

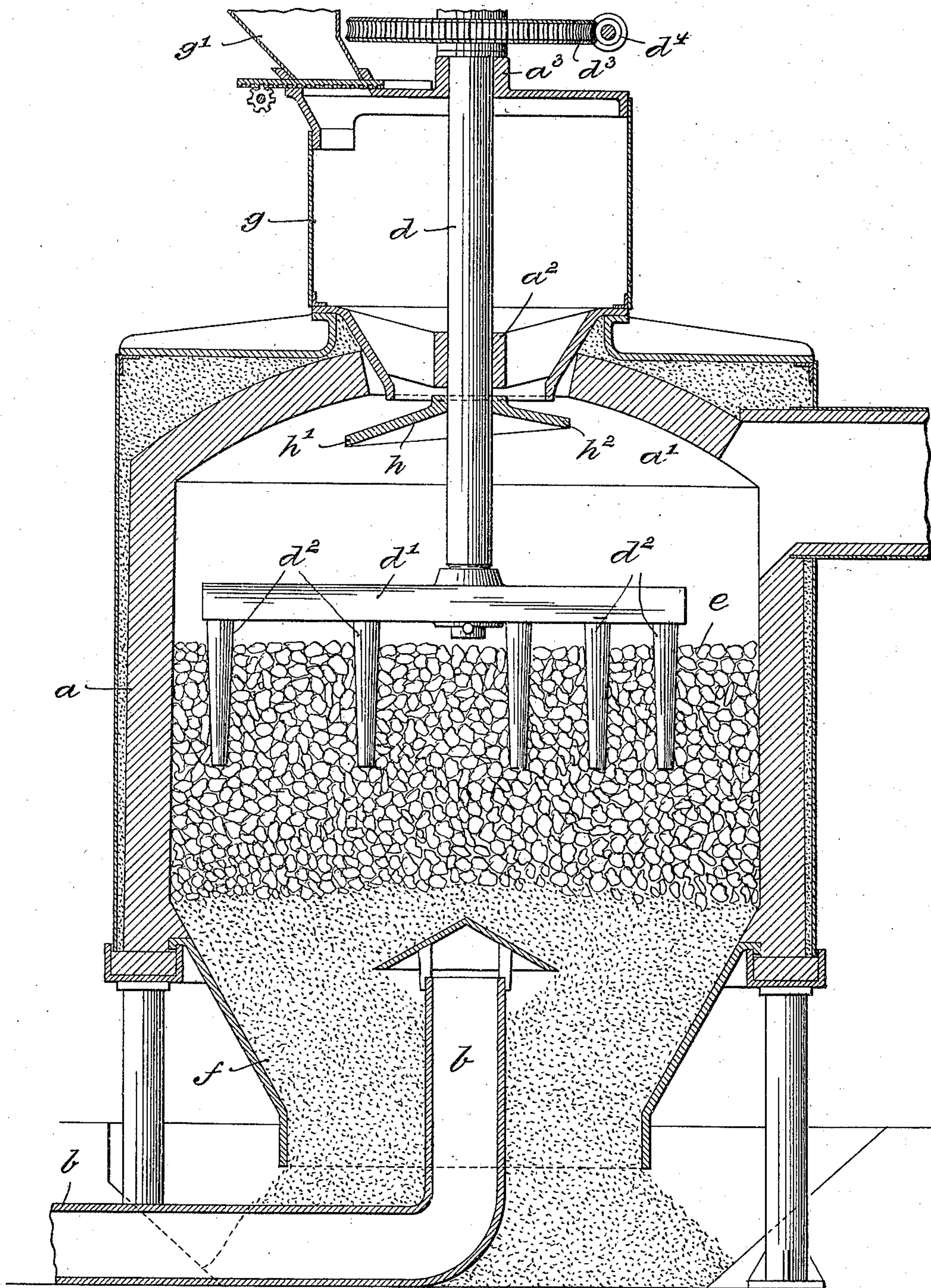
No. 654,457.

Patented July 24, 1900.

E. A. W. JEFFERIES.
GAS PRODUCER.

(Application filed Nov. 8, 1899.)

(No Model.)



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UNITED STATES PATENT OFFICE.

EBENEZER A. W. JEFFERIES, OF DETROIT, MICHIGAN.

GAS-PRODUCER.

SPECIFICATION forming part of Letters Patent No. 654,457, dated July 24, 1900.

Application filed November 8, 1899. Serial No. 736,223. (No model.)

To all whom it may concern:

Be it known that I, EBENEZER A. W. JEFFERIES, a citizen of the United States, residing at the city of Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Gas-Producers, of which the following is a specification.

My invention has relation to a gas-producer, and in such connection it relates more particularly to mechanism whereby the bed of incandescent fuel in the producer may be combed or agitated during the production of gas.

