

No. 647,486.

Patented Apr. 17, 1900.

W. R. & H. H. FOX.
ACETYLENE GAS GENERATOR.

(Application filed Oct. 5, 1899.)

(No Model.)

2 Sheets—Sheet 1.

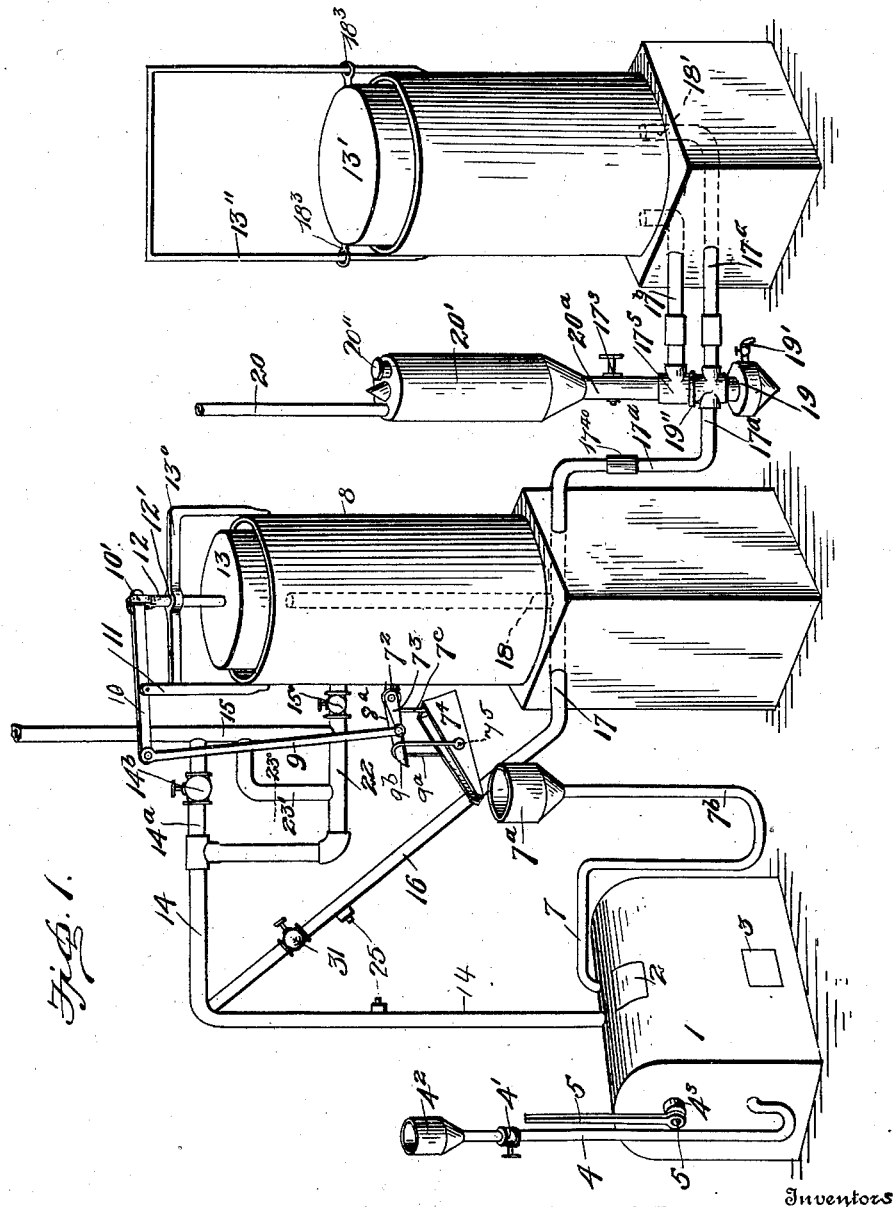


Fig. 1.

