W. SNODGRASS.

Portable Gas Generator.

No. 100,080. Patented Feb. 22. 1870.

Fig. 2

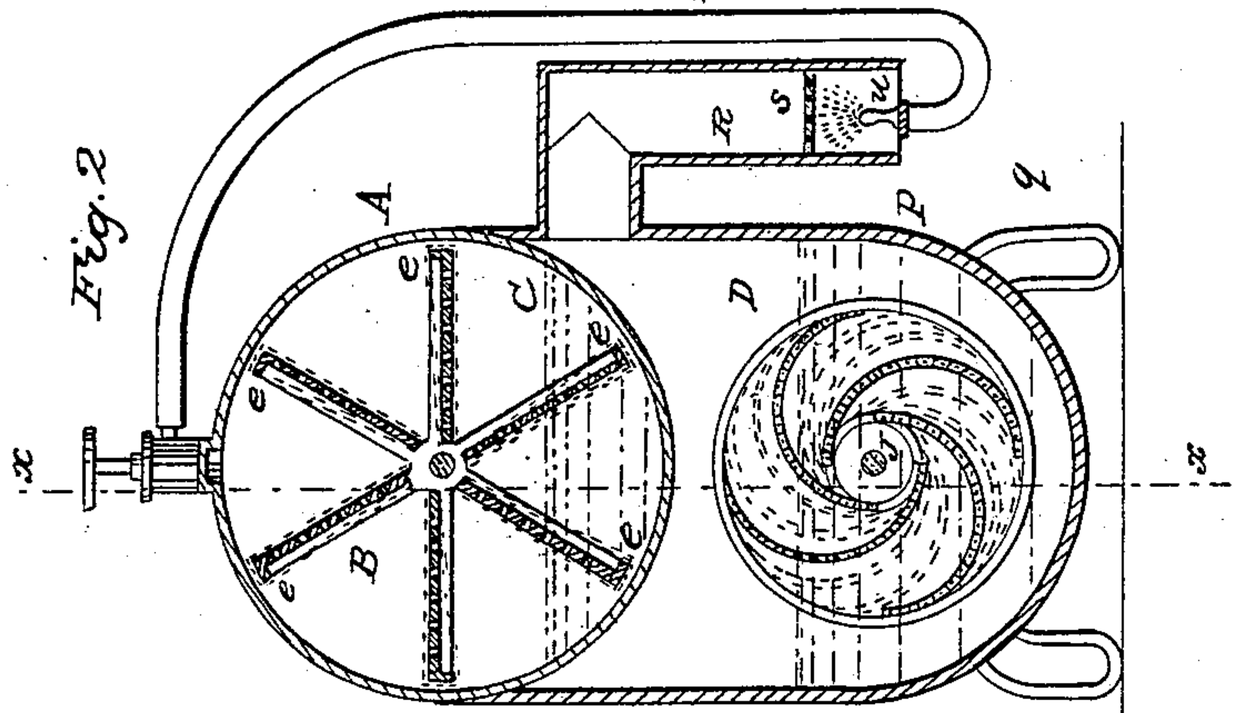
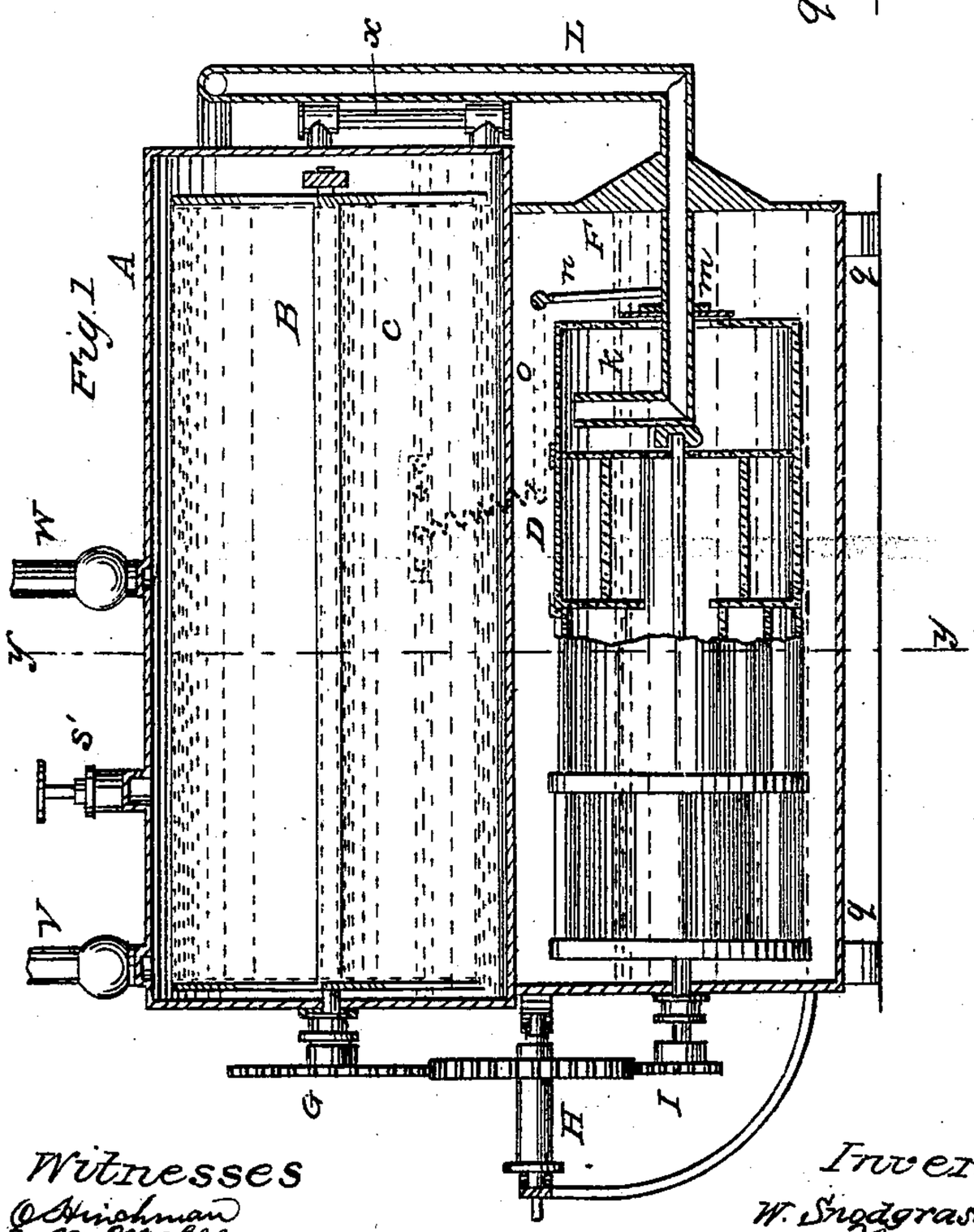


