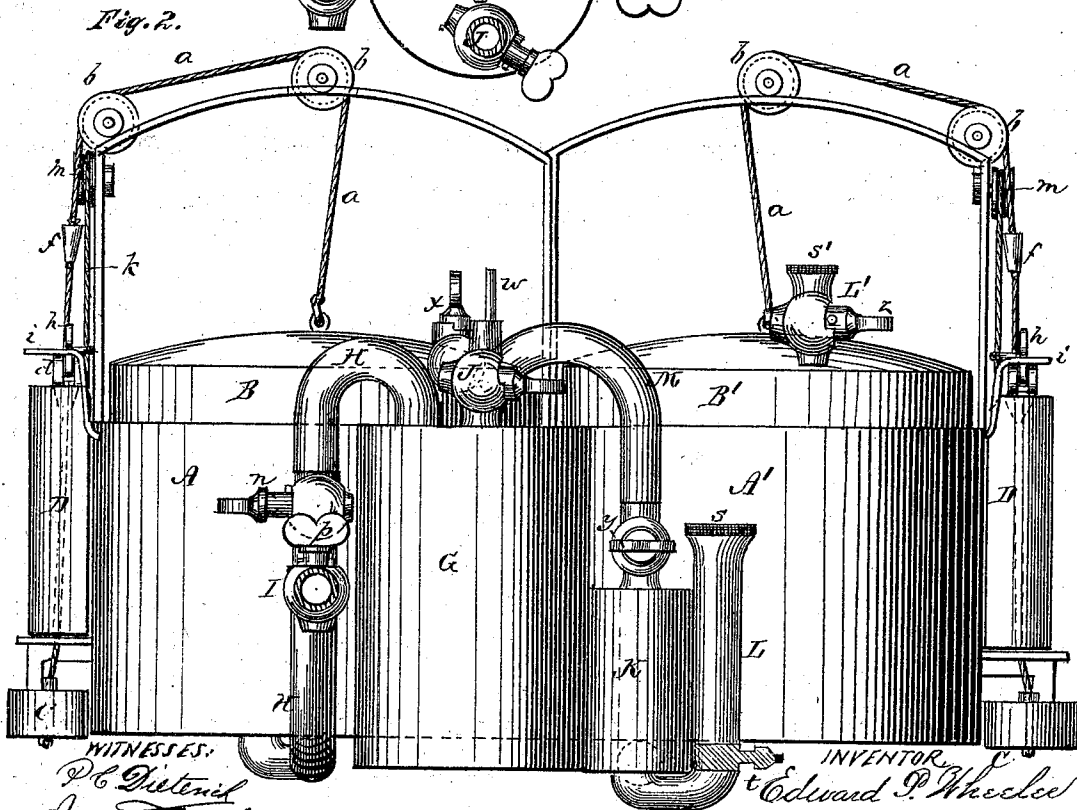
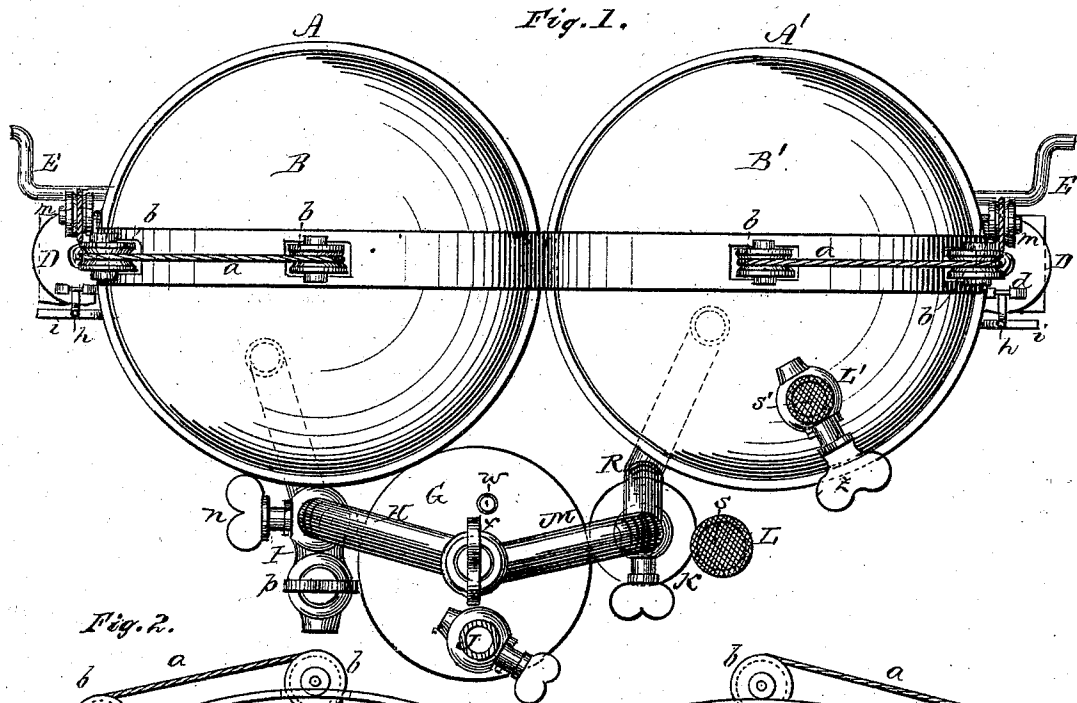


