

H. OERTEL.

Carbureter.

No. 107,403.

Patented Sept. 13, 1870.

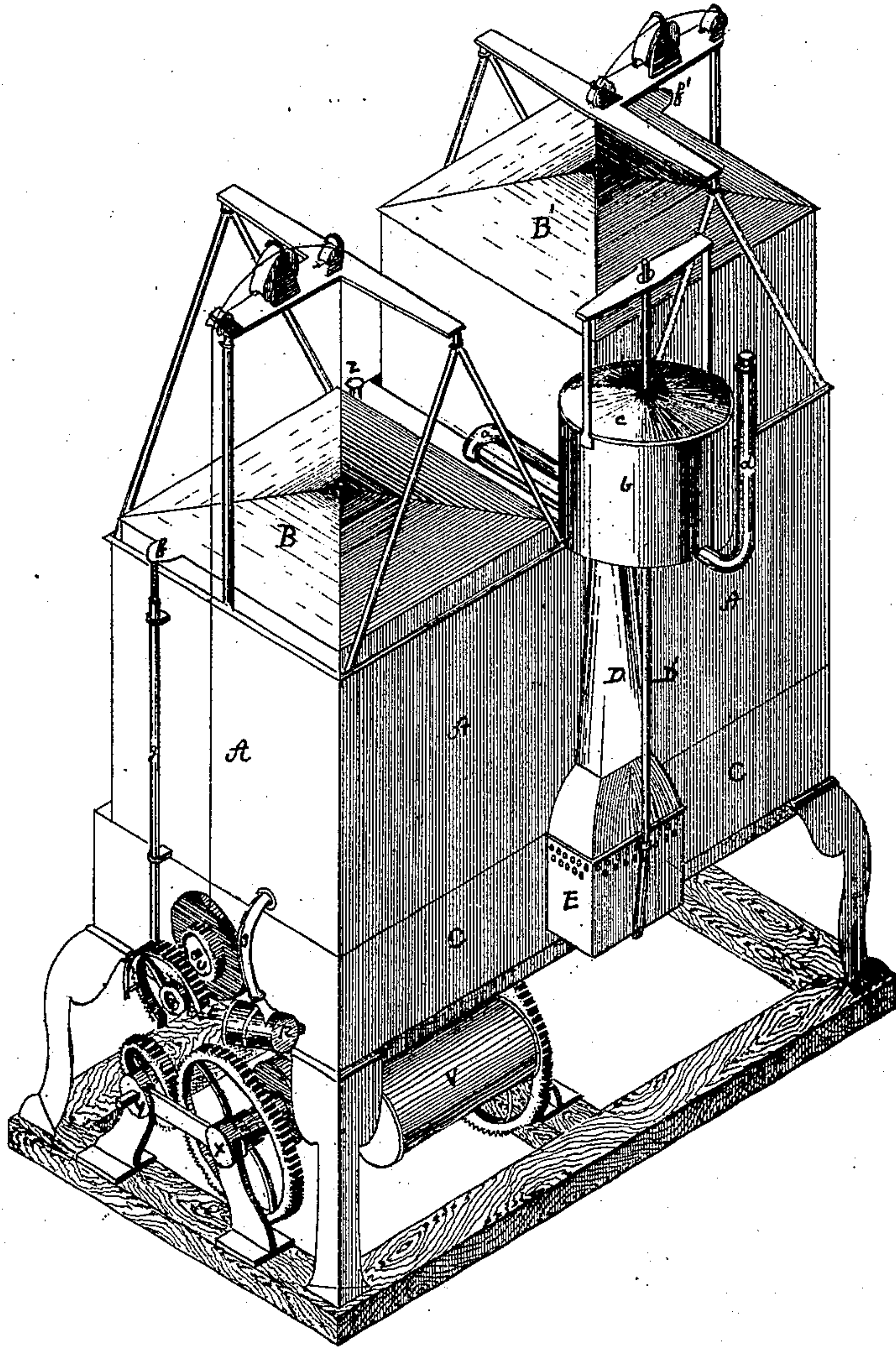


FIG 1

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Sheet 2-2, Sheets.

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Fig:2.

