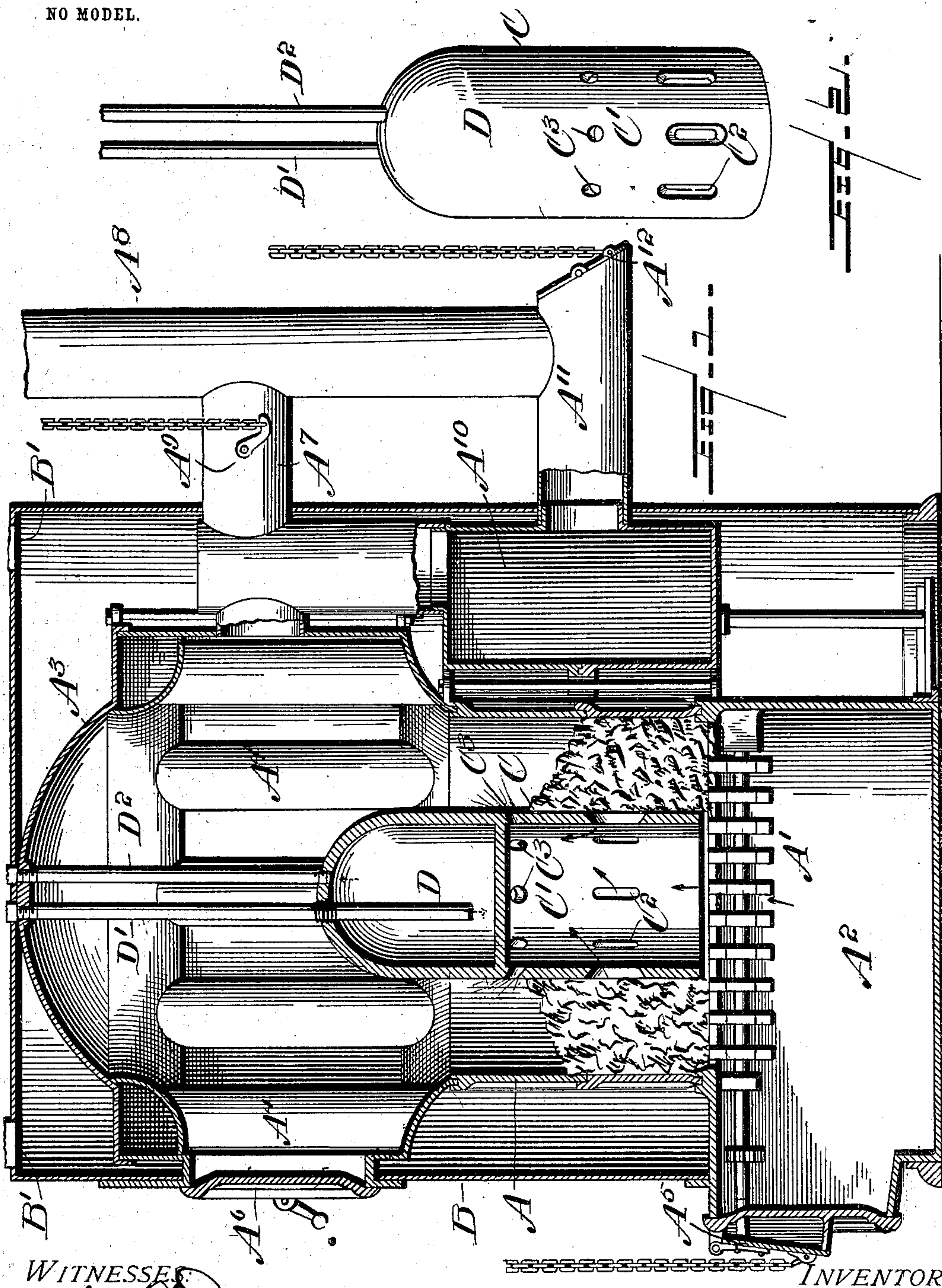


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E. R. STASCH.
GAS BELL FOR FURNACES.
APPLICATION FILED JAN. 27, 1903.

NO MODEL.



WITNESSES:

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EMIL R. STASCH, OF CORNING, NEW YORK.

GAS-BELL FOR FURNACES.

SPECIFICATION forming part of Letters Patent No. 735,421, dated August 4, 1903.

Application filed January 27, 1903. Serial No. 140,687. (No model.)

To all whom it may concern:

Be it known that I, EMIL R. STASCH, a citizen of the United States, residing at Corning, in the county of Steuben, State of New York, have invented certain new and useful Improvements in Gas-Bells for Furnaces, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to a gas-bell for furnaces, and particularly to a construction of parts adapted to be suspended in the center of the fire-box to occupy a portion of the coal-space and to burn the gases from the center of a body of coal.

The invention has for an object to provide a mixing-chamber suspended above the grate having openings adapted to permit the entrance therein of the gases from the body of the coal, where they will be mixed with air and burned at the upper portion of the chamber.

A further object of the invention is to combine with this chamber a water-heating receptacle, so that the ignited gases, in connection with the furnace-fire, assist in heating the water.