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No. 150,449.

Patented May 5, 1874.



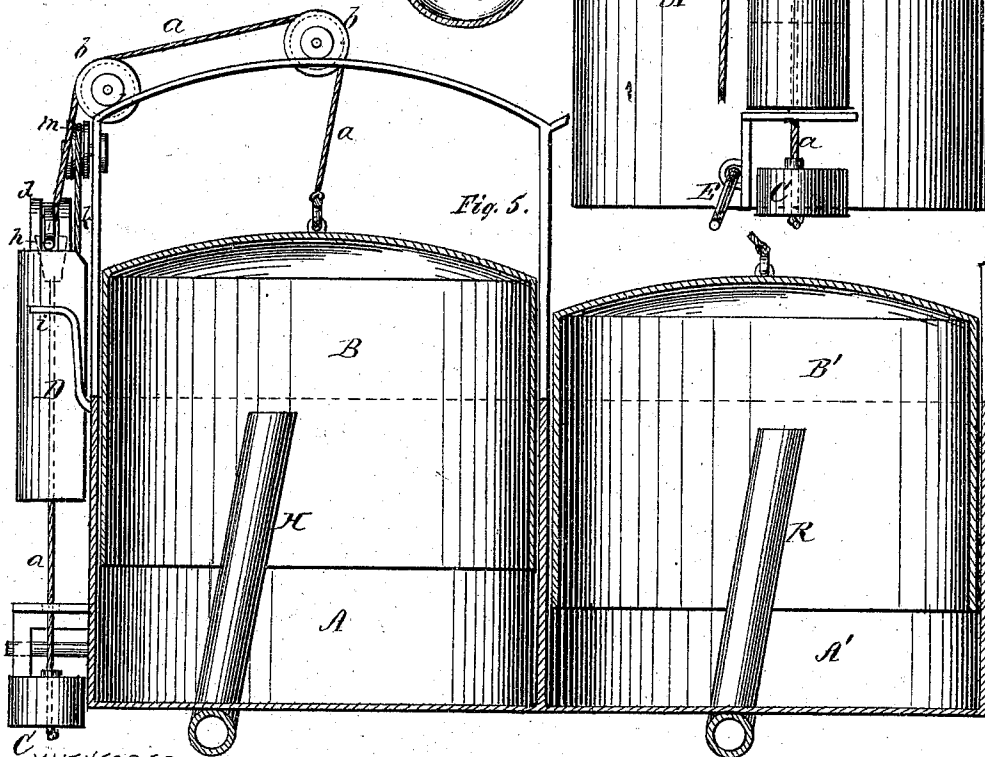
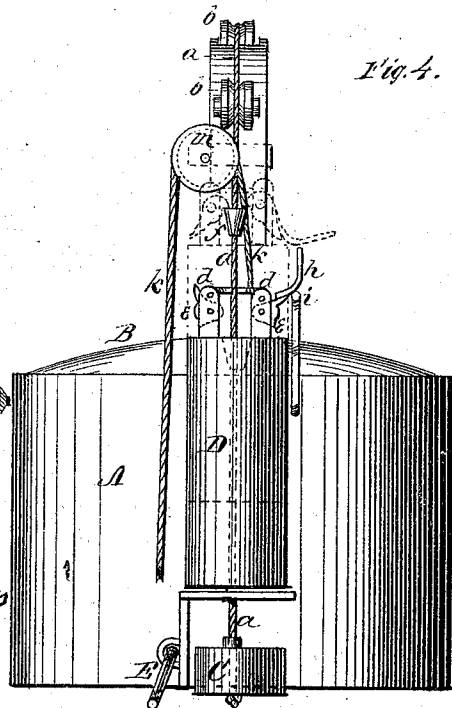
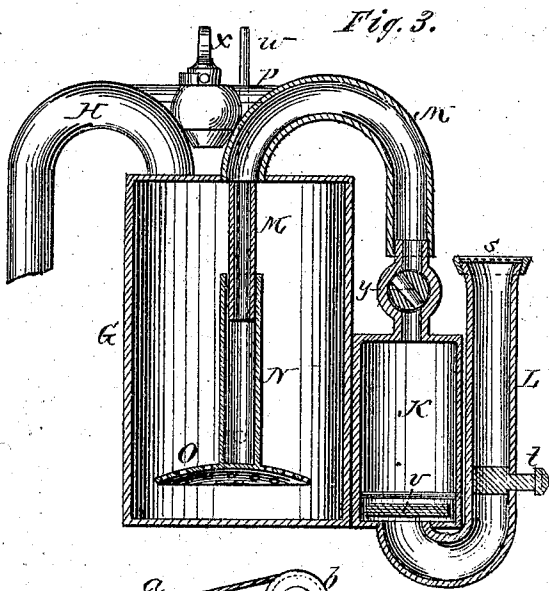
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# UNITED STATES PATENT OFFICE.

EDWARD P. WHEELER, OF CORINTH, MISSISSIPPI.

## IMPROVEMENT IN GAS-MACHINES OR CARBURETERS.

Specification forming part of Letters Patent No. **150,449**, dated May 5, 1874; application filed April 27, 1874.

*To all whom it may concern:*

Be it known that I, EDWARD P. WHEELER, of Corinth, in the county of Alcorn and State of Mississippi, have invented certain new and useful Improvements in Gas-Machine; 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 which it pertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The nature of my invention consists in the construction and arrangement of a machine for manufacturing illuminating-gas from gasoline or other light hydrocarbon liquids, as will be hereinafter more fully set forth.

In the accompanying drawing, Figure 1 is a plan view, and Fig. 2 a side elevation, of my entire machine. Fig. 3 is a vertical section through the gasoline-holder, air-chamber, and air-inlet tube. Fig. 4 is a side view of one of the gas-holders, showing the device for raising the gasometer. Fig. 5 is a longitudinal vertical section of the two gas-holders.

