No. 762,301.

PATENTED JUNE 14, 1904.

H. L. GANTT.

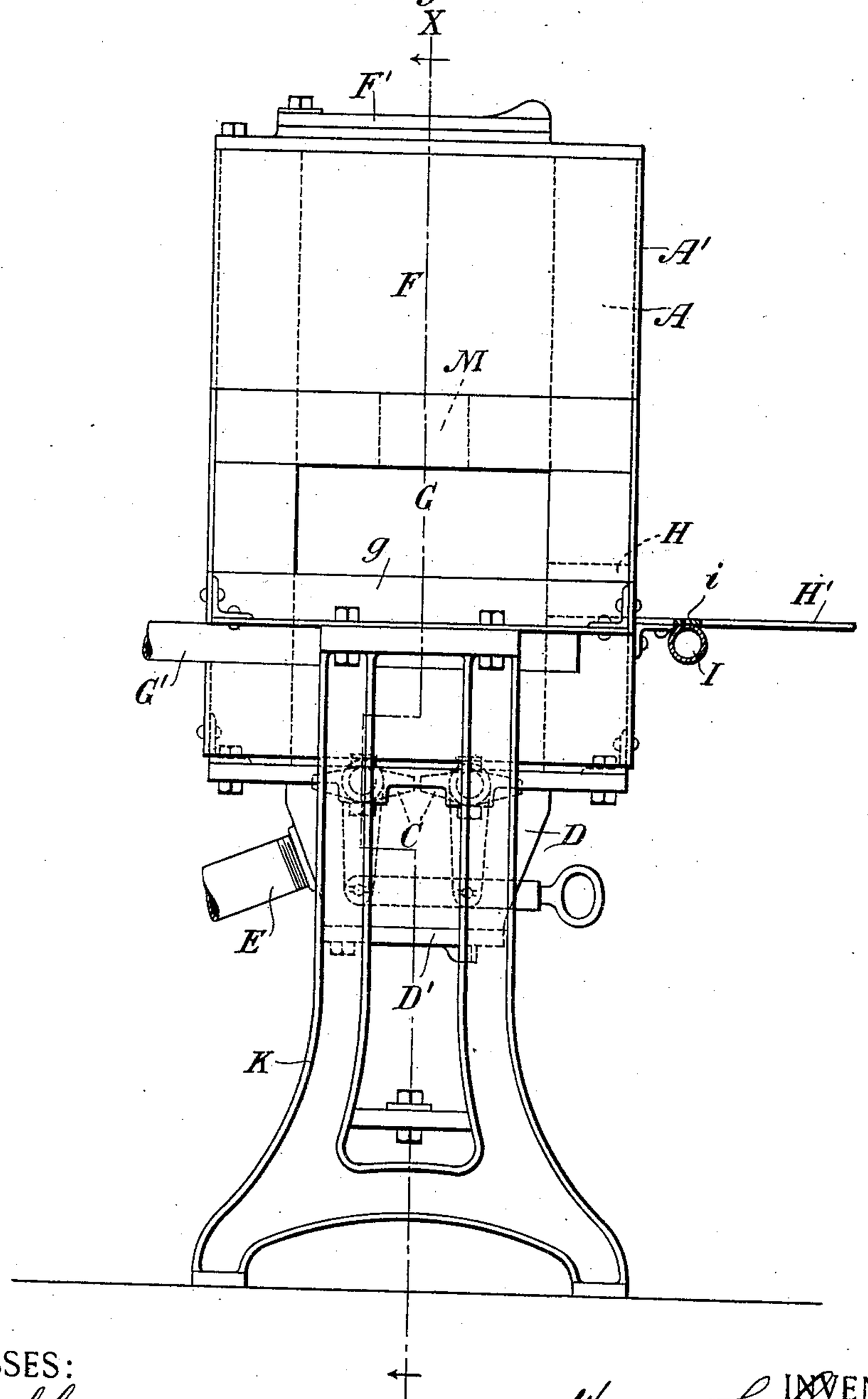
FORGE FURNACE.

APPLICATION FILED JUNE 26, 1902.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.