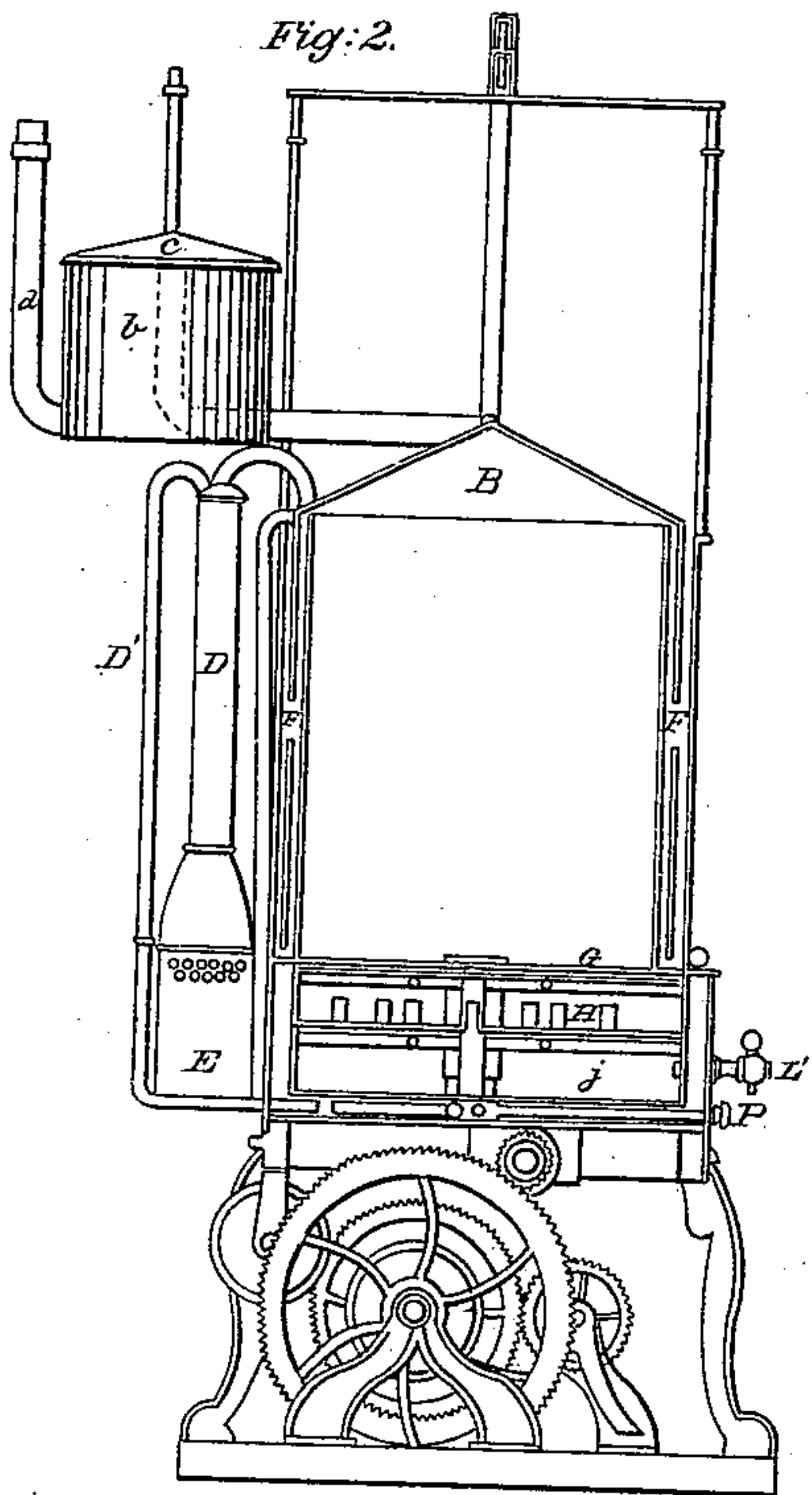


Fig:3.

