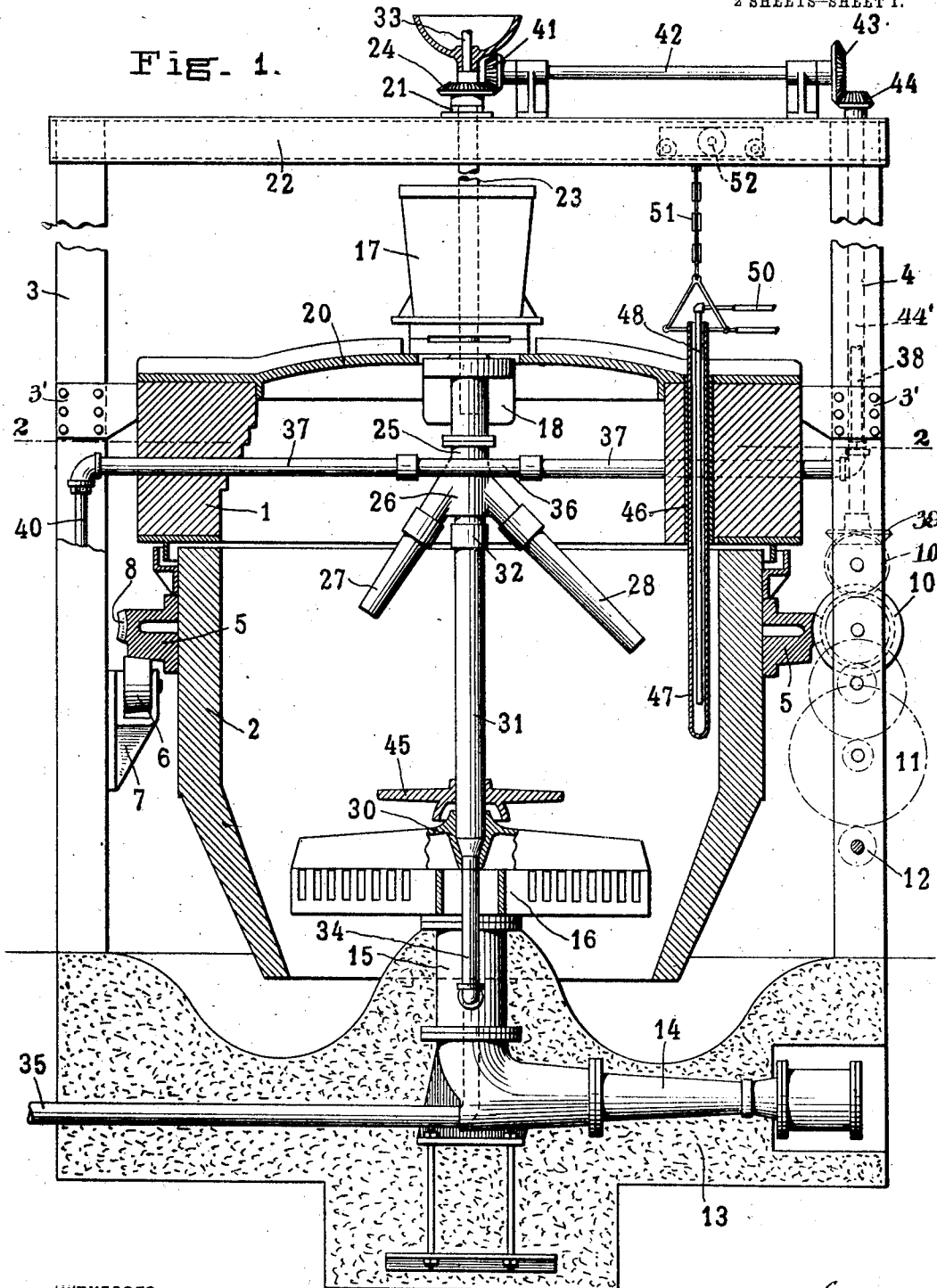


J. A. HERRICK.
GAS PRODUCER.
APPLICATION FILED JULY 10, 1911.

1,063,540.

Patented June 3, 1913.

