

A. J. GIBSON.

Aging Liquors.

No. 85,225.

Patented Dec. 22, 1868.

Fig. 1.

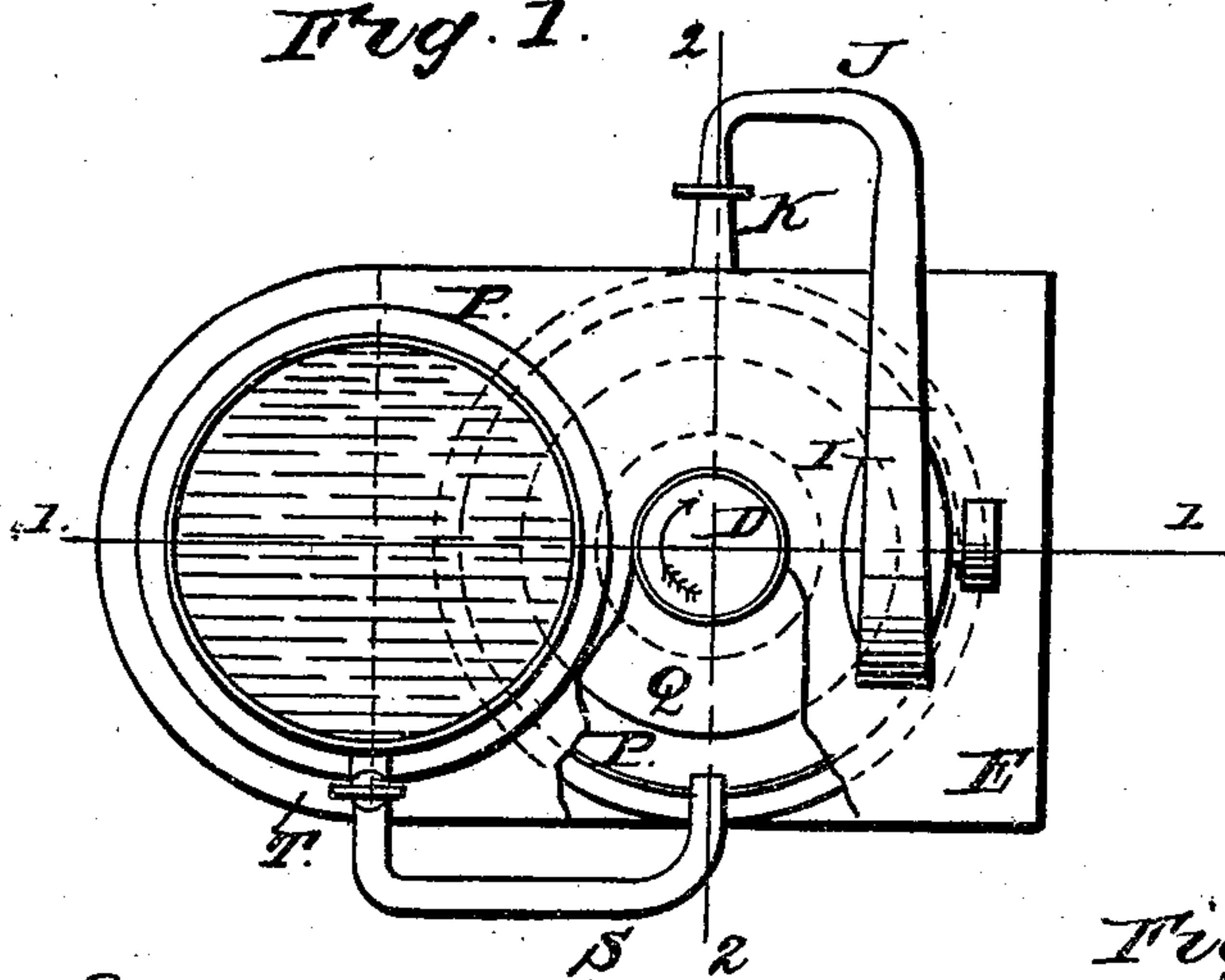


Fig. 2.

