S. GLOVER & J. WEST.

GAS PRODUCER.

APPLICATION FILED NOV. 9, 1915.

1,194,730.

Patented Aug. 15, 1916.

2 SHEETS—SHEET 1.

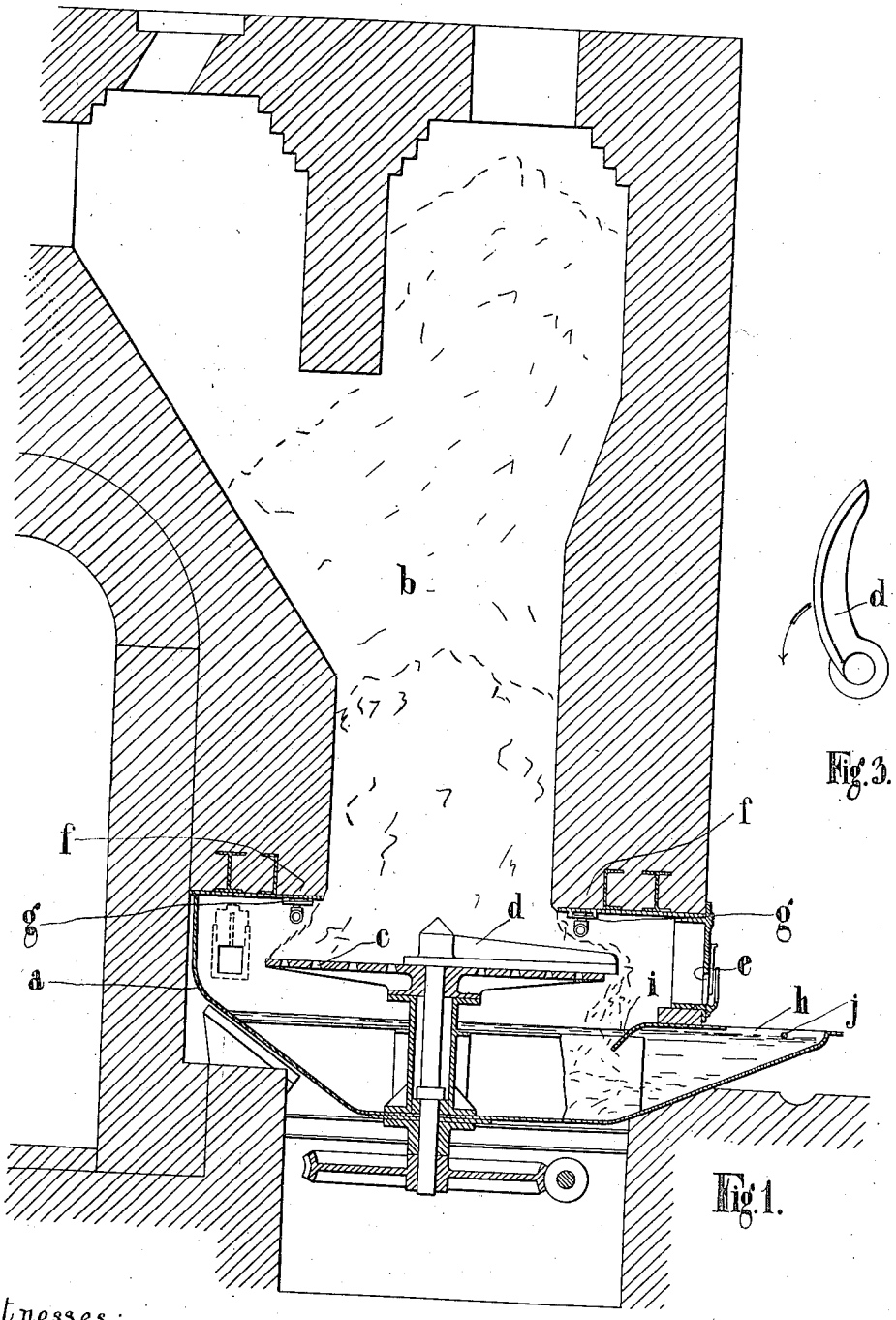


Fig. 1.

Fig. 3.

Witnesses:

Edwd L. Tolson.