The principal objects of my invention are, first, to provide in a gas-producer a mechanism adapted to comb or agitate the bed of incandescent fuel whereby the liberation of gas may be hastened and the proper gasifying of the fuel facilitated, and second, to provide, in conjunction with such a mechanism a fuel-distributing device acting in unison with said mechanism whereby a more uniform feeding and expeditious gasification of the fuel are insured.

My invention consists of a gas-producer having a rotatable shaft vertically traversing the upper portion or dome of the producer and carrying a horizontally-arranged bar from which a series of vertically-arranged fingers depend, said fingers adapted to penetrate the gasifying fuel and when the shaft is rotated to comb or agitate said fuel.

My invention further consists of a gas-producer constructed and arranged in substantially the manner hereinafter described and claimed.

The nature and scope of my invention will be more fully understood from the following description taken in connection with the accompanying drawing, forming part hereof and illustrating in approximately-vertical central section a gas-producer embodying the main features of my invention.

Referring to the drawing, *a* represents a gas-producer of any well-known type and provided with a blast-pipe *b* of usual construction. In the dome *a'* of the producer is provided a bearing or sleeve *a²*, and above the dome is also provided a second bearing or sleeve *a³*. In the sleeves *a²* and *a³* is adapted to rotate a vertically-disposed shaft *d*, trav-

ersing the upper or dome portion of the producer *a* and provided at its lower end with a horizontally-arranged cross-bar *d'*, arranged, preferably, a short distance above the top of the bed of fuel *e*. The cross-bar *d'* is provided with a series of depending fingers *d²* preferably arranged in alinement and projecting downward some distance into the bed of fuel *e*. Upon the upper end of the shaft *d* is secured a gear-wheel *d³*, adapted to be driven by the small gear or pinion *d⁴*, to which latter gear or pinion motion is conveyed in any suitable manner. When the gear-wheel *d³* is driven, the shaft *d* and the cross-bar *d'* both rotate. The fingers *d²* are caused by the motion of the bar *d'* to traverse or comb the bed of fuel *e* in a rotary direction, and the fuel *e* is thus agitated or stirred to hasten the evolution of the gas as well as facilitate the feeding and consumption of the fuel. The shaft *d* is preferably rotated very slowly, so that the fingers *d²* will not too violently agitate or stir the fuel *e*. The fuel *e*, as is usually the case, is supported by a bed of ash *f*.

Above the dome of the producer *a* is located the chamber *g*, into which fuel from a suitable hopper *g'* is adapted to be fed. The base of the chamber *g* opens directly into the gas-producer, and upon the shaft *d* and directly below the base of said chamber *g* is located a device *h*, forming a distributor for the fuel as it leaves the chamber *g* and is precipitated into the gas-producer. The device *h* rotates with the shaft *d* and serves to deposit the fuel with a rotary movement. One side *h'* of the device *h* projects farther from the shaft *a* as a center and is adapted to shoot the fuel to the sides or walls of the producer, whereas the opposite side *h²* is near the shaft *a* as a center and is designed to permit the fuel to drop vertically toward the center of the producer. The device *h*, in conjunction with the cross-bar *d'* and the fingers *d²*, insures a more even or uniform distribution and feed of the fuel undergoing gasification in the producer.

If desired, the shaft *d*, cross-bar *d'*, and fingers *d²* may be hollow to permit the inlet and escape of a cooling liquid, such as water, into and from the lower part of the shaft *d*, the cross-bar *d'*, and the said fingers *d²*.

Having thus described the nature and ob-

jects of my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a gas-producer constructed to contain a bed of fuel supported upon a bed of ash, a
5 comb, comprising a cross-bar extending horizontally above the bed of fuel and a series of fingers depending from said bar and adapted to penetrate the bed of fuel and means for
rotating said cross-bar and fingers, whereby
10 said fingers are caused to traverse the fuel in a rotary direction, substantially as and for the purposes described.

2. In a gas-producer constructed to contain a bed of fuel supported upon a bed of ash, a
15 vertically-arranged shaft traversing the dome or upper part of the producer, a cross-bar secured to said shaft and extending horizontally in the producer above the bed of fuel, a series of fingers depending from said cross-
20 bar and adapted to penetrate the bed of fuel, and means for rotating said shaft and cross-bar, whereby the fingers are caused to trav-

erse the fuel in a rotary direction, substantially as and for the purposes described.

3. In a gas-producer constructed to contain 25 a bed of fuel supported upon a bed of ash, a vertically-arranged shaft traversing the upper portion of the producer, a fuel-distributing plate carried by said shaft, a cross-bar carried by said shaft and arranged horizon- 30 tally below the distributing-plate and above the bed of fuel, a series of fingers depending from said cross-bar and adapted to penetrate the bed of fuel, and means for rotating said shaft, distributing-plate, cross-bar and fin- 35 gers, substantially as and for the purposes described.

In testimony whereof I have hereunto set my signature in the presence of two subscribing witnesses.

EBENEZER A. W. JEFFERIES.

Witnesses:

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