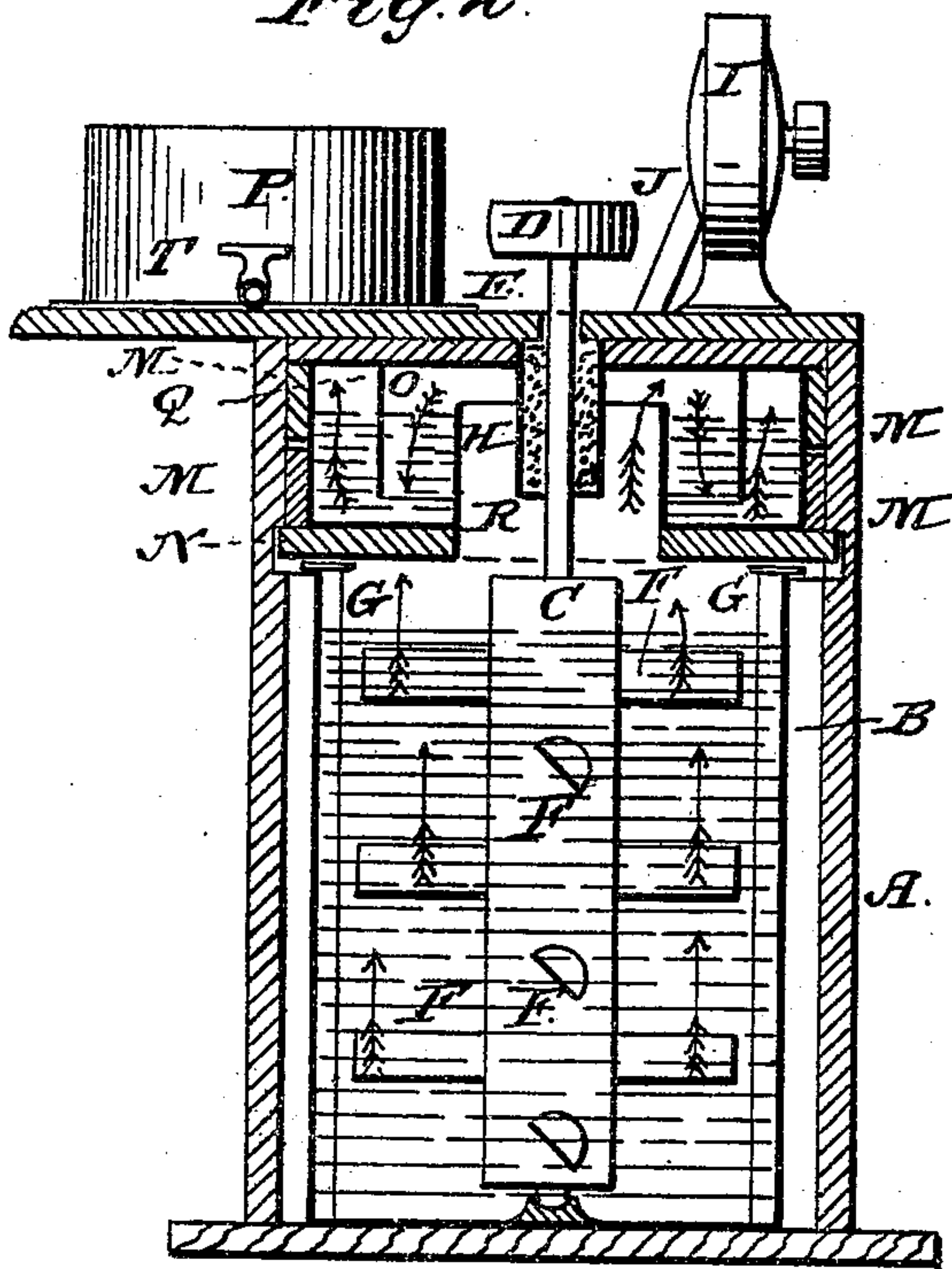
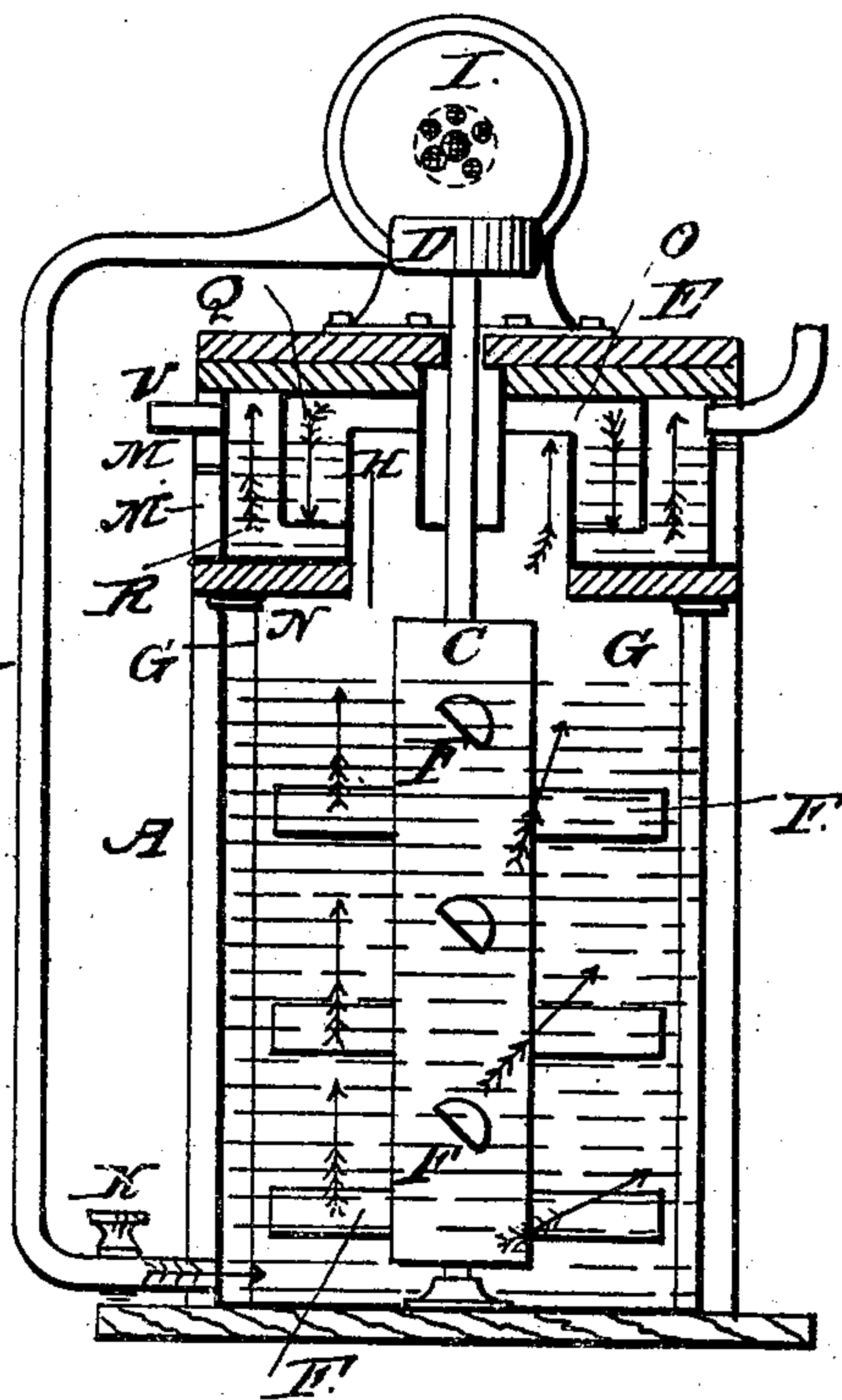