A and A' represent two gas-holders, provided with gasometers B B', respectively, of any suitable dimensions, and having the ordinary water-seals to prevent the escape of the gas. The gasometer B is suspended by means of a cord or chain, *a*, which passes over pulleys *b b*, and has a counterbalancing-weight, C, attached to its lower end, which also prevents the cord or chain from kinking under the elongated weight D, and preventing the gasometer from descending. The cord or chain *a* at the side of the gas-holder passes through a vertical central hole in an elongated weight, D, which, when not in use, rests upon a suitable stand, either attached to or erected at the side of the gas-holder. On the upper end of the weight D are two slotted or forked standards, *d d*, in each of which is pivoted a latch, *e*, which, when the weight is elevated, catch upon a conical piece, *f*, secured on the cord or chain *a*, and when thus suspended on said cord or chain, the weight D will pull the gasometer B upward, the weight descending until an arm, *h*, attached to one of the latches *e*, strikes a stop, *i*, when said latch is released from the cone *f*, allowing the weight D to rest

upon its stand, and the gasometer B will descend again in its holder. The weight D is raised, by means of a cord, *k*, attached to its upper end, and passing upward over a pulley, *m*, and then downward to a windlass, E, or other suitable device, by the turning of which the weight may be raised to be suspended and operate the gasometer, as above described. The gasometer B' is suspended and connected with precisely similar devices, which on the drawing are marked with the same letters. G represents the gasoline-tank, connected by a pipe, H, with the gas-holder A, said pipe passing from the top of the tank G to and through the bottom of the gas-holder, and upward into the same for a suitable distance. The pipe H is provided with a stop-cock, *n*, and between said stop-cock and the gas-holder in the pipe H is the branch pipe I, leading to the burners, and provided with a stop-cock, *p*. J is the inlet in the top of the tank G, through which the gasoline or other hydrocarbon liquid is admitted into the tank. K represents an air-chamber, into the bottom of which leads an air-tube, L, said tube standing in a vertical position, and curved at its lower end to enter the bottom of the air-chamber. The upper end of the air-tube L is covered by wire-cloth *s*, the meshes of which should be close enough to prevent the passage downward of any fire that might accidentally or otherwise be in the vicinity thereof. At a suitable point in the air-tube L is a stop-cock, *t*, and in the bottom of the air-chamber K, covering the end of the air-tube L in the same, is an upward-opening valve, *v*, as shown in Fig. 3.

For further security against fire, a sufficient quantity of water should be in the air-chamber and air-tube to cover the valve *v* and the stop-cock *t*.

From the top of the air-chamber K leads a pipe, M, to and through the top of the gasoline-tank G, and vertically downward into the same for a suitable distance. Surrounding the pipe M, within the tank G, is a tube, N, which may be moved up and down on the pipe, and should be provided with a suitable stuffing-box, so that no air or gas can pass between the two pipes. Around the lower end of the pipe N is secured a perforated diaphragm, O, which is made concave on its under side, as

shown in Fig. 3. The pipe N and diaphragm O are moved up and down on the pipe M by means of a rod, *w*, attached to them, and passing up through a stuffing-box in the top of the gasoline-tank. The pipes M and H are connected by means of a short pipe, P, in which is a stop-cock, *x*. In the pipe M, near the air-chamber, is a stop-cock, *y*, and between said stop-cock and the connecting-pipe P a pipe, R, leads from said pipe M downward to and through the bottom of the gas-holder A', and upward into the same for a suitable distance. In the top of the gasometer B' is an air-pipe, L', provided with a stop-cock, *z*, and its upper end covered with wire-cloth *s'*.

The operation of the machine is as follows: The desired quantity of gasoline or other suitable hydrocarbon liquid is placed in the tank G, after which the stop-cocks J, *x*, *p*, and *z* are closed, and the stop-cocks *t*, *y*, and *n* are opened. The weight D, connected with the gasometer B, is then elevated, as above described, until it becomes suspended from the cone *f* on the cord or chain *a*. The gasometer B will then gradually ascend, creating a vacuum in the gas-holder A, which causes a suction of air through the air-tube L into the air-chamber K, and from thence through the pipe M into the gasoline in the tank G. The air coming through the end of the pipe M is momentarily retained in the gasoline by the concave perforated diaphragm O; then, passing through the gasoline and said diaphragm, it rises above the gasoline in the form of carbureted hydrogen or illuminating-gas, and is drawn through the pipe H into the gas-holder A.