Witnesses

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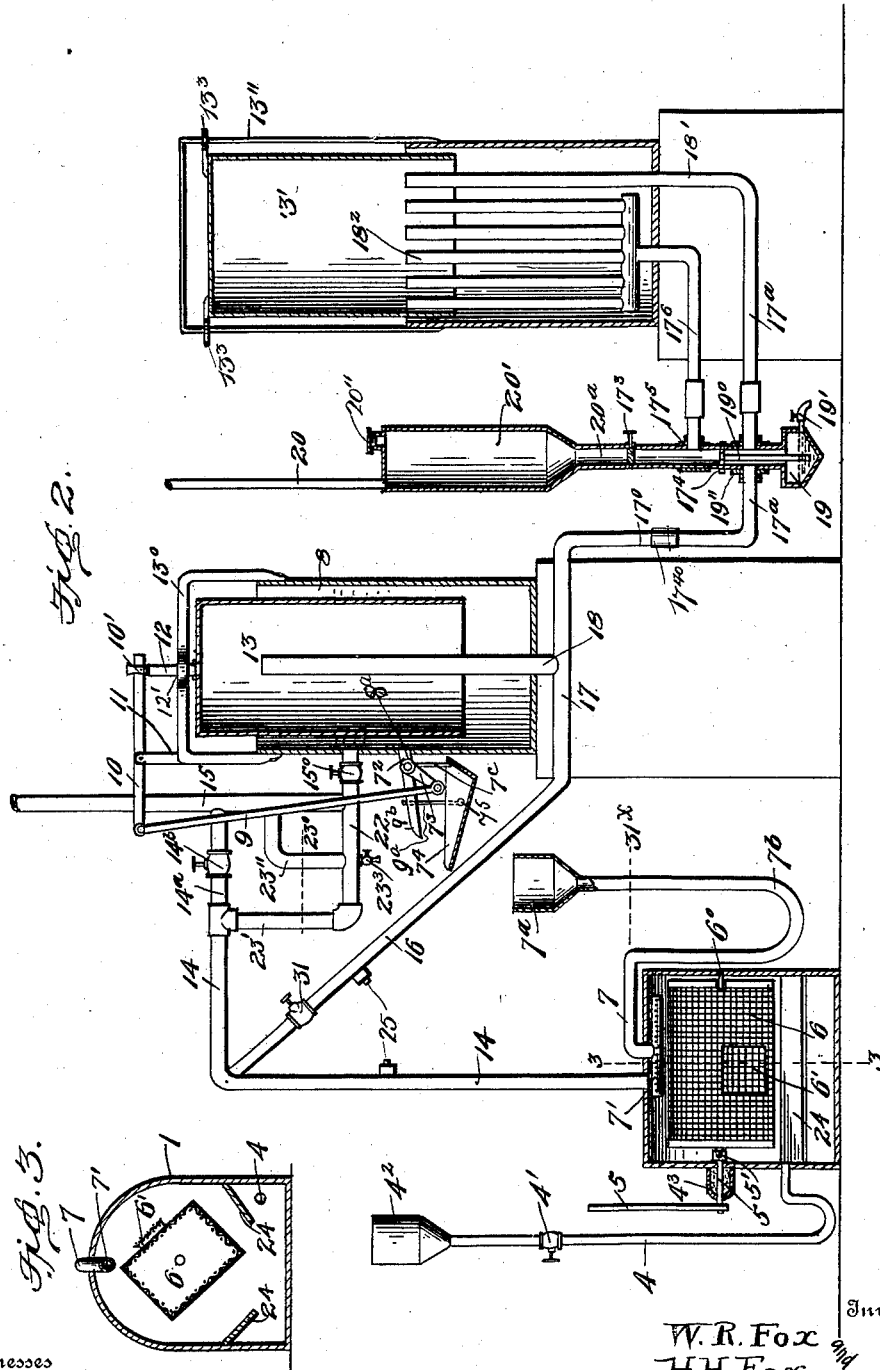
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Witnesses

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UNITED STATES PATENT OFFICE.

WELLIS R. FOX AND HOWARD H. FOX, OF COBLESKILL, NEW YORK.

ACETYLENE-GAS GENERATOR.

SPECIFICATION forming part of Letters Patent No. 647,486, dated April 17, 1900.

Application filed October 5, 1899. Serial No. 732,644. (No model.)

To all whom it may concern:

Be it known that we, WELLIS R. FOX and HOWARD H. FOX, citizens of the United States, residing at Cobleskill, in the county of Schoharie and State of New York, have invented certain new and useful Improvements in Acetylene-Gas Generators; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention relates to an improved acetylene-generator; and the object of the invention is to provide a simple, inexpensive, effective, reliable, and automatic device of this character.

To this end the invention consists in certain features of construction and combinations of parts, which will be hereinafter fully described and claimed.

In the accompanying drawings, Figure 1 is a perspective view of our improved automatic acetylene-generator. Fig. 2 is a longitudinal section of the same. Fig. 3 is a vertical transverse section on the line 3 3 of Fig. 2.

In the drawings the same reference characters indicate the same parts of the invention.

