

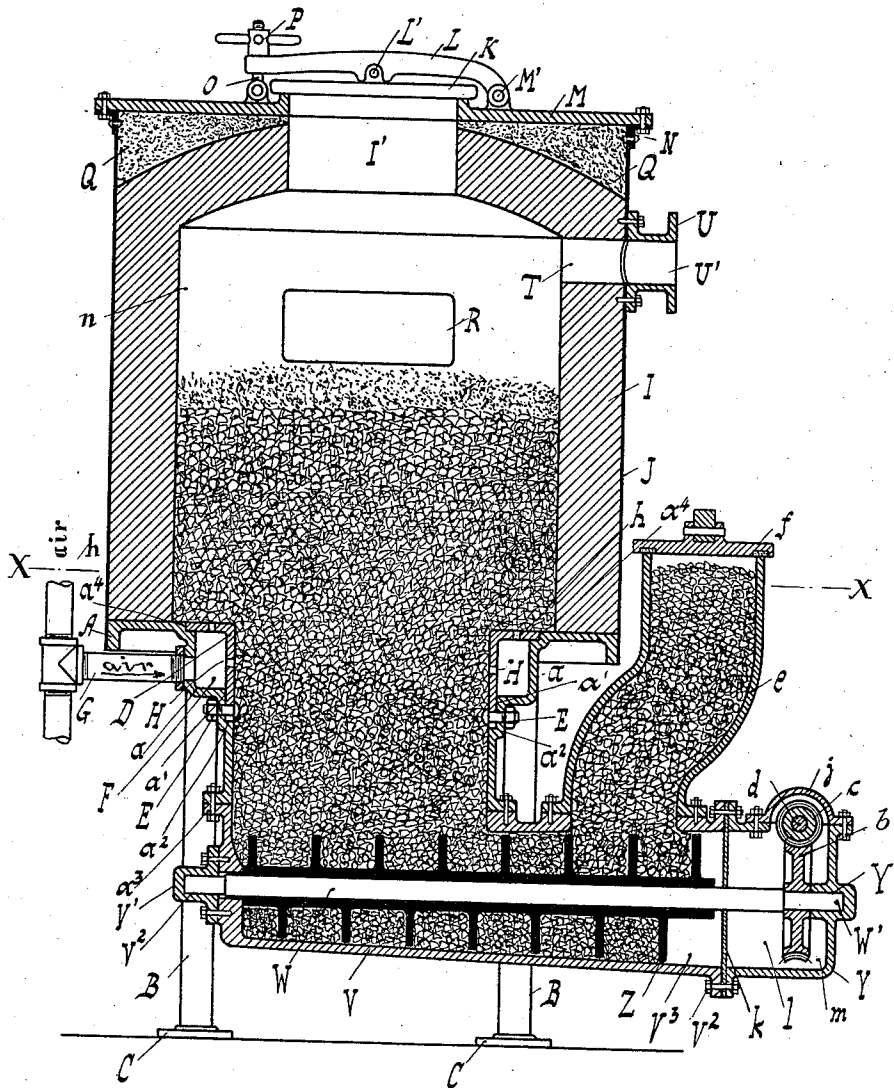
B. M. ASLAKSON.
GAS PRODUCER.
APPLICATION FILED JAN. 14, 1908.

996,603.

Patented July 4, 1911.

2 SHEETS—SHEET 1.

Fig. 1.



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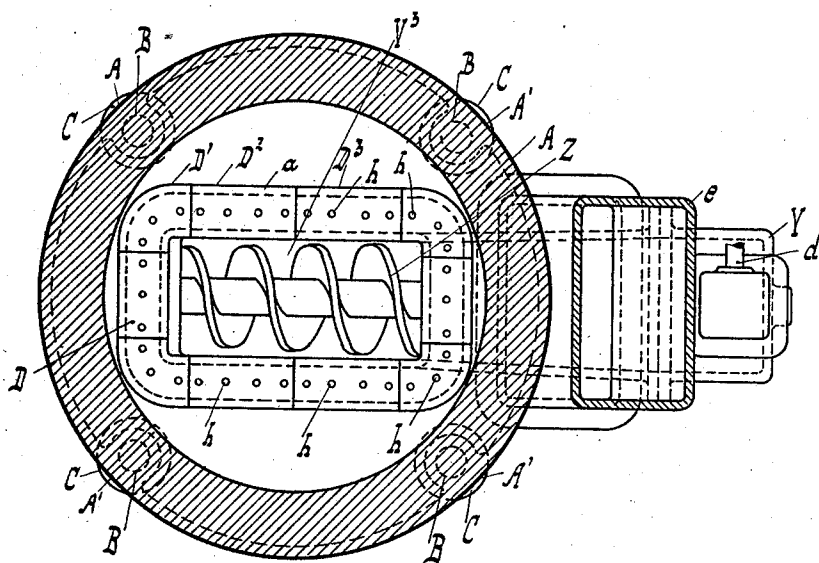
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2 SHEETS—SHEET 2.

