

H. B. MYER.

Apparatus for Generating Illuminating Gas.

No. 57,551.

Patented Aug. 28, 1866.

Fig. 1

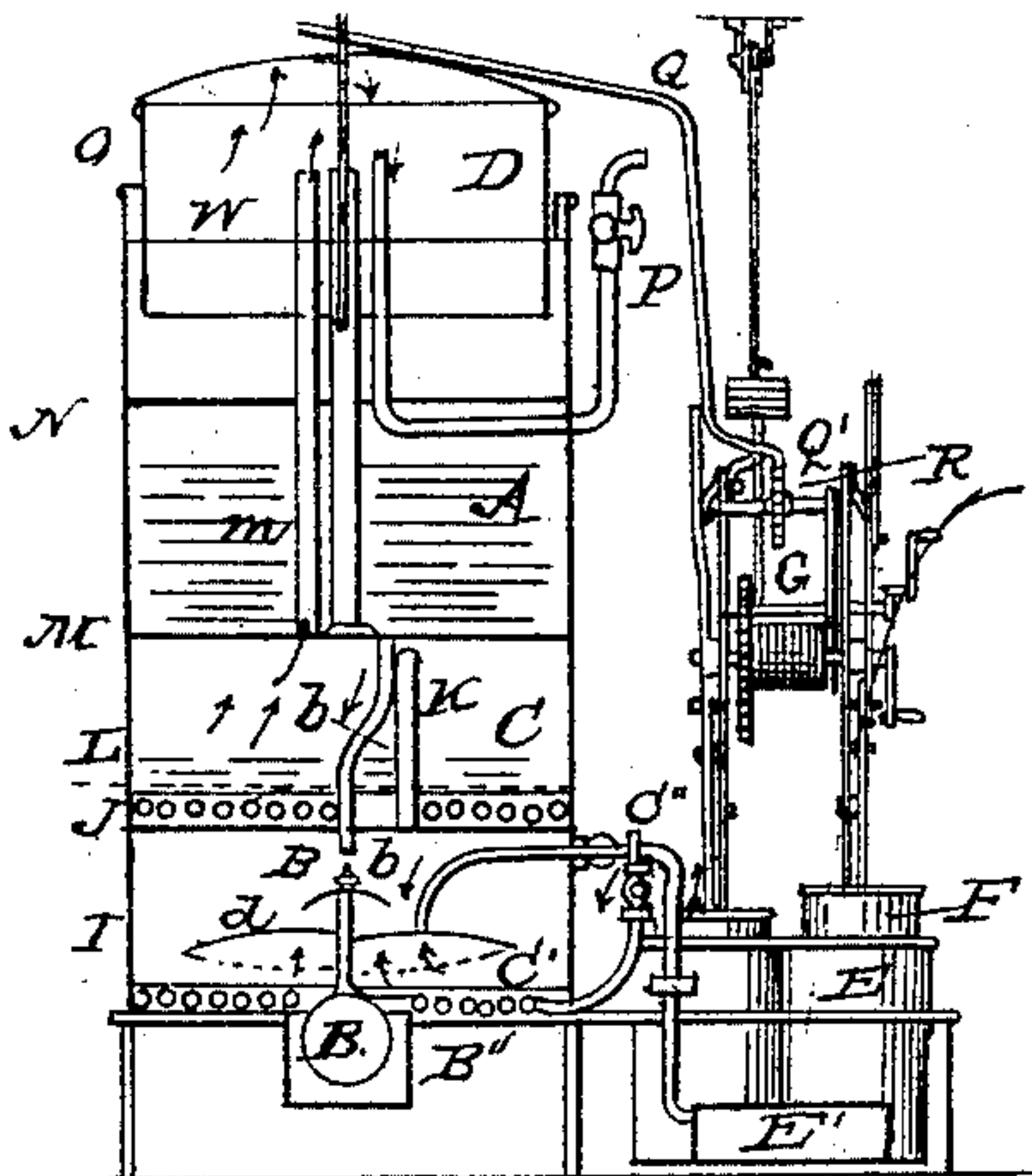


Fig. 2

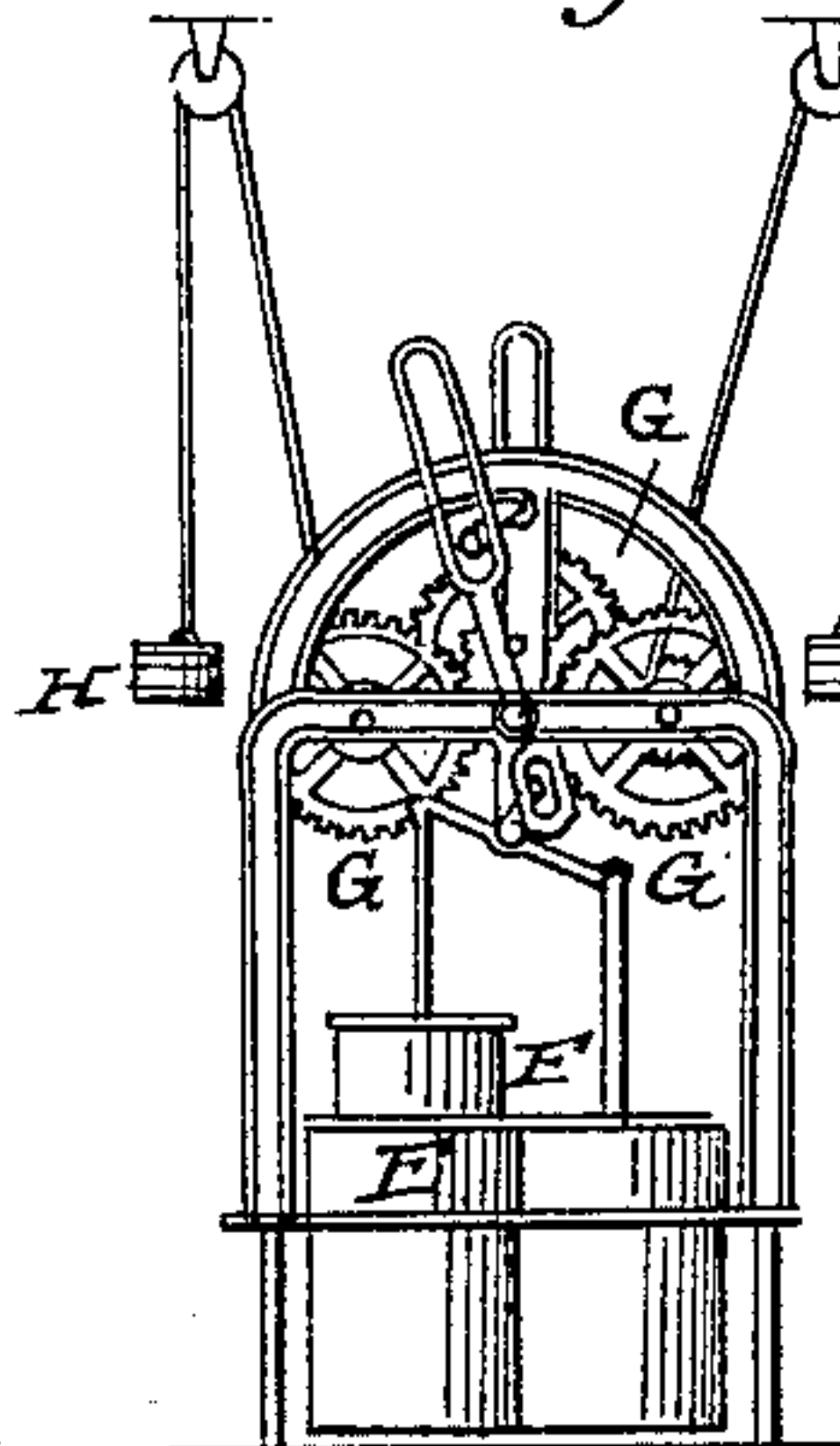


Fig. 3

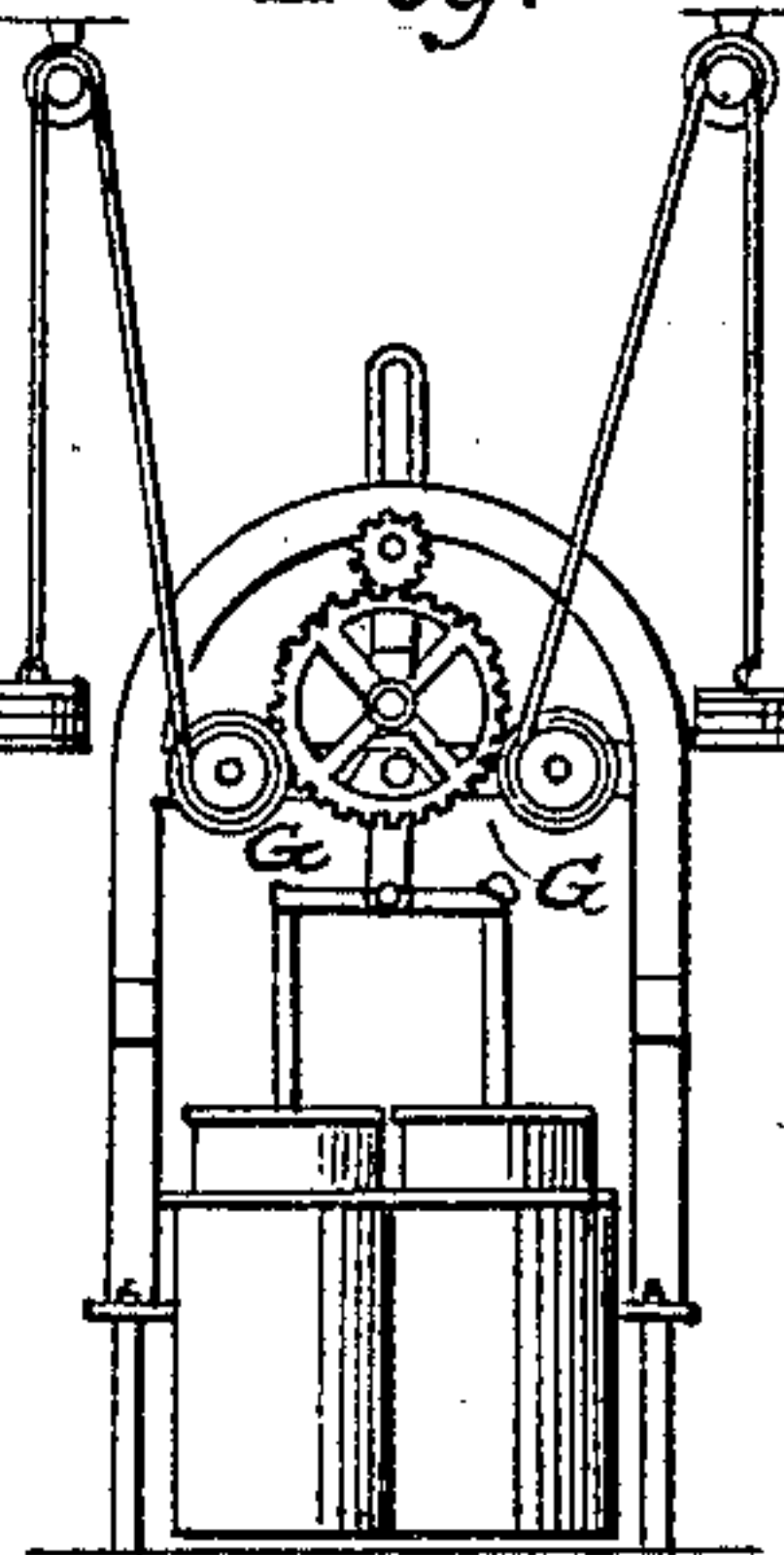


Fig. 4

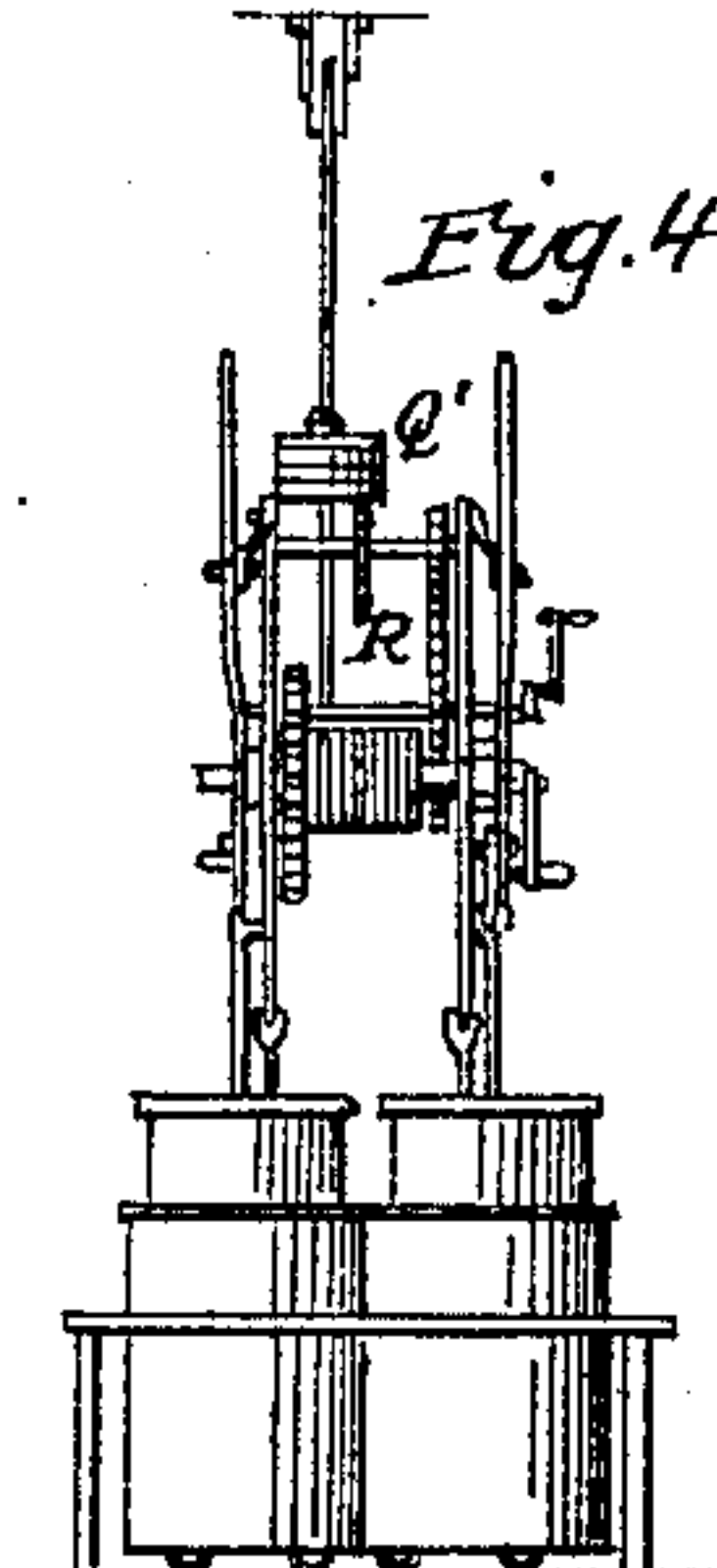


Fig. 5

