

No. 740,759.

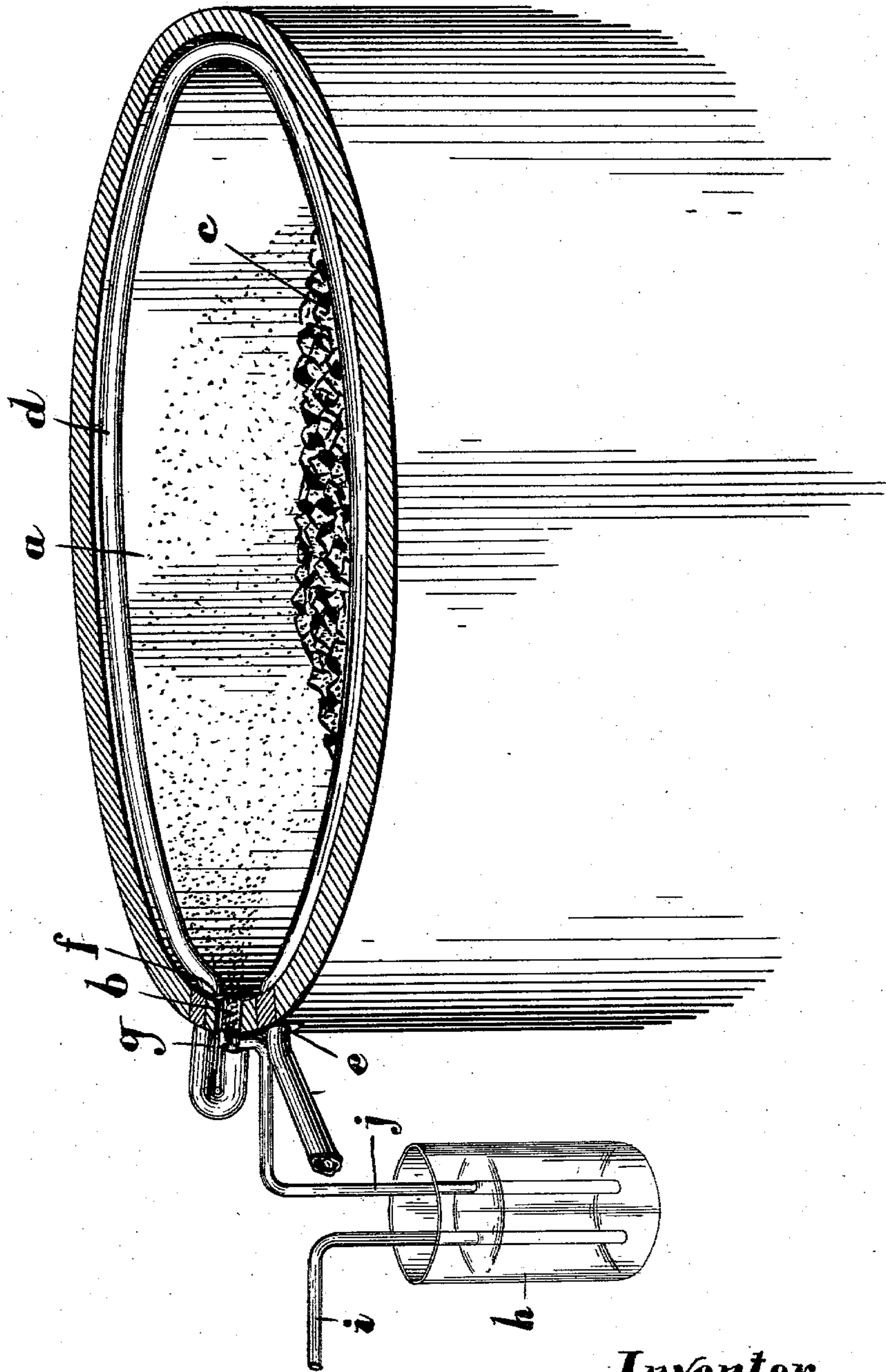
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A. G. INGALLS.

DEVICE FOR PRODUCING AND CONSUMING HYDROGENIC FUEL.

APPLICATION FILED SEPT. 29, 1902.

NO MODEL.



Witnesses.

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ALLEN GARDINER INGALLS, OF MONTREAL, CANADA.

DEVICE FOR PRODUCING AND CONSUMING HYDROGENIC FUEL.

SPECIFICATION forming part of Letters Patent No. 740,759, dated October 6, 1903.

Application filed September 29, 1902. Serial No. 125,295. (No model.)

To all whom it may concern:

Be it known that I, ALLEN GARDINER INGALLS, a subject of the King of Great Britain, residing at Montreal, in the district of Montreal, Province of Quebec, Canada, have invented certain new and useful Improvements in Devices for Producing and Consuming Hydrogenic Fuel, of which the following is a specification.