2 SHEETS-SHEET 1.



WITNESSES

W. J. H. H. H.
Morris Blau

INVENTOR
James A. Herrick
BY
Wilson H. H.
ATTORNEYS

J. A. HERRICK.
GAS PRODUCER.

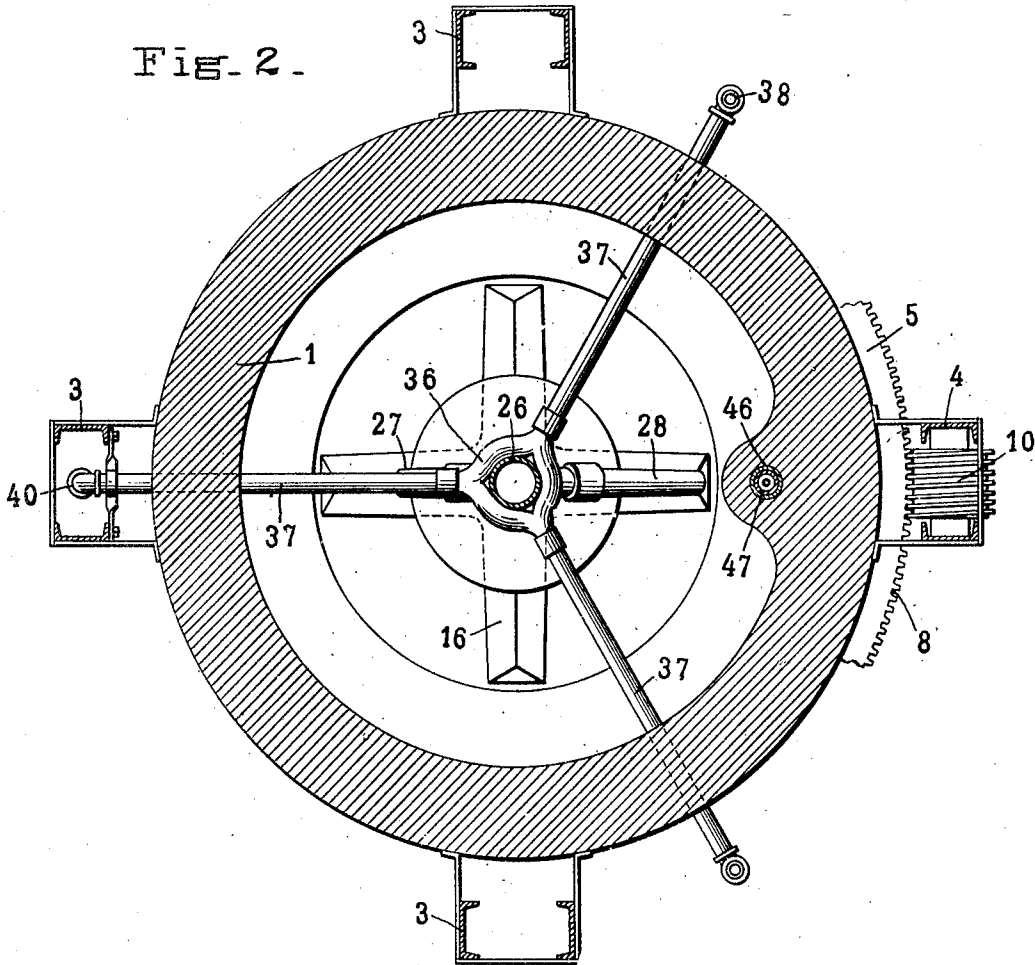
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FIG. 2.



WITNESSES

J. C. Ketchum
Morris Blau

INVENTOR

James A. Herrick
BY *Wilson & Kent*
ATTORNEYS

UNITED STATES PATENT OFFICE.

JAMES A. HERRICK, OF NEW YORK, N. Y.

GAS-PRODUCER.

1,063,540.

Specification of Letters Patent.

Patented June 3, 1913.

Application filed July 10, 1911. Serial No. 637,615.

To all whom it may concern:

Be it known that I, JAMES A. HERRICK, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Gas-Producers, of which the following is a specification.

This invention relates to the manufacture of producer gas, and more particularly to a new and improved mechanically formed gas producer.

The present invention contemplates certain improvements over the construction which forms the subject matter of my pending application for improvements in gas producer, Serial Number 606,548, filed Feb. 4th, 1911.

One of the objects of the invention is to provide improved means for supporting a poking or stirring device within a gas producer, and for more evenly maintaining the stirring device cool during the operation of the apparatus.

Another object is to provide improved means whereby the interior wall of the producer may be kept free from such accumulations as might result from a caking of poorly consumed fuel thereon, or from clinkers which might tend to adhere to said inner wall, thereby interfering with the effective operation of the producer.

Another object is to provide an improved support within a producer for a stirring device, such as is disclosed in my pending application, Serial Number 606,548, filed Feb. 4th, 1911.

A still further object is to provide means whereby the stirring devices may be removed from the zone of combustion, making it possible to employ said stirring devices only when necessary and to remove the same at will.

Other objects will be in part obvious and in part pointed out hereinafter. The invention accordingly consists in the features of construction, combinations of elements, and the arrangement of parts hereinafter described and the scope of the application, all of which will be pointed out in the appended claims.

In the accompanying drawings wherein

are illustrated several forms of preferred embodiments of my invention: Figure 1 is a view showing partly in section and partly in elevation a gas producer constructed in accordance therewith. Fig. 2 is a horizontal sectional view taken substantially on a line 2—2 of Fig. 1, looking downward into the producer.