C. McFischer

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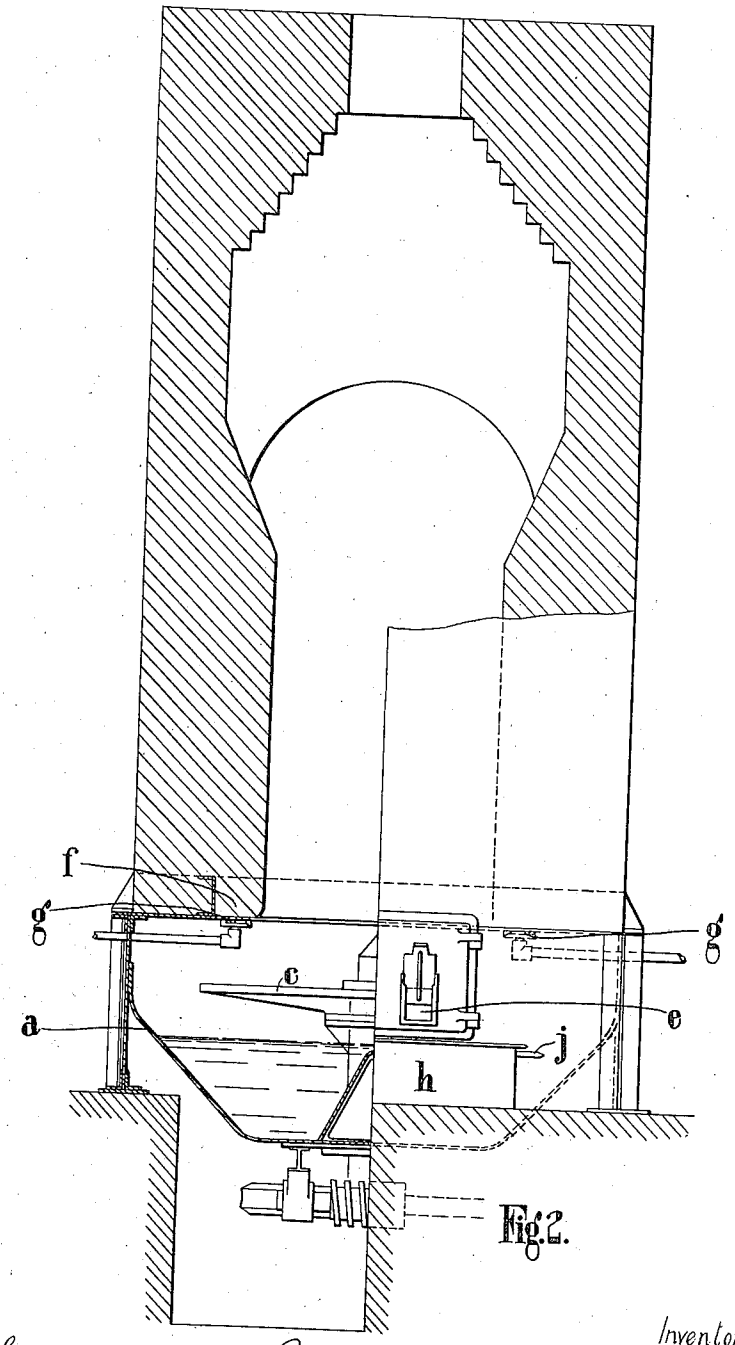


Fig. 2.

Witnesses:

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UNITED STATES PATENT OFFICE.

SAMUEL GLOVER, OF ST. HELENS, AND JOHN WEST, OF SOUTHPORT, ENGLAND.

GAS-PRODUCER.

1,194,730. Specification of Letters Patent. Patented Aug. 15, 1916.

Application filed November 9, 1915. Serial No. 60,575.

To all whom it may concern:

Be it known that we, SAMUEL GLOVER and JOHN WEST, subjects of the King of Great Britain and Ireland, and residents of St. Annes, St. Helens, and Alton Lodge, Park Crescent, Southport, both in the county of Lancaster, England, respectively, have invented certain new and useful Improvements in Gas-Producers, of which the following is a specification.

This invention relates to gas producers in which carbon monoxid gas is obtained from coke, coke breeze or carbonaceous fuel, and has for its object to provide an improved simple arrangement of parts around and in combination with the ash extracting means at the lower end of the producer furnace which shall insure high furnace efficiency with uniformity of gas production by obviating the employment of clinkering or ash extracting doors or valves.

Heretofore it has been proposed to employ agitating elements or scrapers rotating over grates or tables for discharging the ash from the furnace, but in accordance with our invention the vane-like extractor rotating over its table, which forms a support for the contents of the furnace, is combined with a chamber, inclosing said table and extractor, which provides both an air inlet to the producer and also a water sealed discharge aperture for the ash, so that ash extraction can be accomplished without the opening of valves or doors and so without altering the air supply of the furnace.