Other and further objects and advantages of the invention will be hereinafter set forth and the novel features thereof defined by the appended claims.

In the drawings, Figure 1 is a vertical section through a hot-air furnace with my invention applied thereto, and Fig. 2 is a detail perspective of the gas-bell.

Like letters of reference refer to like parts in both figures of the drawings.

The invention is adapted for application to any form of furnace, but for the purpose of illustration is herein shown in connection with a hot-air furnace of substantially the construction shown in my prior patent, No. 489,994, dated January 17, 1893.

The letter A designates a fire-box having the grate-bars A' at the lower portion thereof and the ash-pit A² beneath the bars. Above the fire-box a dome A³ is provided, and circumferentially thereto hot-air flues A⁴ extend through the dome to be heated by the products of combustion. A suitable ash-door A⁵ is provided to the ash-pit and a feeding-door

A⁶ at the dome portion, while extending from the dome is a smoke-flue A⁷, communicating with a smoke-pipe A⁸, said flue being provided with a damper A⁹, by which the products of combustion may be directed downward into the radiating-chamber A¹⁰, from which they may escape by a flue A¹¹ into the smoke-pipe A⁸. This flue is also provided with a check-draft damper A¹², while the furnace itself is suitably inclosed within a hot-air casing B, provided at its upper portion with conducting-pipes B', extending to the apartments to be heated.

In the present illustration of the invention the gas-bell C is provided at its lower portion with a mixing-chamber C', having in the walls thereof gas-inlets C², which are tapered inwardly, as shown in Fig. 1, and at the upper portion of the chamber outlet-openings C³ are provided, the walls of which converge together toward the outside of the chamber, so as to effect a compression of the fuel within the chamber and form a jet adapted to be ignited at that point. As shown in Fig. 1, this chamber occupies the center of the fuel-space and is suspended above the grate-bars, so as to permit a free operation of the same and also to receive air between the bars from the ash-pit. The fuel extends around the lower portion of the chamber and the openings C² therein, so that the gas generated in the center of the body of the fuel by the heat is admitted into the chamber and there mixed with the air from the bottom of the chamber, from whence the mixed fluids escape through the openings C³, where they are ignited and burn above the body of the fuel, this tending to heat the dome containing the hot-air flues to a greater extent than by the fuel alone. If so desired, a water-receptacle D may be provided above the top of the mixing-chamber and has communicating therewith an inlet-pipe D' and an outlet D², extending downward from the dome A³, to which they are affixed for the purpose of suspending the bell above the grate-bars. These pipes may extend to any desired point where the water is to be used, and the location of the receptacle directly above the burner-openings C³ causes the receptacle to be heated by the gas-flame from these openings and provide a rapid and

desirable method of heating water by utilizing the gases from the fuel.

The operation of the invention will be apparent from the foregoing description, and it will be seen that the suspension of the gas-chamber above the grate-bars in the center of the fire-box economizes in the amount of fuel required, the center of the body of which is frequently of very little use for heating purposes, particularly where it is desired to heat the exterior walls of the fire-box to the greatest extent. Furthermore, this chamber relieves the fuel of the liberated gases which are therein mixed with air and burned to increase the heating capacity of the furnace and also to prevent the escape thereof into the hot-air flues, which occurs if any loose joints exist. Furthermore, the arrangement of the water-receptacle relative to the burner-openings provides for the heating of water within the furnace when desired, and these openings carry a heating-flame upward above the main body of the fuel, which materially increases the temperature of the dome proportionate to the amount of fuel used.

It will be obvious that changes may be made in the details of construction and configuration of the several parts hereinbefore described and that the invention may be applied to any desired form of furnace without departing from the spirit thereof as defined by the appended claims.

Having described my invention and set forth its merits, what I claim, and desire to secure by Letters Patent, is—

1. In a furnace and in combination with a fire-box having a movable grate thereon, a mixing-chamber supported out of contact with and over the grate and having an open lower end and the walls thereof being provided with gas-inlet openings at the lower

portion and with burner-openings at the upper portion of the chamber within the fire-box.

2. In a furnace and in combination with the grate thereof, a mixing-chamber comprising a cylindrical body having an open lower end supported adjacent to the grate and provided with elongated inlet-openings at its lower portion and tapered burner-openings at the upper portion thereof.

3. In a device of the class described, a furnace, a mixing-chamber supported above the grate thereof and provided with gas-inlet openings at its lower portion and burner-openings at the upper portion thereof, a water-receptacle disposed at the upper portion of the mixing-chamber above said burner-openings, and inlet and discharge pipes for said receptacle.

4. In a device of the class described, a furnace, a mixing-chamber supported above the grate thereof and provided with gas-inlet openings at its lower portion and burner-openings at the upper portion thereof, a water-receptacle disposed at the upper portion of the mixing-chamber above said burner-openings, and inlet and discharge pipes for said receptacle said pipes being secured to the dome of the furnace to suspend the mixing-chamber therein.

5. A gas-bell comprising a cylindrical body having a mixing-chamber open at its lower end and provided with inlet and outlet openings in the wall thereof, and a water-receptacle disposed within the upper portion of said body above said outlet-openings.

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

EMIL R. STASCH.

Witnesses:

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