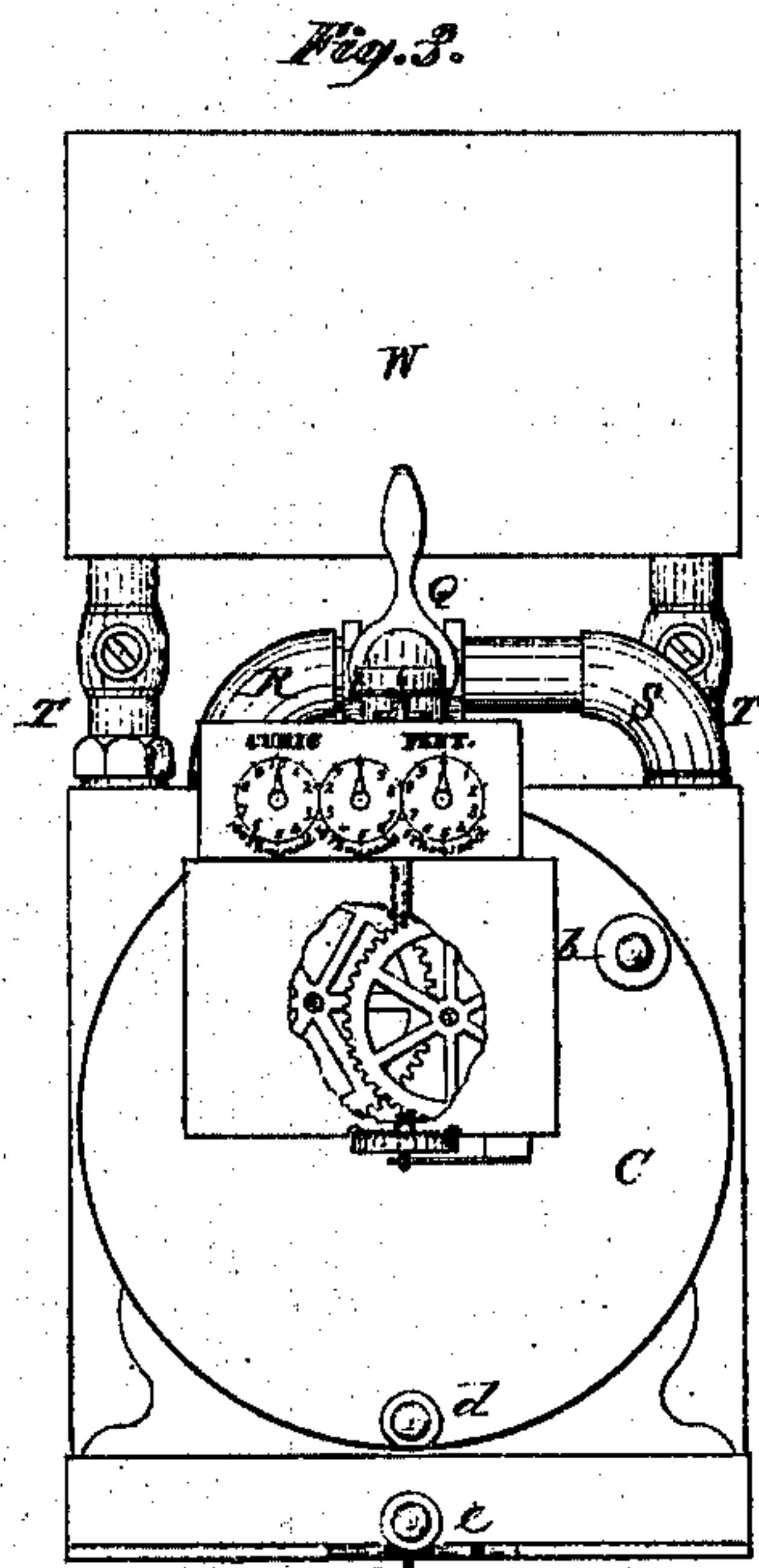
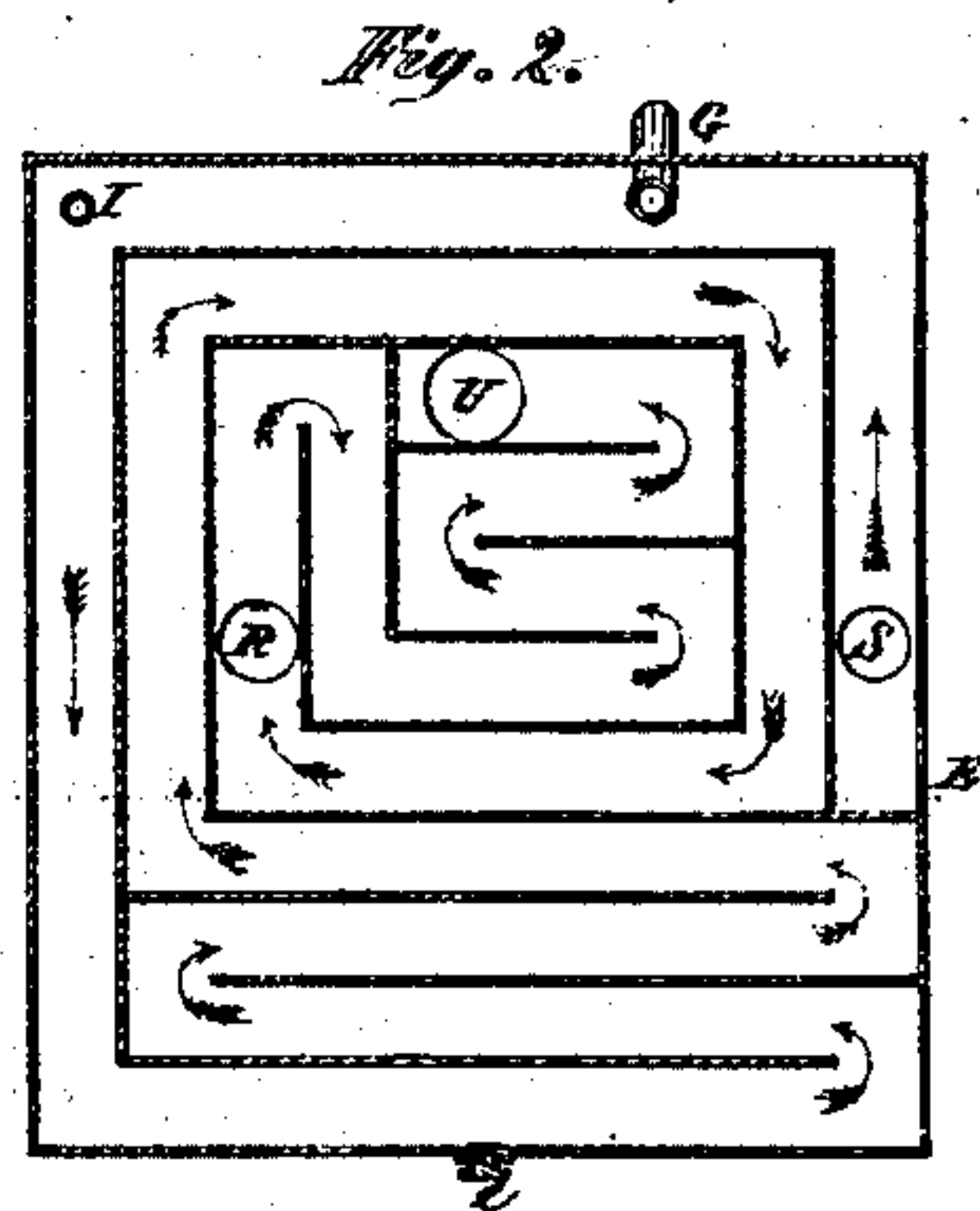