Referring to the accompanying sheet of explanatory drawings: Figure 1 is a sectional elevation of a gas producer having ash extracting or discharging means constructed and arranged in accordance with our invention. Fig. 2 is a view taken at right angles to Fig. 1, the left hand part of the view being in section and the right hand part being mainly an elevation. Fig. 3 is a plan view of the mechanical extractor.

The same reference letters in the three views indicate the same parts.

In the illustrated application of our invention, we provide a chamber or casing *a* around the lower end of the producer *b*, such chamber surrounding the furnace grate *c* and ash extractor *d* and receiving the ash discharged by said extractor. The primary air for the furnace is obtained through slide controlled apertures *e* in the chamber wall, the said apertures being preferably disposed equidistantly around the chamber so as to insure a more uniform distribution through the fuel in the furnace.

Around the underside of the lower part of the furnace and on the upper wall *f* of the chamber or casing before referred to, we provide a channel *g* with apertures or slots therein through which water can be projected in spray form on to the ash on the grate *c* so that the steam generated, which rises through the fuel, maintains a sufficiently reduced combustion temperature to prevent fluxing of the ash. The unevaporated water flows over the ash and keeps the metal in contact therewith at a low temperature. The excess of water drains to the water sealed bath or container hereinafter referred to.

The mechanical extractor *d* comprises a vane-like element (Fig. 3) adapted to be intermittently or continuously but slowly rotated by ordinary means over the surface of the grate or platform-like element *c* situated at a suitable distance from the lower open end of the furnace *b*, the dimensions of the grate being such as to insure that the ash can rest thereon at its angle of repose, so preventing self-discharge of the furnace. The table may have apertures therethrough to permit of the passage of air to the base of the fuel. The vane may project slightly beyond the periphery of the grate, as shown, and by reason of its shape tends to force the ash from the center to the periphery of the grate where it is discharged. The rate of intermittent or continuous movement of the vane may be adjusted by suitable means to suit the character of fuel being dealt with. The table *c* and the casing *a* may be of rectangular or other configuration in plan.

The ash falls from the grate *c* into a water sealed bath or container which forms the lower part of the chamber or casing *a* aforesaid around the extracting means. Access to said bath, for withdrawing the ash, is obtained by way of the mouth *h* projecting beyond the furnace, a lip-like part *i* dipping into the water adjacent to the mouth so as to prevent ingress of air to the furnace from said mouth notwithstanding small variations in the level of the liquid in the bath by which the said mouth is sealed. The ash can be withdrawn by the

use of ordinary tools. The level of the water in the bath is maintained constant by ordinary means.

j is a water overflow pipe.

By the employment of our invention, we are enabled to obtain economy in working by dispensing with the labor usually required for clinkering purposes. We also reduce the wear and tear of the plant caused by the use of clinkering tools and secure uniformity in the quantity and quality of the gas produced and economy in fuel, due to the uniform quantity of the primary air.

What we claim is:—

1. In gas producers, in combination, a furnace, a closed chamber around the lower end of said furnace, an open water sealed ash extraction outlet from said chamber projecting beyond the chamber wall, air admission means in said chamber wall, a table within said chamber adjacent to the open lower end of said furnace, a vane upon said table, and means for rotating said vane, as set forth.

2. In gas producers, in combination, a furnace, a closed chamber around the lower end of said furnace, an open water sealed ash extraction outlet from said chamber projecting beyond the chamber wall, air admission means in said chamber wall, a table within said chamber adjacent to the open lower end of said furnace, a vane upon said table, means for rotating said vane, and means for spraying liquid on to the fuel on said table, as set forth.

3. In gas producers, in combination, a furnace, a chamber at the lower end of said furnace having a water sealed mouth projecting beyond the furnace wall, adjustable air inlets in said chamber wall, a table within said chamber adjacent to the open lower end of said furnace, an intermittently rotated vane upon said table, and a perforated water channel around the lower end of the furnace, as set forth.

4. In gas producers, in combination, a furnace, a chamber at the lower end of the furnace having a water sealed mouth projecting beyond the furnace wall, adjustable air inlets in said chamber wall, a perforated table within said chamber adjacent to the open lower end of said furnace, an intermittently rotating vane upon said table, and means for spraying liquid on to the fuel on said table, as set forth.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

SAMUEL GLOVER.
JOHN WEST.

Witnesses:
ARTHUR HUGHES,
HILDA HUGHES.