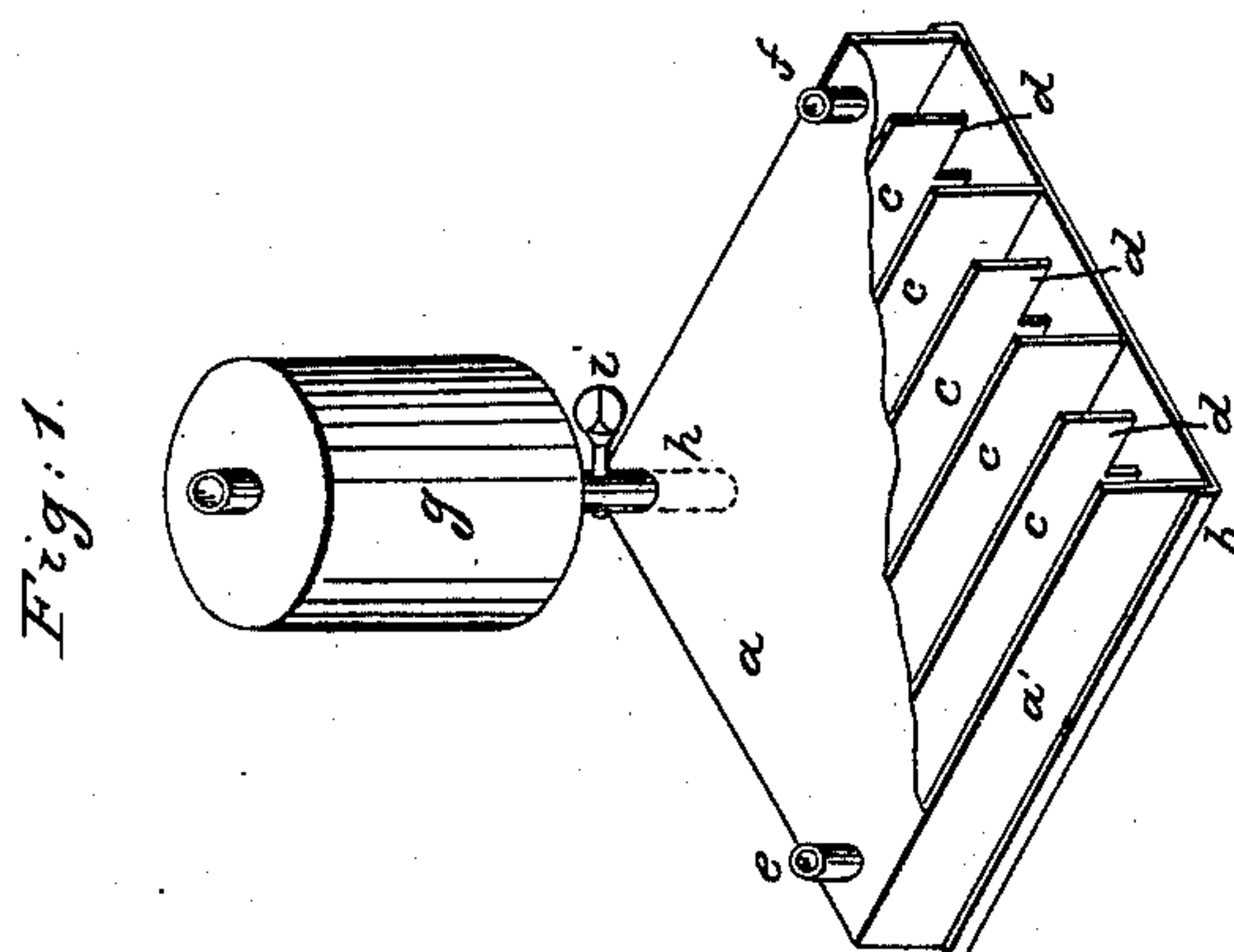