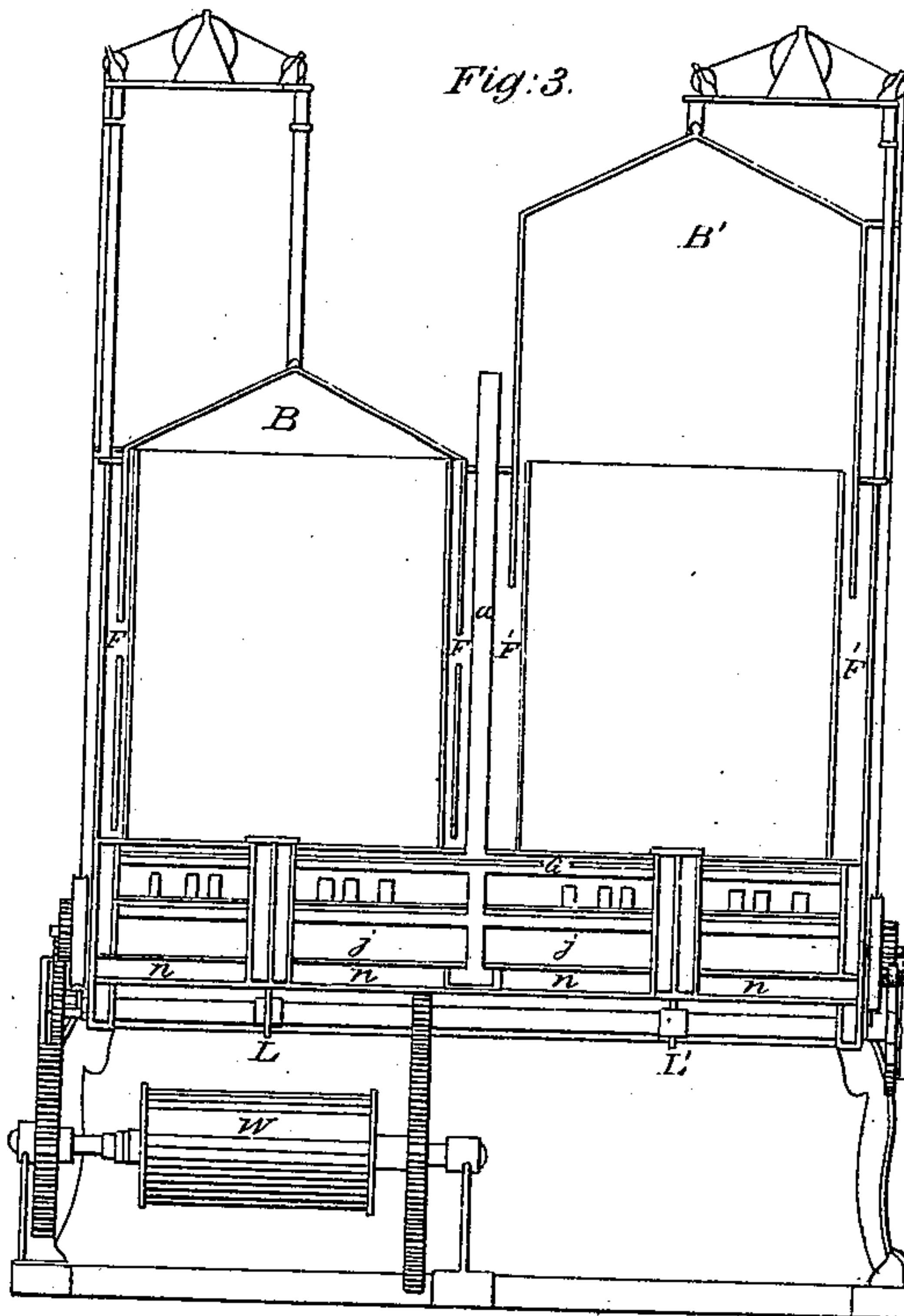


Fig: 5.