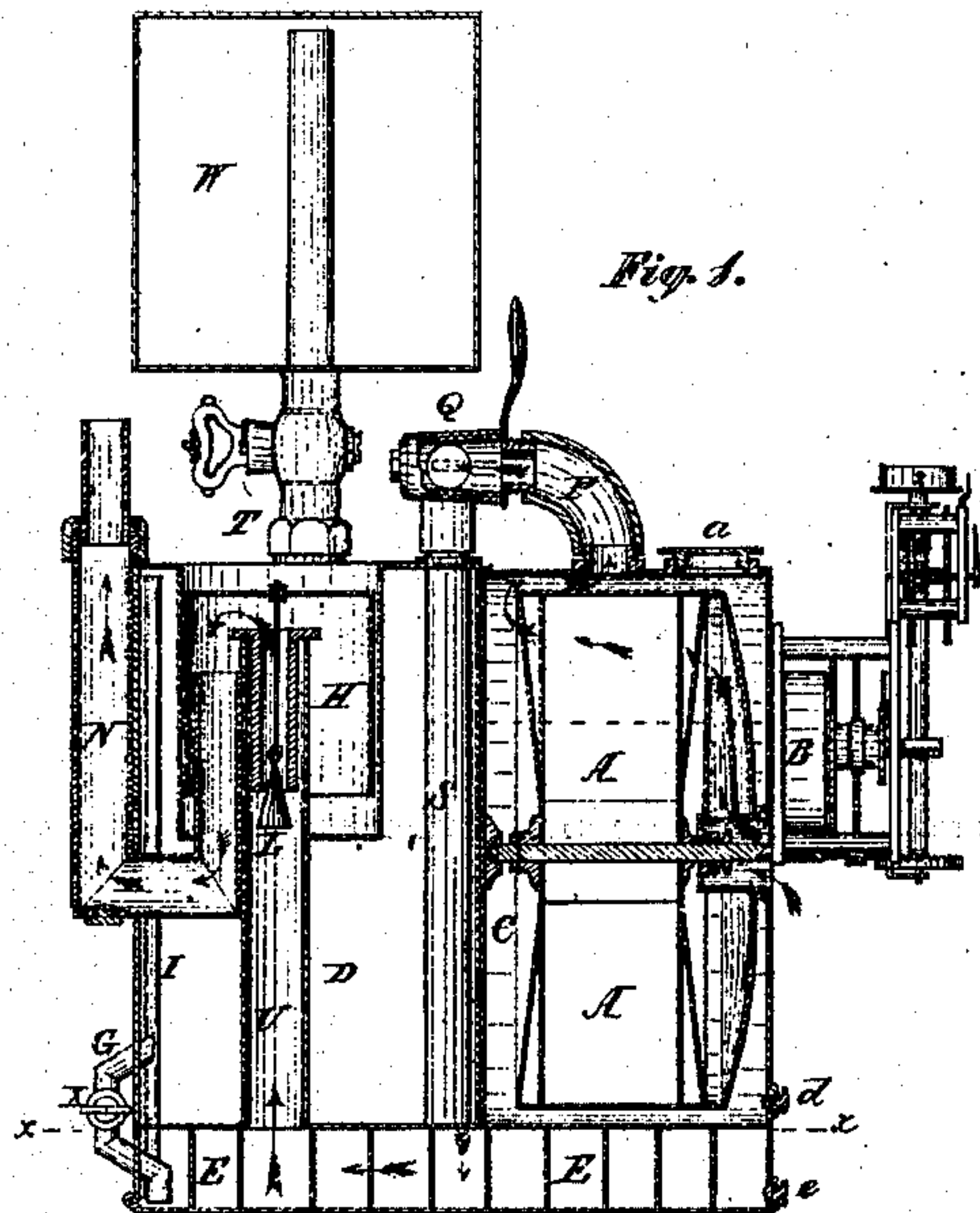