1 denotes the generator, which is preferably rectangular and is provided with removable hand-hole plates 2 and 3, whereby access may be had to the interior for charging the carbide-receptacle and removing the spent ash.

4 denotes a trapped inlet-pipe provided with a valve 4' and funnel 4². This inlet-pipe is an improvement by which water may be run into the ash-pit to drown the ash and extract any gas that the ash may contain and also to render the ash more agreeable to handle.

5 denotes a hand-lever fulcrumed in the front wall of the generator and terminating inside of the generator in a square socket 5' and is firmly fastened to the front end of the rectangular carbide-basket 6, which is formed of heavy wire-netting, which gives the basket foraminous or reticulated sides, as shown, through which the water runs on its way to the carbide in the basket. One side of the basket is provided with a hinged door 6' to insert the carbide. The rear end of the basket is loosely mounted on a pin 6⁰, fixed in the

contiguous end of the generator on which the basket revolves.

On the front wall or left-hand end of the generator is fixed an oil-packed joint 4³, through which the agitator-shaft 5 passes and turns when shaking the ash out of the carbide-basket 6.

7 denotes the water-inlet pipe, fixed to the top and center of the generator and terminating inside of the generator in a T-shaped end, which is supplied with perforations 7', which distribute the water in the form of a spray through the perforations in the carbide-basket directly on the carbide.

7^b denotes a trap in the water-inlet pipe which is always full of water to the dotted line 31^x, forming a seal which prevents the escape of gas, and said trap 7^b is provided with a funnel 7^a.

7² denotes a plug-cock located near the inner end of a spout 8^a, which communicates with the tank 8 directly over the tilting bar 7^c. The scoop-shaped cup 7^d is deepest near its rear end, the latter inclining upwardly and rearwardly. This scoop-shaped cup 7^d is supported slightly in rear of its vertical middle line by a bail 9^a, which is supported from the spout 9^b. The tilting bar 7^c maintains the scoop-shaped cup 7^d in its untilted or normal position until such time as the bell or holder 13 falls, when the water from the tank 8, passing through the spout 9^b, falls into the scoop-shaped cup 7^d until overbalancing said cup 7^d forces the tilting bar 7^c down into the scoop, as shown in Fig. 1, and empties the water-inlet pipe 7, from which it is conducted to the carbide-basket 6 within the generator 1. A lever 7³, which is pivoted to the lower end of a vertical rod 9, which in turn is pivoted to a horizontal lever 10 on a stud-post 11, fixed to the tank 8 and the opposite end of said lever 10, passes through a link 10' to form a sliding connection with the vertical rod 12, which passes through a hole 12' in the top of the yoke 13⁰, said rod 12 being connected to the bell or holder 13, the operation being such that when the holder falls the water passes from the tank 8 through the plug-cock 7², falling into the scoop-shaped cup 7^d. The rising of the lever 7³ releases the tilting

bar 7^c, which is attached to the valve-plug, as plainly indicated in Fig. 2, the position of the said scoop-shaped cup 7^d being shown in the initial position in Fig. 2 and in the discharging position in Fig. 1. In operation the tilting bar 7^c is adapted to depress and to raise the cup 7^d by pressing against the inclined end of said cup. Then when the cup 7^d becomes filled with water to a certain point the weight of the water in the left-hand end causes the cup 7^d to discharge its contents into the funnel 7^a, the water finding its way to the carbid. Gas is generated, which causes the bell 13 to rise, which in turn cuts off the water-supply, and, vice versa, when the holder falls the water is turned on. When the water is discharged from the cup 7^d by its turning on the joint 7^e, the large end of the empty cup being the heavier, the cup rights itself, being automatic, always discharging a given amount of water when needed.

14 denotes the gas-outlet pipe, provided with a cock 25, leading from the generator, and it communicates with a safety valve or trap formed by pipes 23' 22 and the lower end of the pipe 15. A branch pipe 14^a, provided with a cock 14^b, connects the horizontal outlet-pipe 14 with the escape-pipe 15 above the water-trap. This valve 14^b is closed and the valve 31 open when the generator is in use; but their positions are reversed when the carbid-chamber is being recharged.

A water seal is formed by drawing water in the pipe 22 from the tank 8, through the cock 15⁰, until the water rises to the dotted line 23⁰. The pipe 15 is connected to and opens outside of the building. The feature of this trap is that should there be an accidental overproduction of gas, more than the gas-bells will hold, the pressure of the gas on the water in the trap will cause the water to rise in the pipe 15, allowing the surplus gas to escape to the open air outside of the building, thereby preventing an injury to the machine or building.