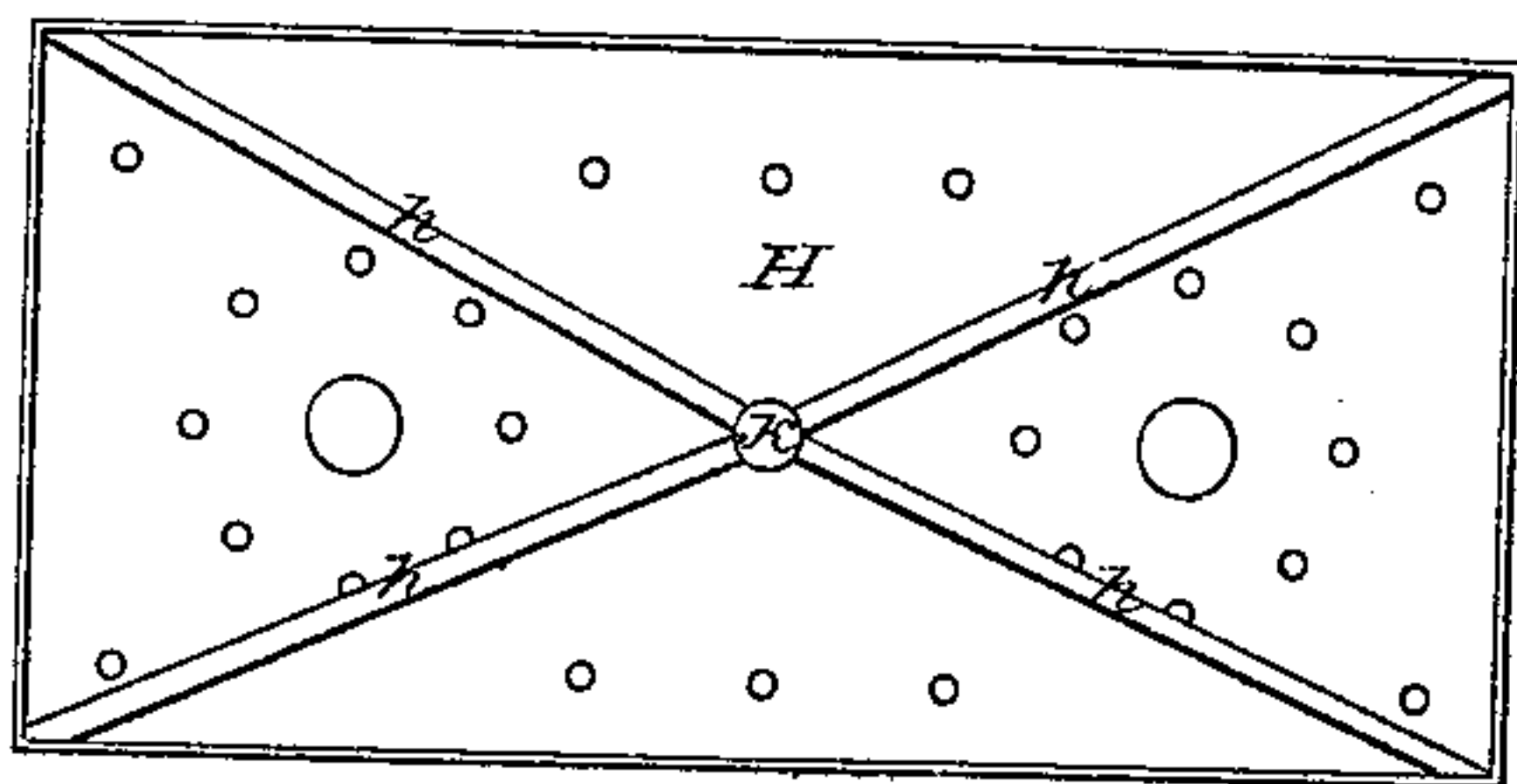


Fig: 4.