R. H. Flass,

Carburetor.

No. 104642.

Patented June 21. 1870.



Inventor.

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UNITED STATES PATENT OFFICE.

REUBEN H. PLASS, OF NEW YORK, N. Y.

IMPROVED APPARATUS FOR CARBURETING AIR.

Specification forming part of Letters Patent No. **104,642**, dated June 21, 1870; antedated June 11, 1870.

To all whom it may concern:

Be it known that I, REUBEN H. PLASS, of the city, county, and State of New York, have invented a new and useful Apparatus for Producing and Registering Illuminating-Gas and Safety-Filling Can, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, and in which—

Figure 1 represents a central vertical section of my apparatus, taken parallel with the axis of the meter-wheel. Fig. 2 is a front view of the same with the face-plate of the registering apparatus removed or broken away. Fig. 3 is a horizontal section through the carbureting-chamber, taken on the line *x* of Fig. 1.

The same letters indicate like parts wherever they occur.

The object of this invention is to produce a simple, cheap, and effective portable apparatus that may be used with economy for illuminating dwellings or other buildings, and with perfect safety, by any person competent to fill an ordinary lamp and wind up a clock; and it consists in a novel arrangement of devices for carbureting atmospheric air, decomposed steam, or ordinary street-gas, having also a pressure-regulator, a means of adjusting the density, and an indicator for registering the consumption, all in one apparatus; furthermore, in various details of construction and combination of parts to produce the desired results, all of which will be more fully described hereinafter.

In order to enable others to make and use my invention, I will describe it by referring to the drawings, in which A represents an ordinary gas-measuring wheel or drum, partially submerged in water or some non-evaporative fluid; or in place of which a flexible diaphragm, as in the ordinary dry-meter, may be substituted. This wheel or diaphragm has motion imparted to it by a spring, B, or weight and pulley movement, when dependent on a supply of ordinary atmospheric air, or by the force of compressed air or gas supplied to its inclosing-chamber C, by or through pipes connected at or around its axis; and on the axis of this measuring-wheel or diaphragm is pro-

vided suitable gearing for registering the quantity of air, gas, or other fluid passed therethrough, as represented in Fig. 1, similar to an ordinary gas-meter. The air, gas, or steam thus passed through the measuring apparatus makes its exit through the regulating-cock Q, and down one or both of the tubes R and S, by which means the density of the gas may be regulated, as hereinafter more fully explained.