Fig. 1



Witnesses
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United States Patent Office.

WILLIAM SNODGRASS, OF MACOMB, ILLINOIS, ASSIGNOR TO HIMSELF AND J. MARCELLUS BROWNE, OF SAME PLACE.

Letters Patent No. 100,080, *dated February* 22, 1870.

IMPROVED PORTABLE GAS-GENERATOR.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, WILLIAM SNODGRASS, of Macomb, in the county of McDonough, and State of Illinois, have invented a new and improved Portable Gas-Generator; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification.

This invention relates to a new and improved method of generating illuminating gas, and consists in carbureting atmospheric air, which is forced in contact with a hydrocarbon liquid by a new and improved rotary pump, and in the general construction, arrangement, and combination of parts, as hereinafter more fully described.

In the accompanying sheet of drawings—

Figure 1 represents a vertical longitudinal section of the apparatus, through the line *x x* of fig. 2.

Figure 2 is a vertical cross-section of fig. 1, through the line *y y*.

Similar letters of reference indicate corresponding parts.

A represents the carbureting vessel, which contains a revolving reel, the wings of which are perforated and covered with flannel or other good absorbing material on both sides.

The wings have each a lip, which at every revolution dip into and raise a portion of the gasoline or other hydrocarbon liquid contained in the vessel A, which liquid runs down on the flannel covering.

B represents the reel.

C represents the surface of the hydrocarbon liquid.

The lips on the perforated wings are seen at *e*.

D represents the pump for forcing air into the carbureting vessel A.

This pump consists of a revolving cylinder, (in one or more sections,) provided with buckets, and is revolved in water. It is about two-thirds or three-fourths submerged, as seen at the water line at F.

Motion is given this rotating pump, and also the rotating reel B in the carbureter A, by means of the system of gear-wheels marked G, H, and I at the end of the machine, as seen in the drawing, which gearing may be actuated by a weight or by a spring, as may be found most advisable.

As the pump revolves, each bucket receives a portion of air as it rises from the water. When it strikes the water again, its mouth or opening is down, and the air it contains is forced to the inside cylinder J.

The water follows the air into the air-chamber K, and has an outlet at the center of its head, and returns to the outside as the pump revolves, while the air passes from the air-chamber to the carbureter through the pipe L. It will be seen that the end of this pipe is above the water line in the air-chamber. The end of the pump-shaft has a bearing supported by this pipe, as seen in the drawing.

There is a valve around this pipe, as seen at *m*, which is regulated by the pressure of air in the carbureter, but kept in position by the rods *n* and *o*, connected with a spring, as seen in fig. 1 in dotted lines.

The pump revolves in a semicircular cistern or vessel, P, beneath the carbureting vessel A, and from the base of the machine, the whole being supported on legs *q*, as seen in the drawing.

For the purpose of raising the temperature of the air and the hydrocarbon liquid, and rendering the latter more volatile in cold weather, I provide a furnace, R, which is connected with the space between the pump and the bottom of the carbureter.

It will be seen that the furnace is open at the bottom, and that the air which supplies the pump passes in through the furnace.

S is a perforated diaphragm. The air, in passing through this diaphragm, and in contact with the sides of the furnace, will become heated more or less. This furnace is heated by means of a jet of gas from the carbureter, at S, which is conveyed through the flexible tube T to the burner, where it is ignited.

The gas is distributed to the burners from the pipe V, and the hydrocarbon liquid is introduced through the pipe W.

X represents a glass tube on the end of the carbureting vessel, for indicating the height of the hydrocarbon liquid.

In this apparatus capillary attraction is not brought into action. The liquid is agitated by the slow motion of the revolving reel, which keeps it of uniform density throughout, and prevents any residuum in the carbureter. The very extensive surface presented to the air by the wings of the reel allows the air to become thoroughly saturated with the vapor of the liquid, and enriched with all the carbon necessary to form a superior illuminating gas.

I am aware that gas-generating machines having carbureting chambers, with reels or stationary devices provided with candle-wick, canton flannel, or other capillary absorbent, have been used; and I do not claim as my invention such means of evaporation, or any particular method of operating such devices.

What I claim as my improvment is—

In combination with the valve *m*, the carbureter or vaporizing chamber A and reel B, constructed as shown and described, force-pump D and furnace R, the whole combined to operate substantially as and for the purpose specified.

WILLIAM SNODGRASS.

Witnesses:

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