10 My invention relates to a device for producing and consuming hydrogenic fuel; and the object of the invention is to devise a machine whereby water and air can be fed into a fire-box to supplement the fuel therein being consumed; and it consists, essentially, of a
15 fire-box having an opening above the fire in the wall thereof, a pipe emanating from an air-reservoir and encircling the inner wall of the fire-box and terminating outside adjacent to the aforesaid opening, a water-receptacle below the opening and an elbow-pipe leading therefrom to the mouth of the air-pipe, and a supply-pipe leading into the water-receptacle, the various parts being
20 constructed in detail, as hereinafter more particularly described.

a is the fire-box, having the opening *b* in the wall thereof located above the fuel *c*.

d is an air-pipe surrounding the interior of the fire-box *a*. The air-pipe *d* emanates from an air-reservoir and enters the fire-box at *e* and surrounding the same above the fire makes its exit at *f* and outside of the wall of the fire-box is turned back, so as to
35 bring its mouth *g* directly opposite the opening *b*.

h is the water-receptacle, designed to be maintained about three-quarters full of water.

40 *i* is a pipe emanating from a water-supply and leading into the water-receptacle *h*.

j is a pipe leading up from the water-receptacle *h* to a point slightly below the level of the opening *b*. This pipe *j* is here elbowed
45 and carried over to the fire-box wall, where it is again bent, so that its mouth will point upwardly and be directly in front of the mouth *g* of the air-pipe *d*.

50 Having described the various parts involved in my invention, I shall now more particularly explain the operation thereof.

The water is turned on from the supply and flows through the pipe *i* into the water-receptacle *h*. Simultaneously to the turning on of the water the air is turned on from the reservoir and flows through the pipe *d* and in its course around the fire-box becomes heated, and thereby expands the nitrogen and frees the oxygen, and when the air reaches the fire-box *d* the nitrogen floats away to the flue and the oxygen is snatched by the carbon from the fire. The air is fed into the pipe *d* from the reservoir at a pressure slightly above atmospheric, and as it leaves the said pipe *d* at the mouth *g* it creates a vacuum in the pipe *j*, for the mouth of the pipe *j* is directly in front of the mouth *g*. The water from the receptacle *h* will then rise through the pipe *j* and spout from the mouth thereof, and the air, which has created the vacuum to cause the water to rise, as is well known in atomizers, blows through the spouting water and sends the same into the fire-box. The water thus sent breaks into innumerable minute globules which scatter all over the fire, the fuel of which is designed to be in an incandescent state. The subsequent action of these globules is that they drop on the coals and assume a spheroidal form and in this state emit H_2O gas, and thus supplement the fuel. The air, which as before explained is heated in its passage around the fire-box wall, also enters the fire-box, and the oxygen which is snatched by the carbon also supplements the fuel, the nitrogen floating away to the flue.

The level of water in the receptacle *h* is maintained by regulating the supply through the pipe *i* to the amount drawn up through the pipe *j*.

What I claim as my invention is—

1. In a machine for producing and consuming hydrogenic fuel, the combination with the fire-box having an opening in the wall thereof above the fire, of a pipe emanating from a suitable air-supply and located in the inside of the fire-box wall and terminating outside thereof in proximity to the aforesaid opening in a direction toward the fire, a water-receptacle located below the opening, a pipe leading from the water-receptacle into proximity to the mouth of the air-pipe, and

means for maintaining the supply of water in the receptacle, as and for the purpose specified.

2. In a machine for producing and consuming hydrogenic fuel, the combination with the fire-box having an opening in the wall thereof above the fire, of a pipe emanating from a suitable air-supply and surrounding the inside of the fire-box wall and terminating outside thereof in proximity to the aforesaid opening with its mouth directed toward the fire, a water-receptacle located below the opening, a pipe leading from the water-receptacle into proximity to the mouth of the air-pipe, and means for maintaining the supply of water in the receptacle, as and for the purpose specified.

3. In a device of the class described, in combination, a fire-box having an opening in the wall thereof above the fire, a water-receptacle located below the opening, a pipe leading into the water-receptacle from a suitable water-supply, a pipe leading from the water-receptacle to the aforesaid opening in the fire-box wall, and having two elbows intermediate of its length, a pipe connected to a suitable air-supply and entering the fire-box and surrounding the same in the interior, and terminating outside the wall of the fire-box in proximity to the mouth of the aforesaid elbowed pipe, the mouth of said air-pipe being directed across the mouth of the pipe leading from the water-receptacle and toward the fire, as and for the purpose specified.

4. In combination a fire-box, a pipe for supplying heated air having its end terminating at an opening in the fire-box and directed toward the fire therein, and a water-pipe having one end located in front of and in proximity to the mouth of the air-pipe with means for supplying water to said pipe.

5. In a device of the class described, in combination, a fire-box having an opening in the wall thereof, a water-receptacle located below the said opening, a pipe leading from the water-receptacle to the opening, a pipe emanating from a water-supply, and leading into the water-receptacle, a pipe for supplying heated air under pressure having its mouth discharging across the mouth of the water-pipe and through the opening in the fire-box toward the fire therein, as and for the purpose specified.

6. The combination with a fire-box having an opening therein above the bed of fuel, of a pipe for supplying air under pressure extending for a suitable distance within the fire-box and terminating outside thereof in proximity to said opening in a direction toward the fire, and a water-supply pipe terminating in proximity to the mouth of said pipe, substantially as described.

Signed at Montreal, in the district of Montreal, in the Province of Quebec, Canada, this 25th day of September, 1902.

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Witnesses:

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