Referring now to the drawings and particularly to the embodiment shown in Fig. 1, the producer proper or casing is composed of upper and lower sections 1 and 2 respectively, the former being carried upon suitable columns 3 and 4 by brackets 3'. The lower section 2 is adapted to be revolved and is supported in the position shown by means of a circular casting 5, which encircles its upper end, said casting resting upon wheels 6. The wheels 6, one of which is shown upon the left hand side of Fig. 1, is journaled in a bracket 7, carried upon the upright 3. It will be understood, of course, that columns similar to those illustrated at 3 and 4 are provided, the same being located at right angles to the ones illustrated in the drawings, and that four wheels similar to that shown at 6 are provided, upon which section 2 is revolvably supported. The periphery of the casting 5 is provided with a worm 8, with which meshes a worm wheel 10 carried upon a suitable journal mounted in the upright 4, said worm wheel 10 being adapted to be driven by a suitable system of gearing, denoted generally at 11, from a driving gear wheel 12, the latter deriving its power from any suitable source of supply. Leading into the foundation structure 13 of the producer is a blast pipe 14, said pipe extending inwardly to the center of the producer and having an upward extension 15 bolted thereto, to which, in turn, is clamped the twyer box structure 16.

17 indicates a revoluble fuel hopper, having a chute 18 which extends from an aperture provided in the upper wall or cover of section 1 of the producer. The specific structure of this fuel hopper and chute forms no part of my present invention, the same being shown, described and claimed in my pending application, Serial No. 606,548. Extending downward through a block

21, supported upon the cross pieces 22 which join the upper ends of the uprights 3 and 4, is a hollow shaft 23. This shaft at its upper end is provided with a bevel gear wheel 24, suitably fastened thereon, said gear wheel resting upon the block 21 whereby the hollow shaft 23 is supported. This hollow shaft extends through the fuel hopper 17 and at its lower end carries the upper end 25 of a hollow stirring device or poker 26. This poker is provided with the divergent, hollow legs 27 and 28, one of which is preferably longer than the other; said legs being threaded to the body of the poker so that they may be readily removed for purposes of repair or replacement. Resting in a suitable journal 30 formed in the twyer box structure 16 is a tubular member 31 which extends upward and is threaded to an extension 32 of the body of the poker 26, and it will be noted that the tubular member 31 also assists in supporting the poker structure. Leading downward through the hollow shaft 23 is a water supply pipe 33 through which water may be conducted to the interior of the poker structure, and leading from the lower end of the tubular member 31 is another water pipe 34 which extends downward into the blast pipe 14, said pipe 34 joining with the water discharge pipe 35.

36 denotes a triangular structure or spider formed of hollow tubing which is positioned around the upper end of the poker body as shown in Fig. 2 of the drawings and forming a portion of this spider are legs 37, also formed of tubing, said legs extending through the wall of the producer and being made fast therein. One of said legs is connected with a source of water supply, as at 38, and the other two with water discharge pipes, one of which is shown at 40. The legs 37, as above set forth, are firmly secured in the wall of the producer whereby the support 36 is held stationary, permitting it to form a steadying means for the poker structure within the producer. These legs 37 also operate to level off the fuel bed within the producer. The beveled gear 24, which is fastened to the shaft 23, is driven by means of the bevel gear 41, shaft 42 and bevel gear 43, which, in turn, meshes with the bevel gear 44, the latter deriving its source of power from the driving mechanism denoted at 11, the connection between these two members comprising the shaft 44', bevel gear 39 and the bevel gear 10, the latter being driven through an operating connection with the worm wheel 10. The tubular member 31 is provided with a pair of outstanding members or arms 45 which are located immediately above the twyer structure, so that during the rotation of the poker these members will prevent the accumula-

tion of clinkers or other obstructions, which may collect upon the twyer structure.

Extending downward through the side wall of the upper section 1 of the producer is a metallic sheath 46, through which may be inserted a poker 47, the same being water cooled as by means of a pipe 48 connected with a flexible supply pipe 50. This poker may be withdrawn at will as by means of the chain 51 which passes over the roller 52 and to which chain may be attached any lifting device, as for instance, a block and tackle. It will be noted that the poker 47 extends downward into the producer adjacent the side wall of the lower section 2, so that during the rotation of the lower section any clinkers or other formations adhering to the inner wall thereof will be effectively removed.

It will accordingly be seen that I have provided constructions particularly well adapted, among others, to attain all the matters and objects above set forth in an entirely efficient manner. The poker structures described operate to prevent the formation of crevices or fissures in the contained matters, thereby insuring the production of gas of even quality.

One important advantage accruing by reason of the construction described herein is that the various parts being removable, repair or replacement of any part burned out may be accomplished with the expenditure of very little time or labor. It will, therefore, be unnecessary to shut down the operation of the producer for any length of time for the accomplishment of the above purposes.