WITNESSES:

C. E. Ashley

W. A. Stahlin

INVENTOR

Henry L. Gantt

By his Attorneys

Baldwin, Davidson & Wright

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NO MODEL. 2 SHEETS—SHEET 2.

Fig. 3.

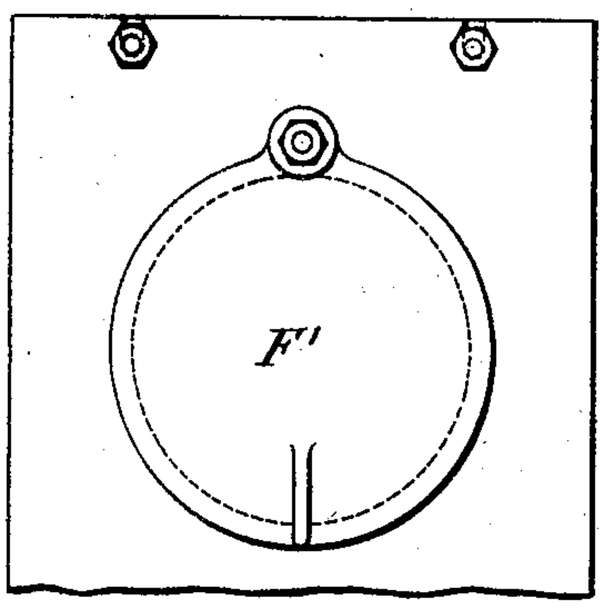

Fig. 2.

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No. 762,301. Patented June 14, 1904.

UNITED STATES PATENT OFFICE.

HENRY L. GANTT, OF SCHENECTADY, NEW YORK.

FORGE-FURNACE.

SPECIFICATION forming part of Letters Patent No. 762,301, dated June 14, 1904.

Application filed June 26, 1902. Serial No. 113,322. (No model.)

To all whom it may concern:

Be it known that I, HENRY L. GANTT, a citizen of the United States, formerly residing at South Bethlehem, State of Pennsylvania, and now residing at Schenectady, county of Schenectady, State of New York, have invented an Improved Forge-Furnace, of which the following is a specification.

The object of this invention is to provide a forge-furnace affording a high temperature and in which the tools or other articles to be heated need not be placed in contact with the fuel and also one capable of continuous operation at its maximum efficiency. To this end I provide a fire-pot with a grate and inclosed ash-pit, with an air-blast opening thereinto, above the fire-pot a fuel-reservoir from which the fuel is automatically fed to the fire-pot, and a laterally-disposed heating-chamber for the insertion of the tools, &c., which is arranged in a plane intermediate the base of the reservoir and the top of the fire-pot and part of the bottom or floor of which will be formed by the fuel in the fire-pot.

In the accompanying drawings, Figure 1 is a front elevation. Fig. 2 is a vertical section, and Fig. 3 a partial plan showing swing-cover of reservoir.

The apparatus is composed of the fire-brick structure A, having an inclosing iron casing A′. In the base thereof is a fire-pot B, at the bottom of which is the grate C, below which is a closed ash-pit D, into which opens the air-blast pipe E. The ash-pit is closed by a horizontally-swinging bottom door D′. Above the fire-pot is the fuel-reservoir F, provided with a swinging cover F′ and having its vertical axis preferably out of line with that of the fire-pot and to the right or rear thereof as viewed in Fig. 2, in which case the rear wall of the fuel-reservoir is connected with the rear wall of the fire-pot by the downwardly-inclined surface F^2. The front wall of the reservoir is located above the fire-pot, and on this side of the forge there is built the lateral heating-chamber G, which extends outwardly from the reservoir and fire-pot, a portion of the chamber G being directly above a portion of the fire-pot and is in the construction shown opposite the inclined surface F^2. Preferably the lower wall of the chamber G extends out farther, as shown at *g*, than does the upper wall thereof, thereby forming a platform in front of the entrance to the chamber, while the rear part of the chamber extends partly over the fire-pot, so that the fuel therein may form part of the floor of the chamber. A pipe G′, connected with the air-blast, is arranged beneath the platform G and formed with apertures which discharge air under pressure through the vertically-disposed openings *g′* in the platform *g*. The jets of air blown upwardly across the entrance of the chamber G drive the emergent products of combustion upwardly and protect the workmen.

