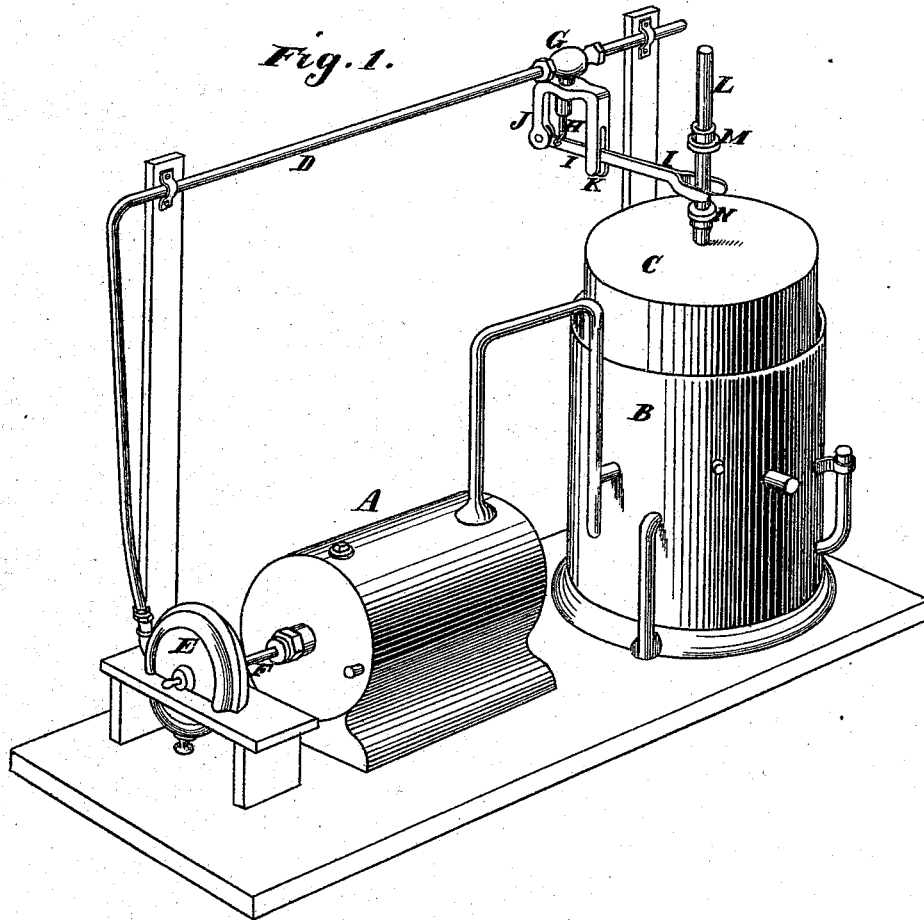


R. HEWSON.

Automatic Air-Blast for Gas-Machines.

No. 162,922.

Patented May 4, 1875.



Witnesses

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# UNITED STATES PATENT OFFICE.

ROBERT HEWSON, OF SAN FRANCISCO, CALIFORNIA.

## IMPROVEMENT IN AUTOMATIC AIR-BLASTS FOR GAS-MACHINES.

Specification forming part of Letters Patent No. **162,922**, dated May 4, 1875; application filed November 10, 1874.

*To all whom it may concern:*

Be it known that I, ROBERT HEWSON, of San Francisco city and county, State of California, have invented a Device for Operating and Regulating the Supply of Air for Gas-Machines; and I do hereby declare the following description and accompanying drawings are sufficient to enable any person skilled in the art or science to which it most nearly appertains to make and use my said invention without further invention or experiment.

My invention relates to a novel motor for driving the air-compressor of gas-machines, and also to a regulating device, by which the supply of air is automatically increased or diminished; and it consists in the several combinations of devices hereinafter described and explained.

Referring to the accompanying drawings for a more complete explanation of my invention, the figure is a perspective view of my invention.

A is the air-compressor of any gas-machine, and B is a tank or vessel holding water, within which the air-reservoir C moves up and down as the volume of air increases or diminishes. The air is led from this reservoir to the body of gasoline which is to saturate it with vapor by suitable pipes.

In order to do away with the costly train of gearing and weights which are usually employed to drive the air-compressor, and produce a cheap, simple, and easily-managed power, I employ a water-wheel of any suitable design; but I prefer to use the wheel known as the hurdy-gurdy wheel, which runs in an inclosed case, and is driven by the momentum of a small stream of water, which is brought to it through a pipe, D, either from the city water-pipes, or, if used in the country, from a tank having sufficient elevation to give the desired pressure. This wheel E is secured directly to the end of the shaft F, which extends out from the compressor A, and thus drives this shaft and the air-forcing machinery. The water-supply pipe D has a valve or gate at G, and the operating-stem H extends down through a stuffing-box, as shown. The lever I, to which this stem is attached, has its fulcrum at J, and passes through the guide K, so as to extend across above the receiver C.

The receiver has a spindle, L, extending upward from the center, and this spindle is provided with two collars, M and N, situated a short distance apart. Between these collars the forked end of the lever I extends upon each side of the stem L.

The operation will be as follows: Water being turned on, the wheel E commences to revolve and operate the air-forcing mechanism within the compressor A until the receiver C is filled to the proper height. As the receiver rises, the collar N upon the spindle L will lift the lever I, and by its action upon the stem H will gradually close the gate at G until the wheel E nearly or quite ceases to move. The receiver will then begin to descend as its air is forced out; but the lever I will remain at the point where the collar N has left it until the collar M strikes it, when it will fall down suddenly, and thus open the water-gate at once, allowing a full head of water to strike the wheel E.

By means of this device I am enabled to render the working of gas-machines automatic, and no attention will be necessary to the mechanical portion of the apparatus.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is, not a water-wheel of any special construction, but—

1. In combination with the air-compressor A, provided with the shaft F, the external water-wheel E and pipe D, provided with the valve G and stem H, substantially as and for the purpose set forth.

2. The gate G, with its stem H and operating-lever I, in combination with the receiver C, provided with the spindle L, and the collars M and N, substantially as and for the purpose herein described.

3. In combination with an air-forcing mechanism of a gas-machine, the mechanism for rendering the machine automatic, consisting essentially of water-wheel E, pipe D, gate G, stems H and L, and operating lever I, substantially as herein described.

ROBERT HEWSON.

Witnesses:

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C. M. RICHARDSON.