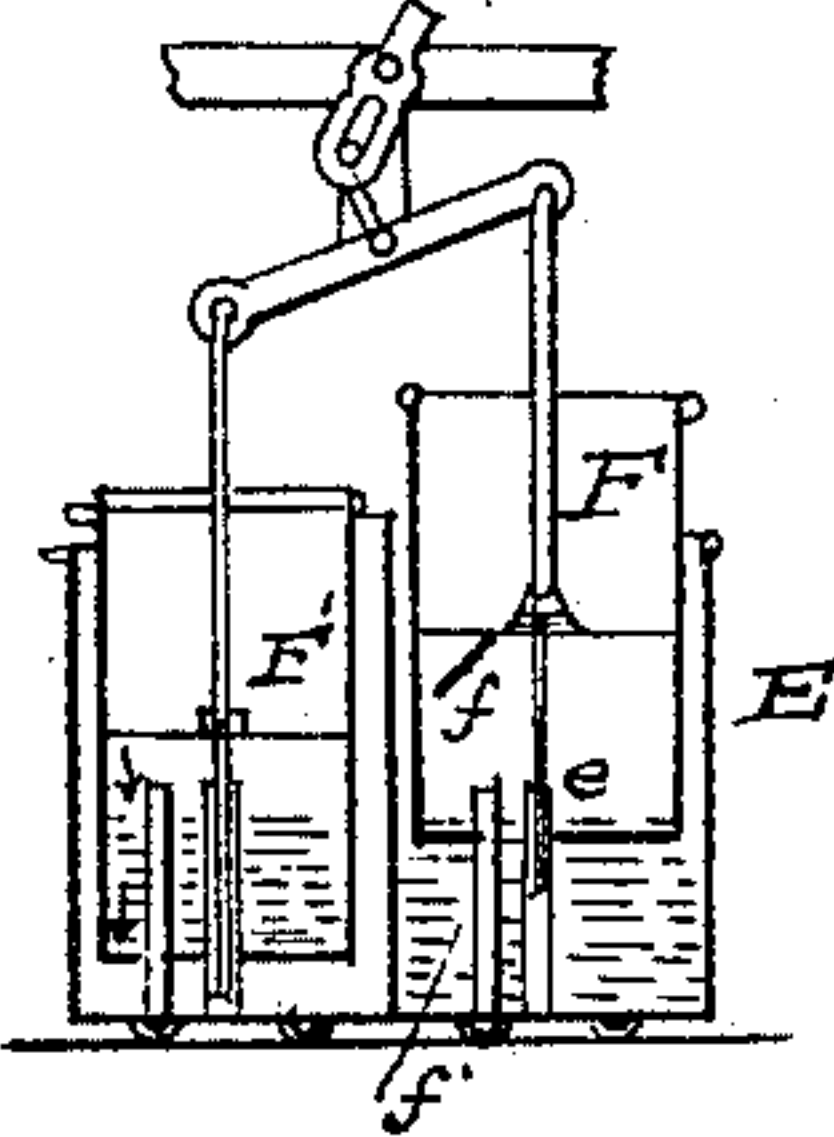


Fig. 6

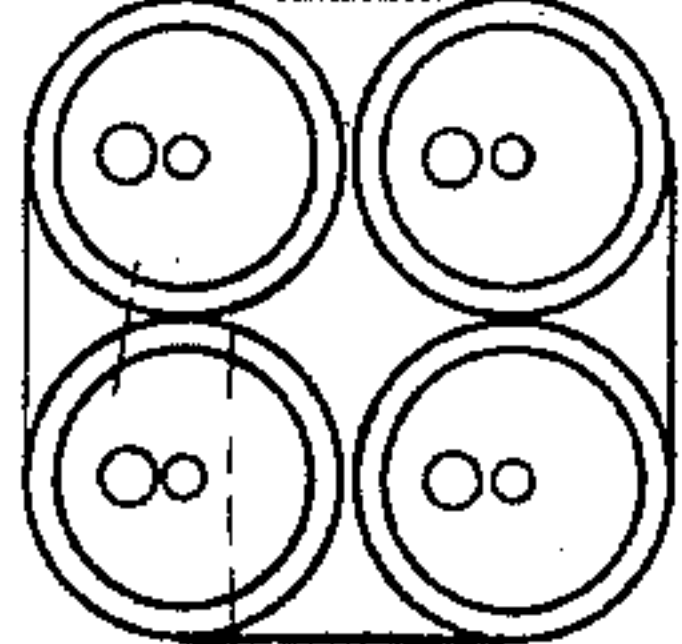


Fig. 7

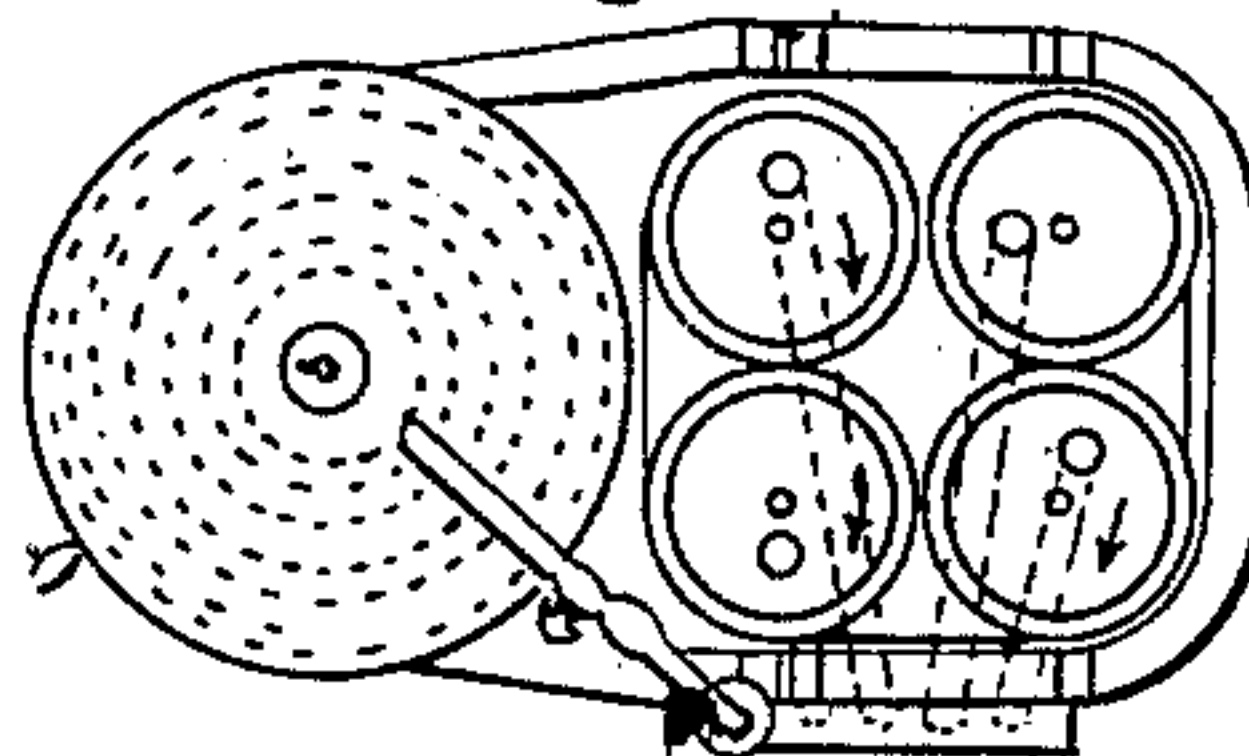


Fig. 18

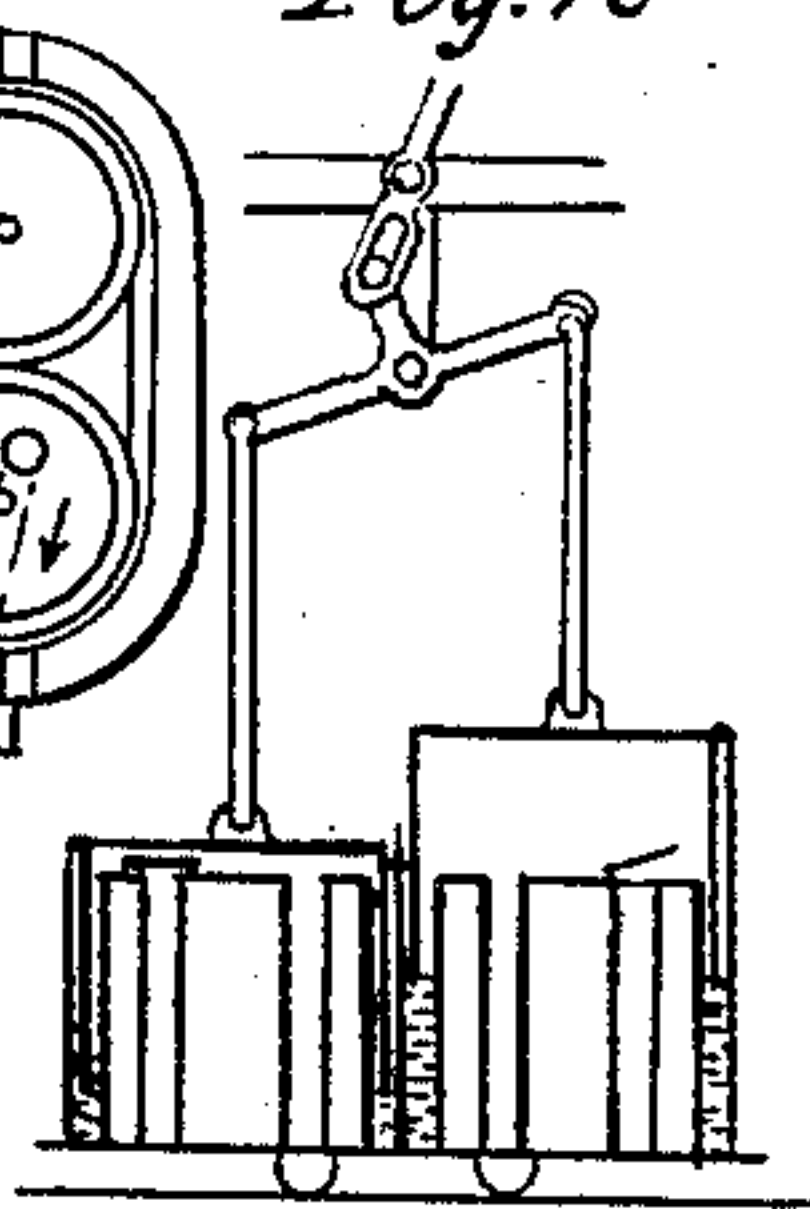


Fig. 8

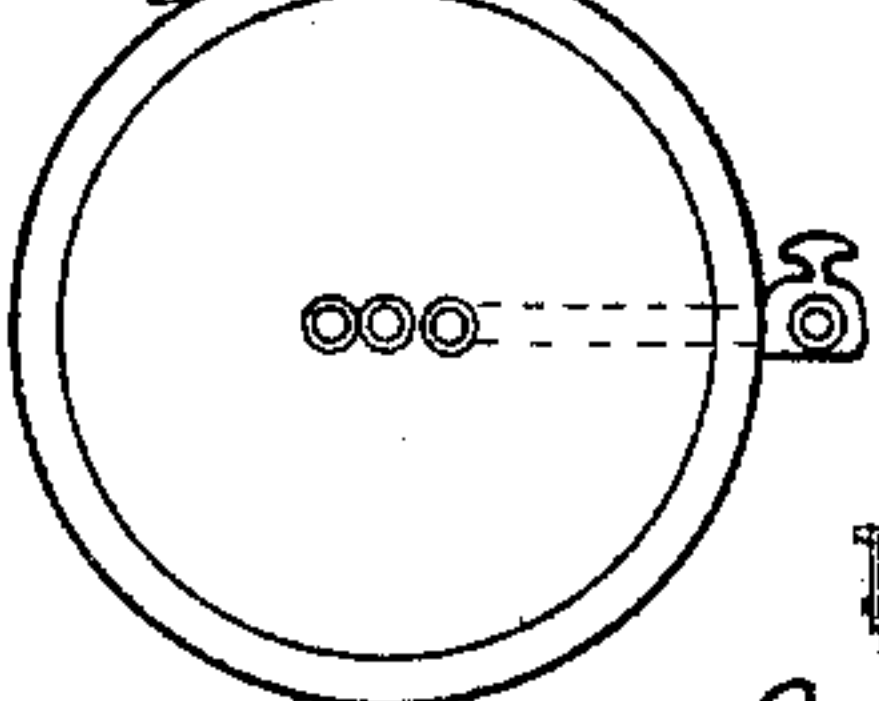


Fig. 9

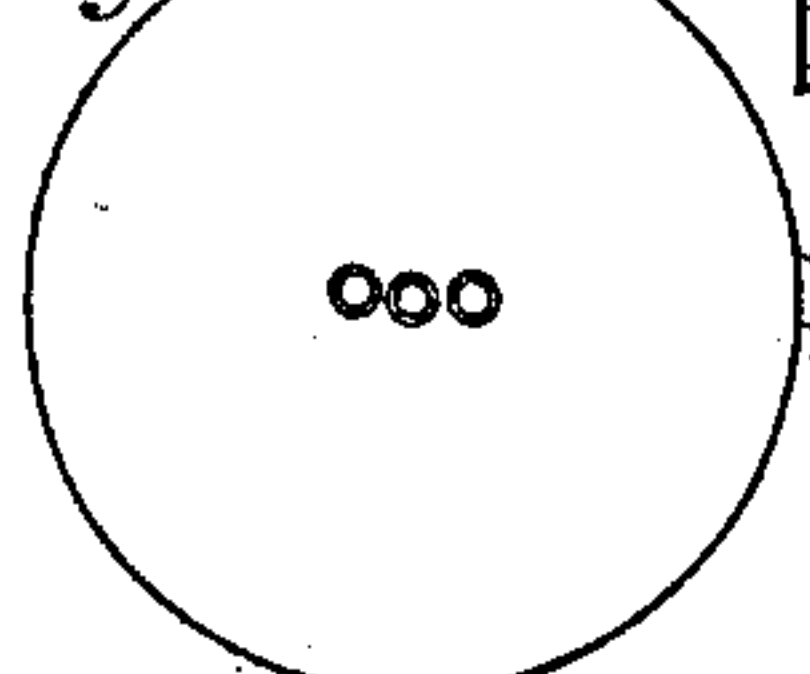


Fig. 10