In rear or at back of the chamber containing or in which the measuring-wheel or diaphragm operates is a chamber or reservoir, D, for containing and supplying the hydrocarbon automatically to the carbureting-pan E, which is arranged in the base of the apparatus, and consists of a series of channels, forming a circuitous passage, through which the air or steam passes over the surface of the liquid hydrocarbon, said channels being filled with some suitable material to promote capillary action, and thus present to the passing aeriform fluid the largest possible surface from which to absorb the carbon.

The reservoir D is an air-tight chamber communicating with the carbonizing-pans E by a pipe or pipes, G, which are so arranged as to be self-sealing, to prevent flow of the liquids beyond a certain required quantity, and are provided with stop-cocks, to be closed whenever it may be necessary to recharge said reservoir. This reservoir D, being of a fountain or air-tight character, and supplying the carbonizing chamber or chambers automatically, in order to avoid the interruption to the flow of liquid through the pipes G, I provide an air pipe or vent, I, which is also self-sealing—that is, having its lower end to dip into the fluid in the carbonizing-pan to about the same depth as the feed-pipes G, and extending upward to near the top of the reservoir D—by which air is supplied to allow the hydrocarbon to descend.

When this apparatus is to be used on railway-cars, steamboats, &c., I use what is termed in the market "Excelsior," or other similar fibrous material, in the reservoir D, as well as in the carbonizing-pans E, to prevent the hydrocarbon from swaying about by the motion of the vessel or car.

In the upper part of the reservoir or cham-

ber D is arranged a pressure-regulator, H, constructed on any of the well-known plans—such as the inverted cup sealed with a non-evaporable fluid, or a flexible air-diaphragm controlling an escape or discharge valve, L—and in such manner that the discharge or escape may be regulated to any desired pressure, the air or steam thus carbureted passing up pipe U, through said regulator, into the service-pipe N.

The measuring-chamber C communicates with the carbureting-pan E by means of a pipe, P, having two branches, R S, controlled by a three-way cock, Q, the branch S being so arranged as to pass the air or steam through the entire length of the carbonizing-channel and the branch R, through about one-half of the distance, so that by the adjustment of the cock Q any desired amount of carbonization may be obtained by passing the entire current through either one of said pipes, or part through each.

In order to replenish the reservoir D with hydrocarbon without necessitating a stoppage of the flow of gas, I provide it with two apertures, T T, having screw-nozzles, on which may be fitted a can, W, also having corresponding nozzles and stop-cocks, one of which is extended into the can to its upper end, so as to act as an air-vent to allow its contents to flow through the other into the reservoir D. In extremely cold weather I also contemplate the application of heat, by lamp or otherwise, to the carbureting pans or channels, to assist the evaporation of the hydrocarbon when necessary.

Among the minor details of my apparatus are the plug *a*, for charging the measuring-chamber C with fluid, the plug *b*, for ascertaining its proper level, a plug, *d*, for drawing off such fluid when necessary, and a plug, *e*, for drawing off the hydrocarbon from the pans E.

The operation of the machine will then be as follows: The meter-chamber is first charged with water, glycerine, or other suitable liquid through the plug *a* up to the level of plug *b*, and the reservoir D filled, or partially so, with liquid hydrocarbon, the several plugs and stoppers replaced, and the spring wound up, by

which, when vent is given at the burners connected with the service-pipe N, the meter-wheel or diaphragm will be put in motion, supplying air through the cock Q and branch pipe or pipes R S to the carbureting pan or pans E. At the same time the cocks X are opened to allow the hydrocarbon liquid to flow down from the reservoir and form a thin layer in the bottom of the carbureting-pan, as before described. The air thus fed in traverses its surface, absorbing the necessary quantity of carbon, and passes through the pipe U to the pressure-regulator H, when its escape is controlled by a suitable valve, L, operated by the inverted cup or diaphragm, which may be weighted to any desired pressure.

This apparatus may also be used for enriching the ordinary street-gas, or may be supplied with compressed air from the mains where such is obtainable, in either of which cases the spring or weight and pulley for giving motion to the meter-wheel A may be dispensed with, the pressure of the incoming gas or compressed air being sufficient to communicate motion to said wheel. Other portions of the apparatus may be used without the registering-gear, as that is not essential to its operation.

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

1. The arrangement of the air-supplying chamber C, hydrocarbon chamber or reservoir D, and carbureting-chamber E, as herein shown and described.

2. The arrangement of the passages P R S and cock Q, in combination with the air or gas supply chamber C and carbureting-chamber E, whereby the air or gas may be caused to traverse the entire length of the channels in the latter or only a portion thereof, as shown and described.

3. The arrangement of the pressure-regulating chamber H within the hydrocarbon-reservoir D, and with relation to the carbureting-chambers E and air-supply chamber C, as shown and described.

REUBEN H. PLASS.

Witnesses:

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