Fig. 2.



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GAS-PRODUCER.

996,603.

Specification of Letters Patent.

Patented July 4, 1911.

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To all whom it may concern:

Be it known that I, BAXTER M. ASLAKSON, a citizen of the United States, residing at Salem, Columbiana county, Ohio, have invented new and useful Improvements in Gas-Producers, of which the following is a specification.

My invention relates to gas producers and has for its object, a producer of the type in which the coal is fed from below the surface of the fire, whereby extremely simple and efficient means are employed for effecting such feed, and air introduced within the producer chamber in such a manner as to cause the coal to burn evenly over its upper surface.

A further object is to provide a structure in which a worn out part may be easily replaced by a new one which will fit accurately in the place of the old one without any machining or the necessity for the use of special tools.

Referring to the drawings which form a part of this specification,—Figure 1, is a front vertical sectional view of the same. Fig. 2, is a cross sectional view on line X—X of Fig. 1.

A, indicates a cast iron member, the top portion of which is circular and forms a flange provided with four bosses A', A', etc., in each of which is secured a pipe B, indicated in dotted lines Fig. 3, which pipes extend to the ground and constitute pillars or posts to support the whole structure. C, indicates base flanges screwed to the supports B. Depending from said flanged portion and formed integral therewith is a portion a , which is angular in cross section, turns inward at a' , and is provided with a small shoulder at a^2 , and a lower flanged portion at a^3 .

A series of angular plates D, D', D², D³, etc., are located as shown and are connected by bolts E to the casting A at their lower ends. The plates D, D', etc., and casting A, conjointly form a chamber F communicating with which is a pipe G screwed into the depending portion a , to convey air to said chamber. A number of holes H are located in each of the plates D, etc., in the vertical parts thereof, and a further number indicated by h , are in the tops thereof, through which holes the air is distributed to support an even combustion at the surface of the coal over the entire area thereof. It will be observed that the plates are supported by the shoulders formed at a^2 ,

a^4 , in casting A, so that even if the bolts E become loose or lost after the plates were once in proper position, said plates would support each other and still maintain fairly tight joints with the casting A. Said bolts are used however, to prevent the coal from lifting the plates when coal is fed to the chamber n .

Resting on the horizontal flange of the casting A, is a cylindrical wall I, of a fire-proof material, said wall being preferably incased in a metal sheathing J, the lower part of which embraces the flange of the casting A as shown to properly hold the wall material on said casting. The cylindrical wall I at its top, presents a dome which contains a large opening I' closed by a cover K, the latter being hinged to a lever L at L', and the lever in turn being hinged to a cast metal plate M, at M', the said plate constituting the top of the producer, extending beyond the edge of the casing J and being bolted or riveted thereto through the medium of the angular ring N.

Connected to the top plate M by a hinged joint is a bolt O adapted to be swung within an open slot in the lever and provided with a hand nut P, by means of which the cover is forced tightly to and held on its seat on the casting M to secure a gas tight joint at this point. Ashes, cement, or other suitable material Q, is packed between the plate M and top surface of the wall I to effect a tight joint at this place and also provide a non-conducting filling. The lining wall I also contains openings R, which are located on each side of the producer and opposite each other, and through which openings the coke may be removed from the producer. These openings are normally closed by doors. The lining wall I further contains an opening T, and a casting U is connected to the casing J so that an opening U' in said casting, will be in alinement with the opening T, and the casting thereby provide a flanged connection for further piping.