In operation the tools to be heated are inserted in the chamber G in such proximity to the fuel as may be desired and may therefore be subjected to such temperature as may be desired. They may lie upon bricks that may be inserted into the chamber G, and the opening of this chamber may be more or less closed, as desired, by the use of one or more such removable bricks. This forge is capable of continuous operation from day to day, retaining, as it does, its fire over night, and by proper use of the blast such temperature as is desired may be developed at the inner end of the chamber G.

In the construction indicated I have also shown another opening H at right angles to that G and on a lower level. A shelf or platform H′ is mounted on the casing at the lower edge of the opening H, which is preferably but not necessarily so located as to enter the fire-pot below the interior surface of the lower wall of the opening G. The opening H may be entirely closed when not in use by one or more bricks or may be in the same manner partially closed, if desired, when in use. If it is desired to heat a tool to higher temperature than is readily obtainable by placing it in the chamber G, the passage H may be opened and a rod inserted to form a pocket or recess in the mass of fuel and the tool to be heated then inserted in such proximity to the fuel as is desired. To protect the workmen and drive upwardly the products of combustion at the opening H, I place an air-pipe I,

connected with the air-blast and provided with apertures communicating with corresponding apertures *i* in the platform and through which jets of air are driven vertically.

In the upper horizontal wall of the passage G is an opening M, which may be normally closed by placing a fire-brick over it. To heat the middle part of a bar, for instance, it may be placed across the opening, and by means of fire-bricks a small chamber may be built over it, with, however, a proper vent. In such case the passages G and H will be appropriately closed by bricks to compel the products of combustion to pass up through M.

The forge may be mounted at an appropriate height upon standards or pillars K K or in any other appropriate manner. Mere details of construction have been sufficiently indicated, and specific description of them seems unnecessary.

I claim as my invention—

1. In a forge-furnace the combination of a fire-pot, an ash-pit below it, and a fuel-reservoir above it, a lateral heating-chamber located at a level between the upper portion of the fire-pot and the base of the reservoir, and having a top wall projecting laterally from the front wall of the fuel-reservoir forming a shelf and having a vertical opening connecting with the interior of the lateral chamber.

2. In a forge-furnace the combination of a fire-pot, a nash-pit below it, and fuel-reservoir above it, a lateral heating-chamber located at a level between the upper portion of the fire-pot and the base of the reservoir, and having a top wall projecting laterally from the front wall of the fuel-reservoir forming a shelf and having a vertical opening connecting with the interior of the lateral chamber; a lateral opening into the fire-pot below the level of the lateral chamber, and a shelf projecting from the side wall of the furnace in line with the bottom of said opening.

3. In a forge-furnace, the combination of a fire-pot, a closed ash-pit below it, a closed fuel-reservoir above the fire-pot, and a lateral heating-chamber of substantially greater horizontal length than the necessary thickness of the walls located at a level between the upper part of the fire-pot and the base of the reservoir and constituting the outlet for products of combustion, the fire-pot being out of line with the fuel-chamber so that the fuel in the fire-pot can be made to form a portion but not all of the floor of the heating-chamber.

4. In a forge-furnace the combination of a fire-pot, a closed ash-pit below it, a closed fuel-reservoir above the fire-pot and a lateral heating-chamber of substantially greater horizontal length than the necessary thickness of the walls located at a level between the upper part of the fire-pot and the base of the reservoir and constituting the outlet for products of combustion, and having a top wall projecting laterally from the front wall of the fuel-chamber which is located out of line with, and on the opposite side of, the fire-pot, thus bringing a portion of the fire-pot directly under a portion, but not all, of the top wall of the heating-chamber.

In testimony whereof I have hereunto subscribed my name.

HENRY L. GANTT.

Witnesses:

ROBERT L. FREY,

F. T. BRIGGS.