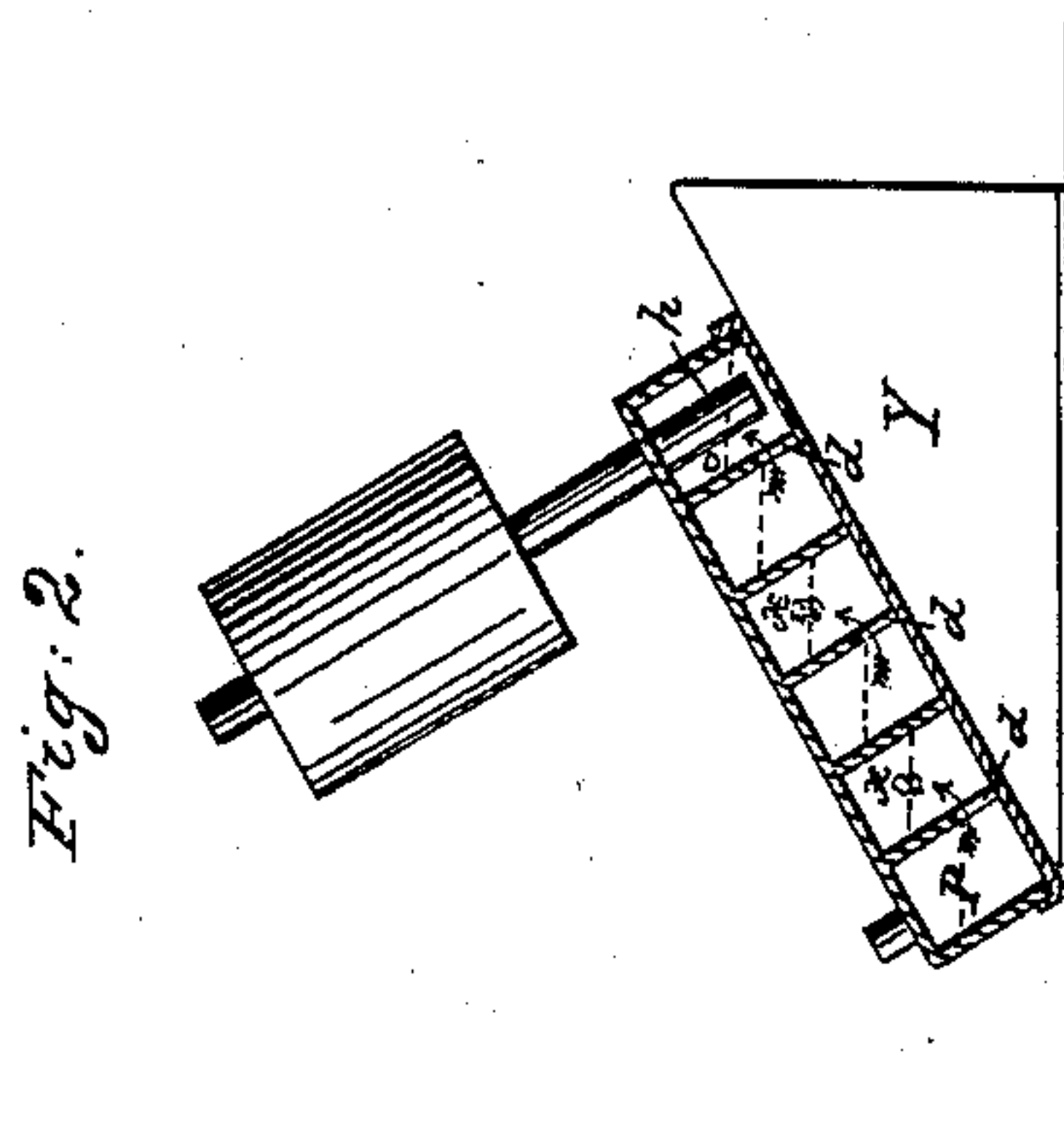