As many changes could be made in the above construction and many apparently widely different embodiments of this invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense. It is also to be understood that the language used in the following claims is intended to cover all of the generic and specific features of the invention herein described and all statements of the scope of the invention which as a matter of language, might be said to fall therebetween.

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

1. In a gas producer, in combination, a casing provided with a cover portion, the latter having a central aperture, a fuel hopper carrying a delivery chute located in said aperture, a hollow shaft extending through said fuel hopper, a stirring member having an outwardly extending arm carried

upon the lower end of said shaft, a twyer box located in the lower portion of the producer, a journal formed in said twyer box, and a shaft extending downwardly through the producer from said stirring member and resting in said journal box.

2. In a gas producer, in combination, a casing provided with a cover portion, the latter being provided with a centrally disposed aperture, a revoluble fuel hopper resting upon said cover portion and extending through said aperture, said hopper being provided with a depending delivery chute, which is located within the producer, a shaft extending downwardly through said hopper into the interior of the producer, a stirring member provided with an outwardly extending arm mounted upon the lower end of said shaft, a blast pipe extending upwardly into the producer at its lower end, a twyer box located in the lower portion of the producer immediately above the upper end of said blast pipe, said twyer box having a centrally disposed journal formed in its upper portion, a shaft extending downwardly through the producer from said stirring member and having its lower end seated in said journal, and an outwardly extending stirring member carried upon the lower end of said last mentioned shaft.

3. In a gas producer, in combination, a casing provided with a cover portion, the latter being provided with a centrally disposed aperture, a revoluble fuel hopper resting upon said cover portion and extending through said aperture, said hopper being provided with a depending delivery chute, which is located within the producer, a shaft extending downwardly through said hopper into the interior of the producer, a stirring member provided with outwardly extending arms mounted upon the lower end of said shaft, a blast pipe extending upwardly into the producer at its lower end, a twyer box located in the lower portion of the producer immediately above the upper end of said blast pipe, said twyer box having a centrally disposed journal formed in its upper portion, a shaft extending downwardly through the producer from said stirring member and having its lower end seated in said journal, a plurality of outwardly extending stirring members carried upon the lower end of said last mentioned shaft, and means extending transversely of the producer within the same which engages said stirring member and forms a steadying support therefor.

4. In a gas producer, in combination, a casing provided with a cover portion having a centrally arranged aperture, a revoluble fuel hopper resting upon said cover portion and having its lower end extending through said aperture, a fuel distributing member or chute carried by said revoluble hopper and

depending therefrom into the interior of the producer, a hollow shaft extending downwardly through said hopper into the interior of the producer, a stirring member provided with a plurality of outwardly extending hollow arms mounted upon the lower end of said shaft, a hollow shaft extending upwardly through the interior of the producer from said stirring member, a blast pipe extending upwardly into the lower end of the producer and disposed centrally thereof, a twyer box structure mounted upon the upper end of said blast pipe having a journal formed in its upper portion, the lower end of said last mentioned shaft being seated in said journal, and a plurality of outwardly extending arms carried upon the lower end of said last mentioned shaft immediately above said twyer box structure.

5. In a gas producer, in combination, a casing provided with a cover portion having a centrally arranged aperture, a revoluble fuel hopper resting upon said cover portion and having its lower end extending through said aperture, a fuel distributing member or chute carried by said revoluble hopper and depending therefrom into the interior of the producer, a hollow shaft extending downwardly through said hopper into the interior of the producer, a stirring member provided with a plurality of outwardly extending hollow arms mounted upon the lower end of said shaft, a hollow shaft extending upwardly through the interior of the producer from said stirring member, a blast pipe extending upwardly into the lower end of the producer and disposed centrally thereof, a twyer box structure mounted upon the upper end of said blast pipe having a journal formed in its upper portion, the lower end of said last mentioned shaft being seated in said journal, a plurality of outwardly extending arms carried upon the lower end of said last mentioned shaft immediately above said twyer box structure, means for discharging water through said first mentioned hollow shaft whereby said water will flow therethrough into said first mentioned stirring member, thence through said second mentioned shaft, said twyer box structure, and the pipe connected with said second mentioned shaft which leads through said blast pipe and discharges the water exteriorly of the producer.

6. A gas producer, in combination, having a casing provided with an apertured cover portion, a twyer box located in the lower portion of the casing and having a journal box, a hollow stirring member extending through the aperture of said cover portion and having a downwardly extending member which rests in said journal box, means

for conducting water through said stirring member, means for conducting water from said stirring member through the journal of said twyer box, a hollow steadying support for said stirring member within the casing, and means for conducting water through said hollow support.

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

JAMES A. HERRICK.

Witnesses:

A. S. HONIGSBERG,
A. M. OATES.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."