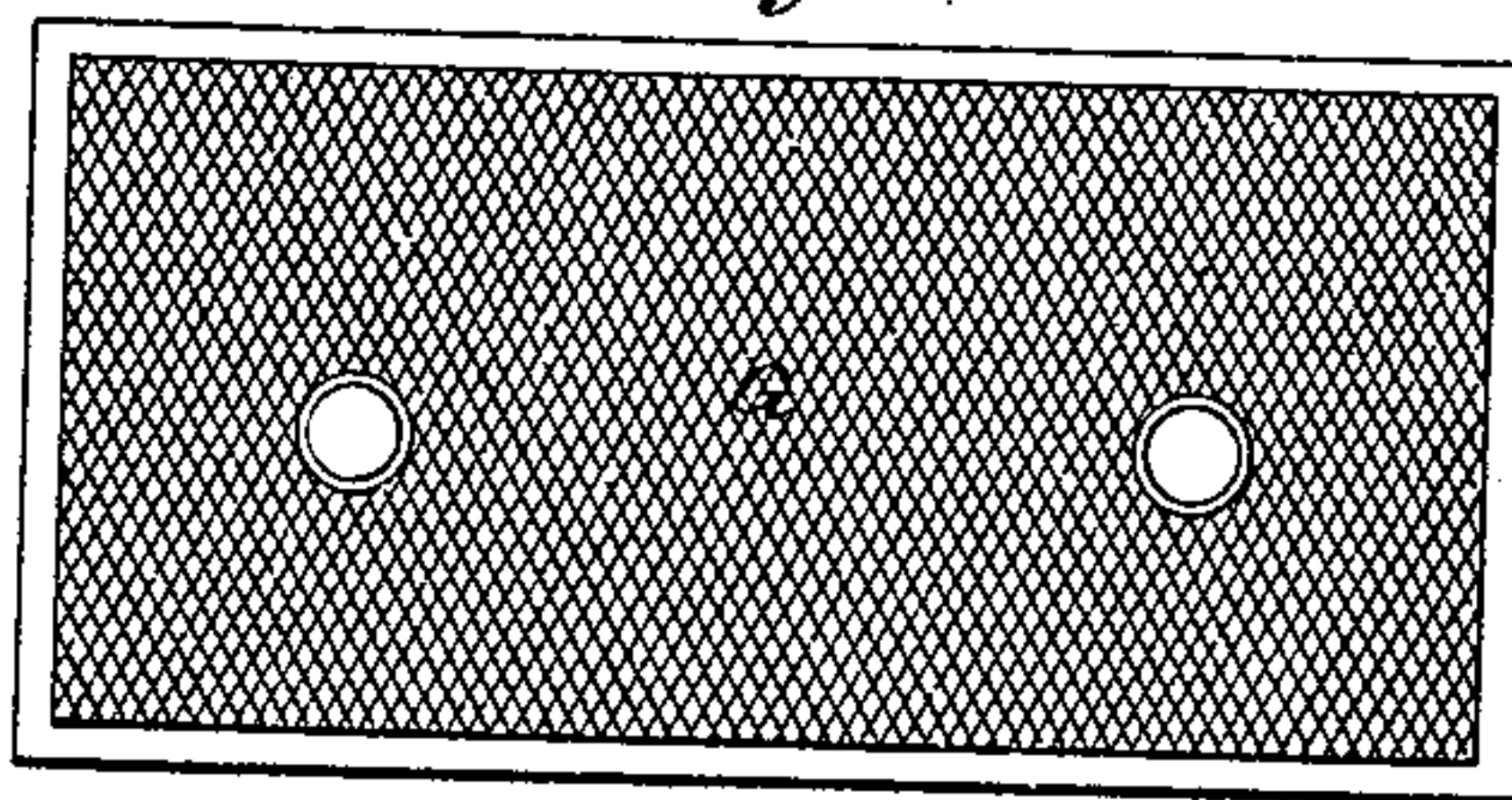


Fig: 6.