By means of the movable pipe N, surrounding the pipe M within the tank G, said pipe M may be, so to say, lengthened or shortened at will, whereby the gravity of the gas is increased or diminished at will. By lowering the tube N and diaphragm O the gravity of the gas is increased, and by raising them it is diminished, as thereby the time that the air will remain in the gasoline and the distance it has to pass through are increased or shortened.

When the gasometer B has been raised to its full height, the weight D is automatically disengaged, as already described, and all the stop-cocks are closed, leaving the gas-holder A full of illuminating-gas. By now opening the stop-cock *p* the gas will pass to the burners, and, as it is consumed, the gasometer B descends, and maintains at all times the requisite pressure on the gas. When the gas is all or nearly all consumed, the same operation is repeated.

The gas-holder may be made of any desired size, so as to hold gas enough for one or more days, as required.

Before the gas-holder is filled with gas, the stop-cock *p* should be opened and the gas tested, whether it is too heavy or too light, or of the desired gravity. If the latter, then the operation is continued till completed, as just described. If the gas is too heavy, more air

should be added to it, and this is done by simply closing the stop-cocks *t* and *y*, and opening the stop-cocks *z* and *x*, when air will be drawn in through the pipe L' to the holder A', and from thence pass through the pipes R M P H to the gas-holder A, without passing through the gasoline, and in said gas-holder A mix with the gas therein until the same is filled and the weight released, as before, when all the stop-cocks are closed. If the gas, when testing, is found to be too light, or, in other words, of not sufficient gravity to give a good light, the operation of filling the gas-holder A is continued until the weight is released. The stop-cock *n* is then allowed to remain open while all the others are closed. The gasometer B' is now gradually raised by means of its weight D, in the same manner as described for the gasometer B, thereby creating a vacuum in the holder A', causing a suction, which draws the gas from the holder A through the pipe H into the tank G, through the gasoline in the same, under the perforated diaphragm O, and through the pipes M R into the holder A'. When this becomes filled, the gasometer B has descended clear down, and the weight of the gasometer B' is automatically released. If necessary, the gas is then passed, in like manner, once more through the gasoline back to the holder A, from whence it is distributed to the burners, as already described; but if not necessary to pass it the second time back through the gasoline, the stop-cocks *x* and *n* are opened, allowing it to be forced direct to the burners without going through the tank. If it is not necessary to pass all the gas from the holder A through the gasoline to the holder A', to obtain the desired gravity, the operation may be stopped at any time by releasing one weight and applying the other, and opening the stop-cock *x*, when the gas in the holder A' is drawn back into the holder A.

The air may be forced and drawn from the gas-holder A' to the gas-holder A, and passing through the tank G on its way, instead of drawing it through the air-tube L and chamber K.

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

1. The tank G and pipes H and M, tube N, and diaphragm O, in combination with the gasometer B, substantially as and for the purpose specified.

2. The combination of the weight D, latches *e e*, cone *f* on the cord or chain *a*, arm *h*, and stop *i*, all constructed and operating substantially as and for the purposes herein set forth.

3. The tank G, with pipes M and N, and sliding diaphragm O, in combination with the pipe L, provided with stop-cock *t* and perforated top *s*, all constructed and arranged as and for the purpose set forth.

4. In a gas-machine, the gas-holders A A', and gasometers B B', cords *a*, and pulleys *b*, and weights D, in combination with pipes H,

M, P, and L, tank G, and air-chamber K, with the several stop-cocks, all as and for the purpose set forth.

5. The gasometer B, and cord or chain *a*, and pulleys *b*, in combination with elongated weight D, with cord passing through the weight, and stop *i*, latch *e*, conical piece *f*, and weight C, substantially as and for the purpose specified.

In testimony that I claim the foregoing as my own I hereby affix my signature in presence of two witnesses.

EDWARD P. WHEELER.

Witnesses:

C. H. WATSON,  
L. TOWLE.