23'' denotes a glass water-gage by which the amount of water in the trap is determined.

23³ is a drip-cock on the water-gage to draw water from the trap if the seal is too strong.

The outlet-pipe 14 communicates with a diagonal pipe 16, which in turn communicates with a horizontal pipe 17, extending under the tank 8, and from this horizontal pipe the vertical inlet-pipe 18 extends above the water-level and admits gas to the holder 13. The horizontal pipe 17 connects to a perpendicular pipe 17⁰, which has a coupling 17⁴⁰. The vertical pipe 17⁰ connects to a horizontal pipe 17^a, to which is suspended a drip-cup 19, which has a drip-cock 19' to draw off water of condensation. The drip-cup 19 is connected to the pipe 17^a by a cross 19'', through which passes a small pipe 19⁰ to carry the drip from the purifying-chamber to the bottom of the drip-cup 19. The lower end of the pipe 19⁰ is immersed in water in the bottom of the drip-cup 19, which prevents gas pass-

ing up through said pipe, the gas passing around the pipe 19⁰ through the horizontal pipe 17^a to the vertical pipe 18' on into the bell 13'. The upper end of the pipe 19⁰ is formed with a bushing 17'', which closes the upper end of the cross 19'', connecting with a T 17³. The bushing 17'' prevents the gas passing up to the T 17³.

The purifying-chamber 20' is connected to the T 17³ by a pipe 20^a, which contains a valve 17³, which is to close the pipe when refilling the purifying-chamber 20'.

18² denotes cooling-tubes through which the gas passes from the bell 13' to the pipe 17⁰ on its way to the purifying-chamber 20'.

20 denotes the house service-pipe.

20'' denotes the screw-cap on the purifying-chamber, through which filtering material is inserted and removed.

13'' denotes the yoke over the gas-bell 13', and 13³ denotes guides on said bell.

25 25 denote valved connections, to which an exhaust-pump may be connected to exhaust the generator when recharging.

24 24 denote guide-plates to conduct the ash to the center of the ash-pit.

In operation, the generator having been properly charged, water is first admitted to the carbid-basket through the plug-cock 7² into the spout 8^a, from which it passes into the scoop-cup 7^d, which is pivoted in the lower ends of the bail 9^a, suspended from the spout 8^a. When the scoop-cup 7^d has been filled with the water to the point that will overbalance it and trip it, the water contained therein is emptied into the funnel 7^a at the upper end of the pipe 7, connected with the generator 1, the trap 7^b excluding the air, the water passing to the perforated end of the feed-pipe 7, where it is distributed through in the carbid-basket 6 directly upon the carbid, whereby the gas is caused to be generated and passes therefrom into the bell or holder 13 and as the latter rises the holder 13 turning off the water-supply by turning the plug-cock 7² through its connections with the holder 13 to shut off the water-supply at the cock 7², which stops the generation of gas. As the gas is consumed the holder falls, and the water is again admitted to the carbid with a like result, and this operation is continued as long as there is any carbid in the generator.

It will of course be understood that various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus fully described the invention, what is claimed, and desired to be secured by Letters Patent of the United States, is—

1. In an acetylene-gas machine, the combination of the tank and gas-holder, said tank having a discharge-spout provided with a rocking valve connected to said gas-holder by levers 9 and 10; a tilting bar 7^c connected with said rocking valve and projecting down-

wardly therefrom; the gas-generator having a trapped water-inlet pipe and a pipe connection with the tank 8; and the tilting scoop-shaped cup 7⁴ suspended from the discharge-pipe of said tank between said tank 8 and said trapped water-inlet pipe, whereby upon the movement of said rocking valve the tilting bar 7² either raises or depresses said tilting scoop-shaped cup 7⁴; substantially as specified.

10 2. In an acetylene-gas machine, the combination with the generator having the reticulated carbid-basket mounted therein and the trapped water-inlet pipe communicating therewith; the holder 8 provided with the discharge-spout; a rocking valve provided with
15 a depending tilting bar mounted therein; the scoop-shaped cup 7⁴ suspended from said dis-

charge-spout and disposed over said trapped water-inlet pipe; the levers 9 and 10 pivoted together and connecting said rocking valve 20 with the upper end of the vertical rod 12 passed downwardly through the yoke 13⁰ secured to the upper end of said holder 8 and connected with the top of said bell or holder 13; substantially as specified. 25

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

WELLIS R. FOX.
HOWARD H. FOX.

Witnesses:

LOUIS W. KILTS,
JACOB N. RUSSELL.