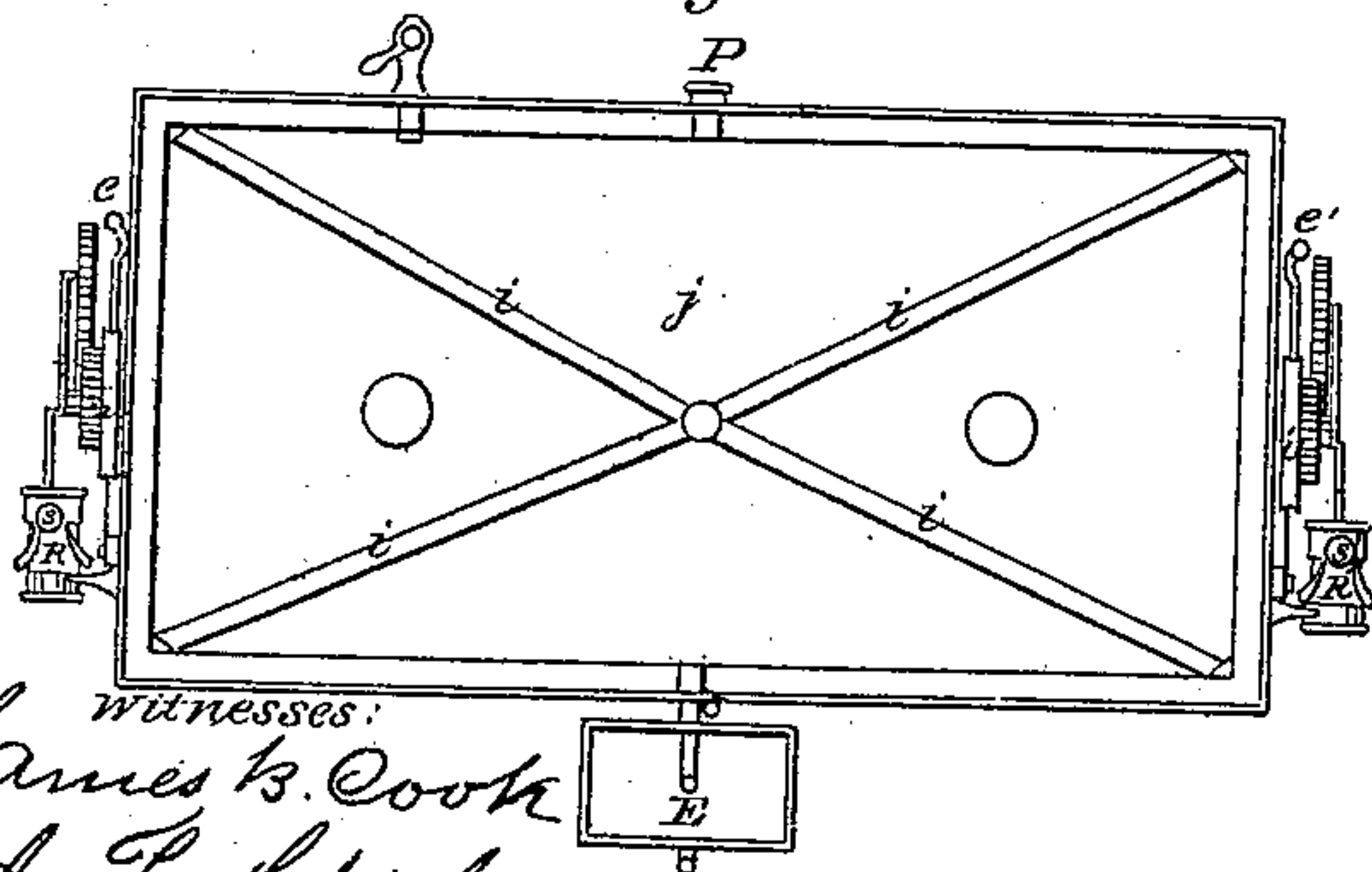
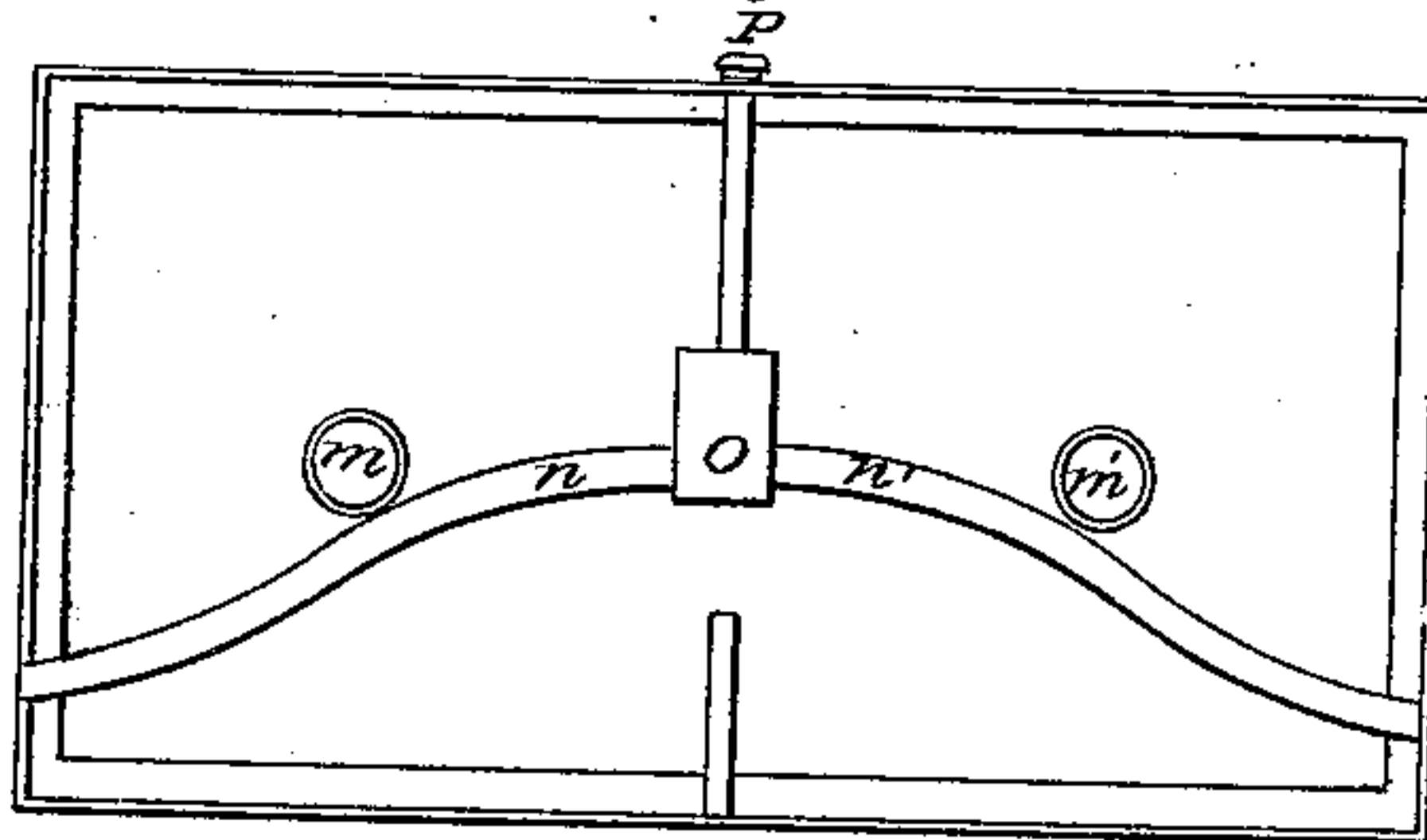


Fig: 7



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HENRY OERTEL, OF MEMPHIS, TENNESSEE.