Secured to the casting A through the medium of the flange a^3 and bolts, is a casting V to which is connected at one end a cap V' having a bearing V² adapted to support one end of a shaft W, the other end W' of which is supported in a bearing Y' of a casting Y, the latter being connected to casting V by a flanged joint at V² as shown. The casting V provides a longitudinally contracting trough V³, in which is a spiral conveyer Z contain-

ing an axial bore through which the shaft W passes and to which shaft the conveyer Z is fastened by any suitable means. The outer periphery of the conveyer flights conform within the bore V³ in close sliding or working relation. Mounted on the shaft W is a spiral gear wheel *b*, in mesh with a gear wheel *c*, the latter being mounted on a shaft *d* by means of which the said gears and conveyer are driven. Secured on the casting V, is a vertical chute or feeder *e*, through which the fuel is introduced to the conveyer, the top of the chute being provided with a cover *f*, hung and fastened in a manner similar to that of the cover used on the top of the producer and previously described herein. A cap *j* fits over the gear wheel *c* as shown, in order to effect a gas tight joint at this place. It will be noted that the construction is such that the shaft W is protected from contact with the coal and that the bearings are also well protected from dust and grit.

A gasket partition *k* secured between the castings V and Y, centrally contains a hole through which the shaft W passes, thus providing a chamber *l* in which oil indicated by *m*, is placed so that the gear *b* in turning will carry oil to lubricate the gear *c* and sufficient oil will flow down the side of the gear *b* to lubricate the bearing Y' and down the sides of gear *c* to lubricate the bearings of shaft *d*, as will be readily understood.

In operating the producer, coal is placed in the feeder *e* and the shaft *d* is then turned by power derived from a proper source, to turn the gears *c* and *b* and the shaft W, and thereby drive the spiral conveyer Z which will operate to carry the coal through the trough V³ and force it upward into the chamber *n* wherein said coal is ignited at its surface, air being supplied by way of the holes H and *h* in the volume required for perfect operation, the gas formed being carried off through the outlet T. The cone shape of the conveyer assists materially in distributing the coal evenly so that it will form a level bed at its surface. The generation of gas in the producer may be started when the surface of the coal is a short distance above the air inlet holes, and continued until the coke has reached up to the doors S and S', when the producer may be shut off from the gas delivery pipe by a suitable valve located therein, and the coke removed from the producer through the doors S and S', as will be readily understood.

The device may be easily taken apart and assembled with an ordinary screw wrench and is therefore easy to ship and erect in isolated places.

The underfeed character of the producer,

conduces to both economy and convenience of operation. By admitting the air in the form of jets as previously described, a uniform and highly efficient air supply to the chamber *n*, is provided. Both air and steam may be admitted to the chamber *n*. The upward feeding of the cone by the lifting movement exerted by the conveyer, tends to prevent the coal from caking or clinkering, as it is continually broken up by said lifting movement. Obviously, the gears transmitting motion to the conveyer, can be maintained thoroughly lubricated.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is—

1. In a gas producer, a fuel chamber provided with fuel and air inlets and a gas outlet, an air chamber entirely surrounding the fuel chamber at a point somewhat above the fuel inlet, and having a plurality of air passages in the sides and top of said chamber opening into the fuel space of the producer, and means adapted for the upward feeding of the fuel comprising a tapering screw extending entirely across the lower part of said fuel chamber.

2. In a gas producer, a fuel chamber provided with fuel and air inlets and a gas outlet, an air chamber of substantially rectangular shape entirely surrounding the lower part of the fuel chamber at a point above the fuel inlet, the said chamber having a plurality of air passages formed in its side and top walls, opening into the fuel space of the producer, and distributing the air equally to all sides of said fuel space in both perpendicular and horizontal directions, and means for the upward feeding of fuel to the fuel chamber extending entirely across the lower end of the fuel space and adapted to distribute said fuel evenly to all parts of said chamber.

3. In a gas producer, the combination with parts forming a producer chamber, of a casting angular in cross section and presenting upper and lower shoulders, angular plates secured in bearing engagement with said shoulders and coöperating to form a fluid receiving chamber with exit openings delivering into the producer chamber, a pipe communicating with said fluid chamber, and means for feeding fuel to the producer chamber.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses, this tenth day of January 1908.

BAXTER M. ASLAKSON.

Witnesses:

FRANK M. ASHLEY,
A. G. SCHARPS.