A. PATTERSON.
Apparatus for Carbureting Air.

No. 58,471.

Patented Oct. 2, 1866.



Witnesses:
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Joseph Nock

Inventor:
Andrew Patterson.
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UNITED STATES PATENT OFFICE.

ANDREW PATTERSON, OF BIRMINGHAM, PENNSYLVANIA.

IMPROVED APPARATUS FOR CARBURETING AIR, &c.

Specification forming part of Letters Patent No. 58,471, dated October 2, 1866.

To all whom it may concern:

Be it known that I, ANDREW PATTERSON, of Birmingham, in the county of Allegheny, and in the State of Pennsylvania, have invented certain new and useful Improvements in Air-Carbureting Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

It is well known to those who are familiar with the subject that most if not all the hydrocarbon fluids used for carbureting or naphthalizing atmospheric air or other permanent gas consist of mixtures in variable proportions of oils or fluids of different degrees of density and volatility, and consequently, if the evaporation takes place while the fluid is at rest the lighter or more volatile portion is first consumed, leaving a comparatively inefficient residuum. To counteract this unequal consumption of the different components of these hydrocarbon fluids very many ingenious and more or less efficient devices have been contrived and patented, both in this country and in Europe. To almost entirely obviate this difficulty, as well as to simplify the construction of hydrocarbureting machines, my improvements have been devised, as will more fully hereinafter appear.

My invention consists of the arrangement, within a shallow rectangular pan, of a series of divisions extending from side to side and from top to bottom, except at alternate ends, a portion of the lower part of each division is removed at *d d*, Figs. 1 and 2, to permit the passage of the gas and fluid from one to the other of the chambers.

A further element in my invention is the inclined position in which my machine is placed when in use to induce its efficient operation as intended, the peculiar location of the openings for communication between the chambers, together with the position of the machine when in use, being the real elements of my invention.

I will now more fully describe its construction and operation.

In the drawings, Figure 1 is a perspective view, with a part of the case broken away, so as to show the internal arrangement.

a a' are the top and sides of the pan. *b* is the bottom. *c c c c c* are the division-plates, which should be attached air-tight at the top and ends, and should come close down to the bottom, but need not be attached to it. At alternate ends each division-plate has a portion of its lower part removed, as shown at *d d* in Figs. 1 and 2, so as to open communication between the several chambers. *g* is a reservoir for containing a quantity of the fluid and supplying it to the pan in limited quantities through the pipe *h*, which projects into the pan, as shown in the drawings. The reservoir should be tightly closed at top by a cork or screw-cap when filled, the cock *i*, Fig. 1, being closed during the process of filling. It may be (the reservoir) placed in any convenient locality, but must be connected with the pan by a continually-descending pipe, so that the air or gas, when it enters the pipe *h*, can, by its lighter gravity, ascend through the fluid and permit an equal volume to descend into the pan. The pipe *e* communicates with the supply of air or gas to be carbureted, which may be supplied under sufficient pressure by any usual means. The pipe *f* communicates with the service-pipes, which communicate with the burners.

Constructed thus, my machine when in use is placed in the inclined position shown in Fig. 2, the degree of inclination being determined with reference to the pressure under which it is proposed to use the gas, and should be so graduated that the height of the surface of the fluid in the last or upper chamber (marked *o* in Fig. 2) above the surface in the first chamber (marked *p* in Fig. 2) should not be greater than the column of water to which the intended air or gas pressure is due. This can be effected by means of block *Y* or other convenient means.

Having thus placed the machine in position, and connected it with a supply of air or gas under suitable pressure, and filled the reservoir *g* with the fluid and opened the cock *i*, Fig. 1, a portion of the fluid will pass out of the reservoir and assume the position indicated by the broken lines which cross the several chambers in Fig. 2. If, now, the air or gas under pressure is allowed to flow through the machine, it will have to make its way through

the openings by displacing enough of the fluid in the first chamber to reduce the fluid-level sufficiently to allow the air or gas to escape into the chamber through one of the openings *d*, as indicated by the arrow and bubble *x*. After traversing the second chamber to its opposite end, the same process of displacement and escape through the fluid in bubbles is repeated, and so on again, as indicated by the arrows and bubbles *x*, in the other chambers, until it reaches the last chamber *o*, where, after having repeatedly passed under the surface of the hydrocarbon fluid, the air or other gas is sufficiently carbureted, and may be permitted to pass to the burners. When the quantity of the fluid has been reduced by consumption until the surface-level in chamber *o* is below the opening in pipe *h*, a quantity of air or gas will pass into the reservoir *g* and displace enough

of the fluid to restore the level to the proper height, thus maintaining a uniform supply.

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

The combination and arrangement of the divisions *c c c* within the adjustable inclined pan *a* with their alternate submerged passages *d d d*, the whole being arranged and applied substantially in the manner and for the purposes set forth.

In testimony that I claim the above-described improvements in air-carbureting machines I have hereunto signed my name this 18th day of August, 1866.

ANDW. PATTERSON.

Witnesses:

V. C. CLAYTON,
JO. C. CLAYTON.