Letters Patent No. 107,403, dated September 13, 1870.

IMPROVEMENT IN APPARATUS FOR CARBURETING AIR.

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, HENRY OERTEL, of the city of Memphis, in the county of Shelby, in the State of Tennessee, have invented a new and improved Mode of Making and Generating Gas for illuminating purposes; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon.

Figure 1 of the accompanying drawing is a perspective view of the portable gas-machine.

Figure 2 is a lateral section of the same.

Figure 3 is a longitudinal section of the same.

Figure 4, a diaphragm of perforated plate contained in lower section of machine.

Figure 5, reservoir for holding carbureted fluid.

Figure 6, plan of bottom of machine, with all the upper works removed, showing a second reservoir for holding carbureted fluid.

Figure 7, inverted plan of this bottom, showing position of air-pipes and regulating-valve.

The nature of my invention consists in using any known hydrocarbon fluid or carbureted fluid for illuminating purposes by vaporizing the same by means of hot vapor produced from water, and the admixture of warm atmospheric air with said carbon-fluid vapor, for the purpose of increasing its intensity for illuminating purposes, and its volume as a gas; also, in the construction of an apparatus working automatically for the accomplishment of the same, and for the continual supply of such vapor, for domestic or other uses, where a light is required for illuminating purposes.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

Fig. 1, A A A, is a rectangular tank, of metal, in the proportion of a double cube containing two reservoirs, with a continuous space surrounding them, thus forming a jacket to be filled with water, as shown in fig. 2 and fig. 3, F F' and F' F'.

Suspended and working free are two air-holders, (commonly called gas-holders,) one for each reservoir, B and B'.

These air-holders B and B' are suspended by a cord to each, which cord passes over pulleys in a frame above them and passes down to a pulley-wheel, U, fig. 1 and fig. 6, which pulley-wheel receives its motion by a train of wheels at *y x v*, fig. 1, and *w*, fig. 3. A similar pulley, U', operates on the other side, being one for air-holder B and one for air-holder B', and being arranged to operate so as to cause one of the air-holders to ascend while the other descends, and vice versa.

C C, fig. 1, is the lower part of the tank, and be-

neath it the bottom of the tank, communication from the one to the other being cut off, except by certain pipes to be described.

In this lower portion C C, fig. 1, are contained two trays or pans for placing the carbon fluid, the lower one being *j*, figs. 2, 3, and 6; the next one being H in the same figures. Above these, and at the top of all, is placed a diaphragm of perforated plate, for the purpose of minutely dividing the vapors in their passage through fig. 4.

These trays are not of the full size of the bottom section, but a space exists between them and the outer case, forming a continuous space around them, for the purpose of a vapor-jacket.

D, figs. 1 and 2, chamber containing water for generating vapor.

E, figs. 1 and 2, chamber beneath water-chamber for flame for heating water in chamber above.

a, figs. 1 and 2, outlet-pipe of gas from apparatus.

b, figs. 1 and 2, holder containing water in a double jacket.

c, movable receiver in same.

d, outlet-pipe from same.

S and S', figs. 1 and 6, pipes connecting upper chambers B and B' with lower chambers in *c c*, being connected and disconnected by means of segmental wheels, T and T', on the one side and on the other, acting alternately on the one side and on the other; these segmental wheels being fastened on the end of a shaft running beneath the body of the machine, on which shaft are fastened two segmental wheels, one beneath the center of each holder, as shown in fig. 3, L and L', which wheels operate upon valves *m* and *m'*, excluding and admitting atmospheric air, as the holders B and B' rise and fall. This shaft receives its motion from train of wheels attached to drum W, which drum receives its motion from a cord and weight, as in similar constructions.

Attached to each holder, B and B', fig. 1, are lips, *f* and *f'*.

g is a rod working in a tube and kept up by a spiral spring, which rod rests upon and acts upon a trigger, *e* and *e'*, at either end, which action takes place when either holder descends, by the lip *f* or *f'*, forcing this rod downward, thereby starting the trigger and releasing the shaft, and allowing motion to take place.

P, figs. 2, 6, and 7, handle of rod connected to valve at O, figs. 2 and 7, for the purpose of regulating supply of warm air into vaporizing-pans H and *j*.

Fig. 7, inverted plan.

n and *n'*, air-pipes, for the passage of the warm air from holders through pipes S and S', through valves R and R', through pipes *n* and *n'*, and thence up center tube K, and passing through diagonal distributors, as shown in fig. 5, *h h h h*, and fig. 6, *i i i i*.

z, fig. 1, inlet-pipe connecting to vaporizing-pans for charging the machine with carbon fluid.

z', fig. 2, gauge-cock, for testing if the machine is charged, and for drawing off any surplus fluid.