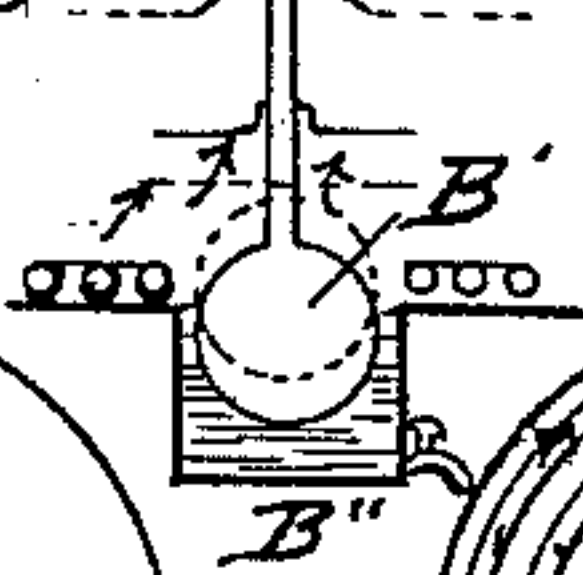


Fig. 11

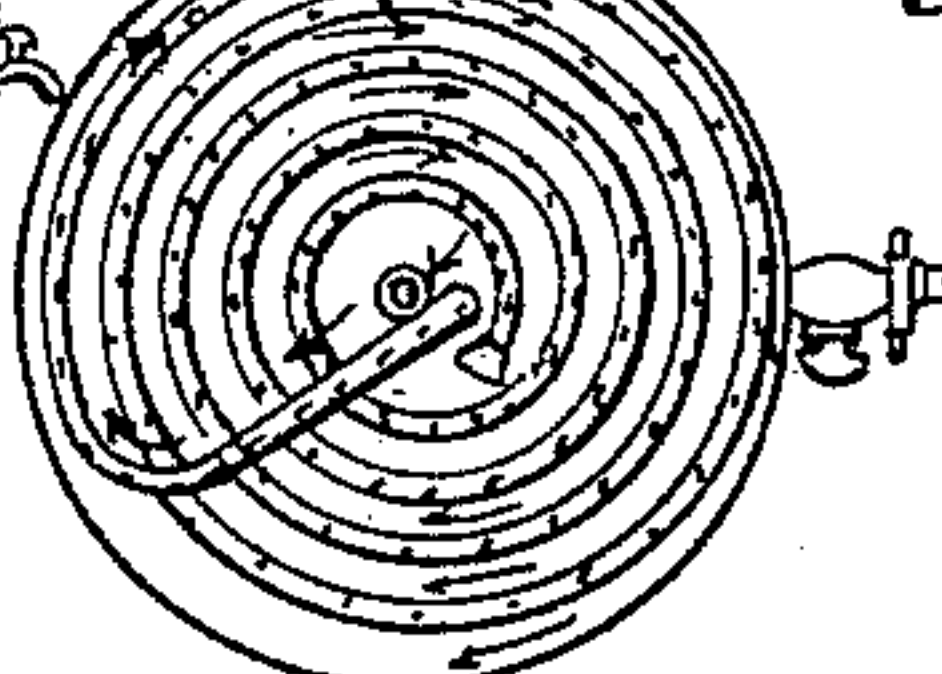


Fig. 12

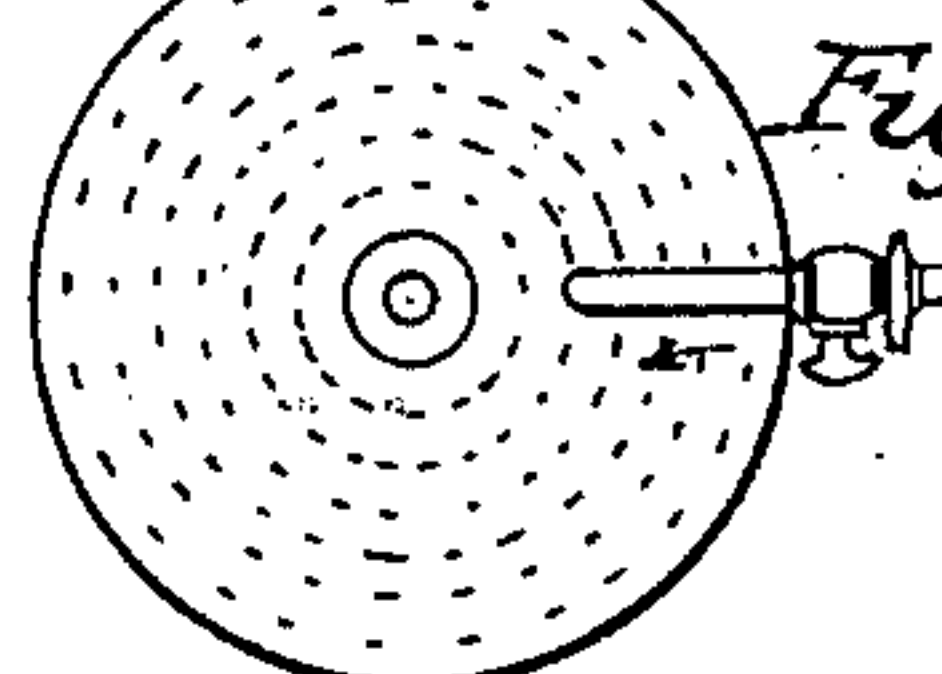


Fig. 13

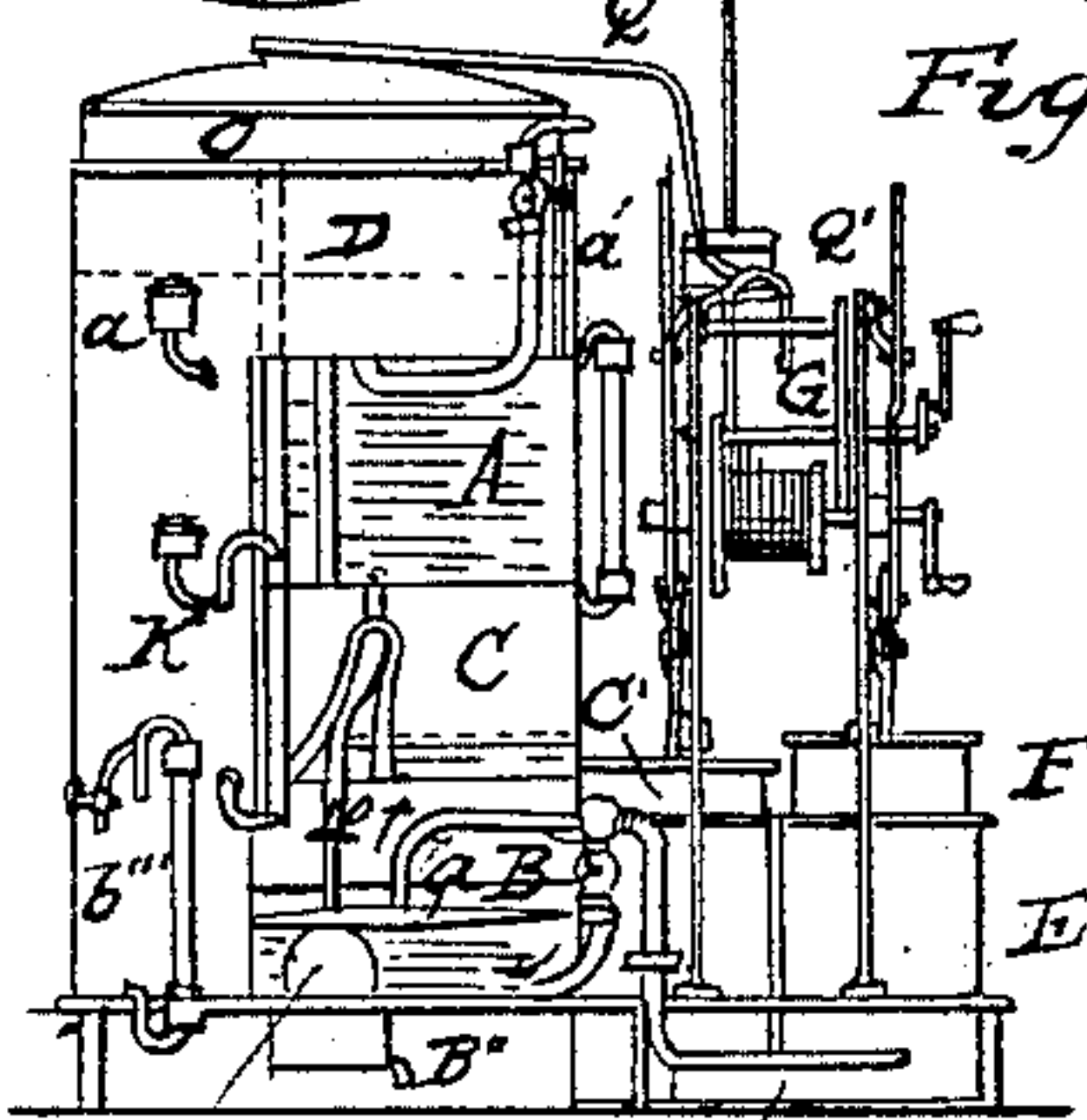


Fig. 16

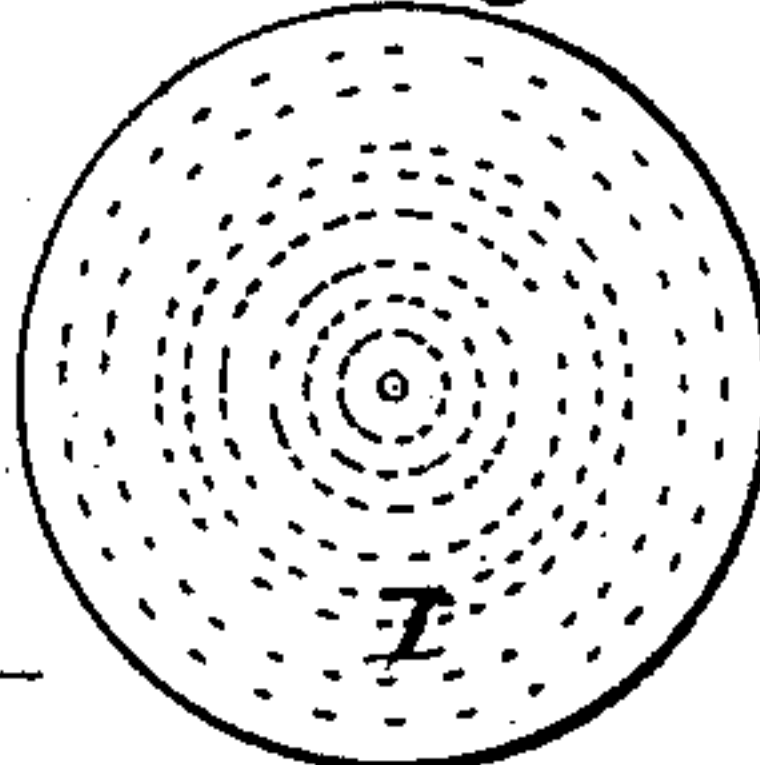


Fig. 17

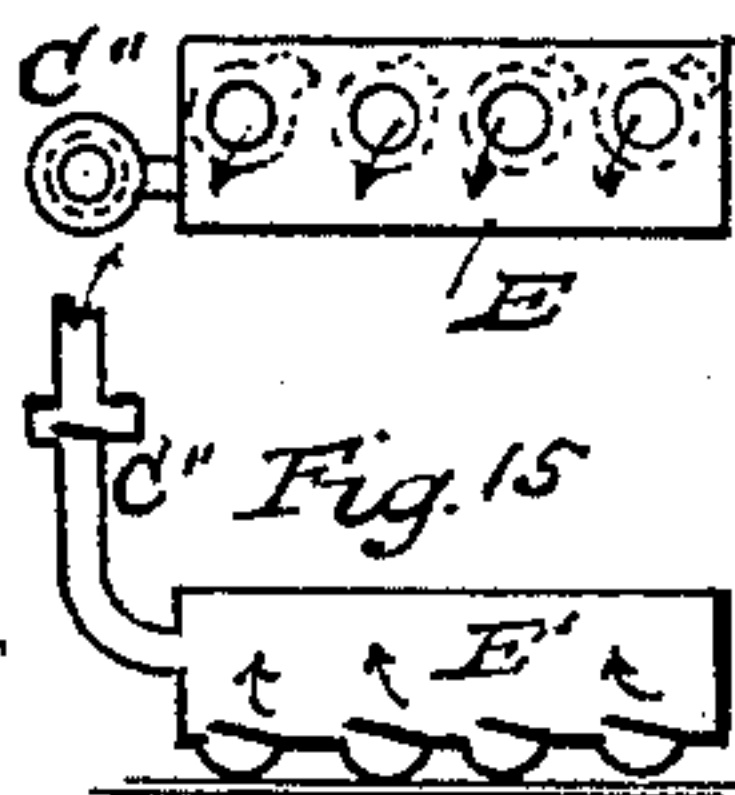
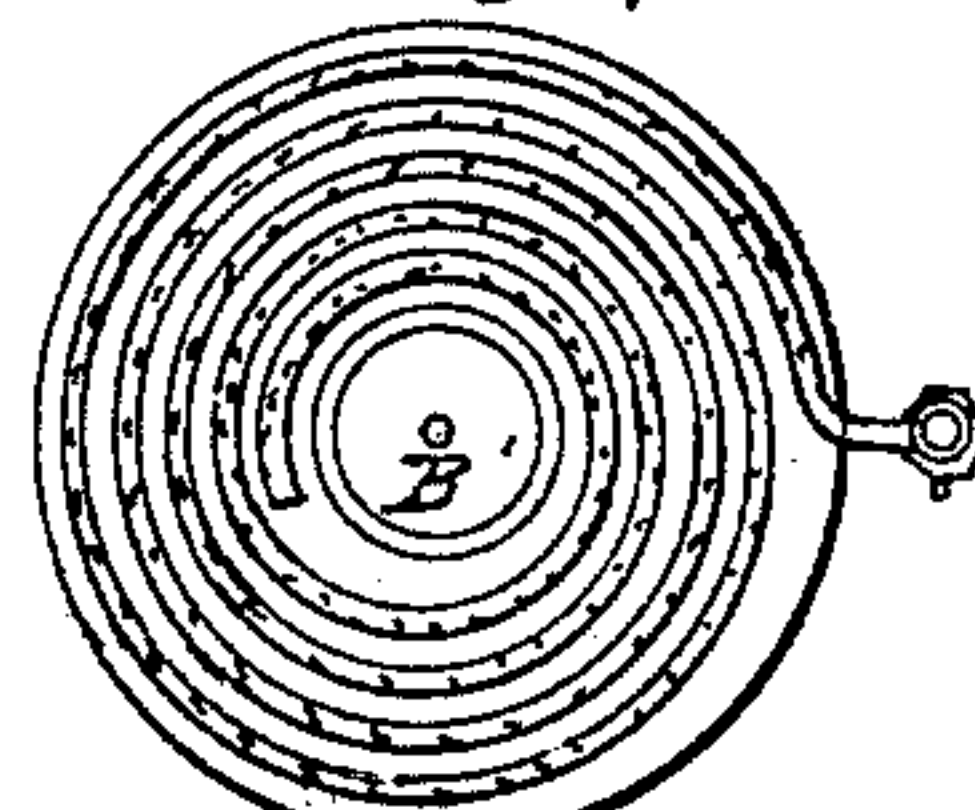


Fig. 15

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HENRY B. MYER, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVED APPARATUS FOR GENERATING ILLUMINATING-GAS.

Specification forming part of Letters Patent No. 57,551, dated August 28, 1866.

To all whom it may concern:

Be it known that I, HENRY B. MYER, formerly of Cleveland, in the county of Cuyahoga and State of Ohio, but now of Philadelphia, Pennsylvania, have invented new and useful Improvements in an Illuminating-Gas Generator; and I do hereby declare that the following is a full and complete description of the construction and operation of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a vertical section. Figs. 2, 3, and 4 are different views of the air-pump. Fig. 5 is a vertical section of the pump. Fig. 6 is a top view of the same. Fig. 7 shows a transverse section of the pumps and perforated disk. Figs. 8, 9, 12, and 16 are different views of the perforated disks. Fig. 10 shows the regulating-valve. Figs. 11 and 17 are views of the perforated coils. Fig. 13 is a vertical section of the generator and pumps. Figs. 14 and 15 are sections of the valves leading from the pumps to the generator; and Fig. 18 is a view of a pump in which quicksilver is used for packing.