The method of working and operating the machine consists in detaching the cap of supply-pipe *z*, fig. 1, and pouring down this pipe the carbon fluid, which connects itself with upper vaporizing-pan, which pan, by the pouring in of the fluid, becomes full, and overflows itself through a series of small stand-pipes inserted into its bottom, emptying itself into pan below, the height of the liquid being ascertained by the gauge-cock *z'*. When the liquid flows from this gauge-cock the pans are charged, the cap being put on supply-pipe and the gauge-cock closed.

Water is now put into the jacket of the tank A A A, fig. 1 being the space, F F and F' F', figs. 2 and 3, and being filled within a few inches of the top. The water in this jacket flows into D, figs. 1 and 2, through a connecting-pipe at bottom.

Water is also put into jacket of holder *b*, figs. 1 and 2, to form a water-valve to prevent escape of gas from small gas-holder working in same.

A small supply-pipe, connected with the gas-outlet-pipe *a*, is brought down, and terminates with a burner into chamber E and under D. Sufficient gas-vapor is given off, in a quiescent state of the machine, to supply this burner. The gas at this burner being lit, the water in D is heated, which heat also communicates itself with water in jacket F F and F' F', and a regular circulation is kept up.

The vapor from the warm water in D passes over and down pipe D', into bottom division C C, and into jacket of same surrounding evaporating-pans H and *j*, the train of wheel-work being now set into motion by a cord and weight around drums W and V.

The central shaft revolves, in its revolution, by attachment at L and L', alternately, opening valves at *m* and *m'*, admitting fresh atmospheric air into holders B and B', they (the holders) rising as these are opened on the one side or the other.

These holders are made to ascend by the cord which is attached to their top, and, passing over frame and wheels above same, descending on the side and winding on pulley-wheel U, which pulley-wheel receives its motion from segmental wheels T and T' at end of central shaft.

Attached to these segmental wheels is a projecting rim, which, in the revolution of these wheels, catches onto end of rod *t* and *t'*, working in valve-boxes R and R'.

By these arrangements we have, in the ascent of one holder, say B', valve at *m'* open, valve at R' closed, thus admitting atmospheric air; and, by the valve R' being closed, shutting off communication between B and the lower works in C. On this holder B' attaining its full height, we have had a reverse operation going

on with the other holder B, which, during this operation which has been going on, has been descending, forcing its contents, which consists of warm atmospheric air, through pipe S, passing through valve-box R, the valve being open in the same, and through pipe *n*, fig. 7, up through *o*, and distributing itself over surface of fluid in pans H and *j*, by means of the diagonal distributors in pan H, fig. 5, *h h h h*, and diagonal distributors in pan *j*, fig. 6, *i i i i*, (which diagonal distributors have small holes perforated on their under side,) and then up through *k*, through perforated mixer G, fig. 4; then up outlet-pipe *a*, fig. 3, into *b*, and out *b* to service-pipe *d*.

The release of the valve-rod *t* is effected when, for instance, on the one side, by the descent of B, bringing *f* down on rod *g*, which rod strikes end of trigger, *e*, thus tripping it; thereby allowing wheel T to fly round into position, and releasing rod *t* from projecting rim of same, and so on for the other side, alternately on the one side and on the other.

The passage of gas out, at *a*, outlet-pipe into small holder *c*, surrounded by water, as already described, is for the purpose of producing a steady and uniform flow, the holder *c* acting with a constant and even pressure.

By surrounding the holders B and B' with a jacket of warm water, the atmospheric air that is admitted into the same becomes elevated in temperature, and the vapor of the warm water, passing from D into vaporizing-pans, causes the fluid in said pans to rapidly vaporize, and, together with the warm atmospheric air forced into the same by the descent of the air-holders B and B', produces a vapor for illuminating purposes of the requisite quality for brilliancy and cheapness.

Having described my invention,

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

1. The combination and arrangement of the air-holders B B', jacket F F', receiver *c*, and furnace E, when connected as specified and for the purpose set forth.

2. In a portable gas-machine, having air-holders B B', jackets F F', receiver *c*, and furnace E, and clock-work, as described, the lips *f f'*, tripping-rods *g g'*, triggers *e*, and segmental ratchet-wheels T T', when constructed and arranged to operate substantially as and for the purpose specified.

3. In a gas-machine, having air-holders B B', warm-water jacket, and clock-work motor, as specified, the arrangement of the pans H and *j*, and the perforated plate *g'*, when the several parts are constructed and connected as and for the purposes set forth.

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Witnesses:

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