In the several views like letters refer to like parts.

The generator as a whole is divided into four compartments. (Indicated at A B C D in Figs. 1 and 13.) The division A may be made of sufficient capacity to contain a barrel, more or less, according to the size of the apparatus. This forms the receptacle for the naphtha (gasoline) or light oil consumed in the production of gas. The oil is introduced through the pipe A, Fig. 13, which is provided with a stop-cock, which must be closed as soon as the oil is introduced. A glass tube, *a'*, Fig. 13, communicates externally with the upper and lower portions of the chamber A, for the purpose of showing the quantity of oil in the chamber. The floor of this chamber is provided with a pipe, *b*, Fig. 1, which connects the chamber A with the chamber B, for the purpose of conveying the oil from the former to the latter. The flow of the oil into the chamber B is regulated by a valve, *b'*, consisting of the float *B'*, situated in the depression *B''*. The stem *b''* of the float fits accurately into the lower end of the pipe *b* whenever the float rises, thus closing the lower end of the pipe *b* and stopping

the flow of oil into the chamber B. An external glass tube, *b'''*, Fig. 13, serves to indicate the height of the oil in the chamber B.

C, Fig. 17, represents a coiled perforated pipe, placed in the bottom of the chamber B, through which air is admitted into the oil in said chamber from the air-pumps E, of which there are four, all made alike, and communicating with the pipe C' through the medium of the pipe C'', which leads from the air-chamber E'—the common receptacle of the air from the air-pumps E F. The air-pipe C'' divides after it leaves the chamber E', one branch of which connects with the coil C', and the other with the perforated double disk *d*, through which the valve-stem from the float *B'* passes to the pipe *b*.

The air-pumps are four in number, and are placed in the position shown in Fig. 6. They consist of a cylindrical vessel, E, each having a rod, *e*, rising from the center, which serves as a guide to the plunger F. The plunger consists of a hollow cylinder, F, having a diaphragm through the center in a horizontal plane, as seen at F' in Fig. 5. A little to one side from the center of this diaphragm I attach a valve, *f*, which opens downward, and is held in place or shut by a slight spring.

A pipe, *f'*, passes from the middle of the cylinder E through the bottom into the air-chamber E'. For operation, the cylinder E is filled about half full of water; and the plunger F, by being worked up and down therein, with the lower end dipping in the water, when the plunger rises, the air passes in through the valve *f*, and as the plunger is depressed the valve *f* closes and the air is forced into the chamber E', and thence through the tube C'', and thence through the perforated coil C' and perforated disk *d*.

I give motion to the plungers of the pumps by means of a train of wheels, G, and weights H. The weights are wound up by means of a crank like those of a clock, and their motion regulated as hereinafter set forth.

The double disk *d* is perforated upon the under side only, so that all the air that is forced into it passes downward. Just above the disk *d*, I place another perforated disk, I, (shown detached in Fig. 16,) so that all the air that passes through the coiled pipe C or disk

d is retarded thereby in its upward passage, thus causing it to become fully charged with vapor from the oil through which it passes, for the gasoline, (naphtha,) as it falls upon the plate *I* from the valve, flows over the plate, exposing a large surface to the air, which becomes charged, as above stated.

J, Fig. 1, represents the floor of section *C*. This floor is gas-tight; but the chamber *C* communicates with the chamber *B* by means of a pipe, *K*, which terminates in the coil *K'*, which is also perforated throughout its length with numerous holes, through which the gas escapes into the water-bath formed by the chamber *C*. A glass tube, *k*, external to the chamber, serves as a means to determine the height of water in the chamber *C*. A perforated disk, *L*, Fig. 1, (shown detached in Fig. 12,) also below the surface of the water, serves to retard the gas in its upward movement, causing it to be more thoroughly washed.

M represents the floor of the chamber *A*, upon which the oil rests before it passes into the chamber *B*, as hereinbefore stated; and *m* represents a tube that conveys the gas through the oil-chamber *A* to the gas-holding chamber *D*. The tube *m* extends above the floor *N* to the height of the walls of Fig. 1, which is partly filled with water, as indicated at *W*. An inverted vessel, *O*, rests with its lower lip dipping into the water, and rises or falls with the accumulation or diminution of the gas.

P represents a distributing-pipe, which conveys the gas to the place of consumption. *n* represents a tube, that serves as a guide to the vessel *O*.

Q represents a bent lever, the long arm of which rests upon the top of the gas-holder *O*, and the short arm *Q'* engages with a ratchet-wheel, *R*, connected with the train *G*, by which means the rising of the gas-holder *O* stops the motion of the pumps, and thereby the accumulation of gas is suspended; but when the gas-holder falls by the consumption of gas the arm *Q'* becomes disengaged from the wheel *R*, the pumps resume their action, and the gas-holder again rises, and the movement of the pumps is arrested, as before.

The structure of the pump shown in Fig. 18

differs from those already described in no essential particular, except that quicksilver is used instead of water, and in the event of using quicksilver an annular chamber may be formed to contain the mercury; and it is of no consequence whether the valve *f* is attached to the stationary or moving part. The operation in both cases is precisely the same.

The operation of my apparatus is as follows: Oil is put into the chamber *A*. It passes down through the pipe *b* into the chamber *B*, its flow being regulated by the float *B'*. The pumps are now put to work, and air is forced through the perforated coil and disk and through the oil, becoming saturated with the hydrocarbon vapor, thus become illuminating-gas.

What I claim as my improvement, and desire to secure by Letters Patent, is—

1. The arrangement of the chambers *A B C D* in their relation to each other, for the purpose specified.

2. In combination with the chambers *A B*, the pipe *b* and valve *b'*, constructed and operating substantially as and for the purpose set forth.

3. The herein-described construction and arrangement of the pumps *E F*, the same being adapted to the use of water as a packing, as specified.

4. Such a structure of the pump as shown in Fig. 18, whereby it is adapted to the use of quicksilver as a packing, as specified.

5. In combination, the perforated coil *C'*, double disk *d*, and perforated disk *I*, arranged to operate as specified.

6. In combination with the chambers *A B C*, the glass-tube indicators *a' b''' k*, as and for the object set forth.

7. Operating the valve *b'* by means of the float *B'*, as and for the purpose herein specified.

8. The arrangement of the pumps *E F*, train of wheels *G*, ratchet-wheel *R*, lever *Q*, and gas-holder *O*, as and for the purpose herein specified.

HENRY B. MYER.

Witnesses:

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I. HOLMES.