Fig. 3.



Witnesses
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A. J. GIBSON, OF CINCINNATI, OHIO, ASSIGNOR TO HIMSELF AND
THOMAS A. HARROW, OF SAME PLACE.

Letters Patent No. 85,225, dated December 22, 1868.

IMPROVED APPARATUS FOR PURIFYING AND AGEING LIQUORS.

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, A. J. GIBSON, of Cincinnati, in the county of Hamilton, and State of Ohio, have invented certain new and useful Improvements in Apparatus for Ageing and Purifying Liquors; and I hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a plan view of the top of the apparatus.

Figure 2 is a vertical sectional view of the frame, and the parts contained therein, and a plan view of tank P, fan I, and pulley D, in line 1, 1.

Figure 3 is a vertical sectional view taken in line 2, 2 of the frame, and central and plan view of fan I, pulley D, &c.

The nature and object of my invention are to secure, in a few hours, at a moderate expense, and with only an inconsiderable loss of quantity in the liquor itself, that purification of it and apparent age, which it would otherwise, and by the natural process, acquire only after the lapse of years, and at great loss of quantity.

I will state in general terms that I effect this object by means of a revolving spindle which is provided with arms or beaters of such form that, when the spindle revolves in the vessel containing the liquor operated upon, they will not only thoroughly agitate and subdivide the liquor, but also, while driving the liquor around on the inside of the vessel, will also drive it in currents obliquely downward, and by the further means of forcing a strong current of air through a pipe in the side of the vessel, near its bottom, upward, and in an opposite direction to currents given by the arms of the spindle, and by the further means of three or more vertical ribs constructed and fastened upon the inside of such vessel, at suitable intervals, for the purpose of breaking the circular motion of the liquor, given it by the revolving arms, and thus increasing the desired effect.

This thorough agitation and subdivision sets free the impurities and non-condensed gases contained in the liquor, and the vessel being air and water-tight, these impurities and gases struggle to escape, but by the peculiar construction of my apparatus, as hereafter shown, they are not allowed to do so until they have passed, by a circuitous route, through a bath of water and lime, or other alkali having a very strong affinity for them, and which, therefore, absorbs them, allowing only the air, and but little or any of the pure spirits, to escape.

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

The frame A may be constructed of wood, and consists of two upright walls standing upon a base or floor, and the top or cross-piece E, which may be made

longer than would be necessary merely to cover the walls, and thus afford plenty of room for other parts on the top of it. I then cut a groove on the inside of each wall for the insertion of the partition N. The grooves are made larger than the thickness of the partition N, which is intended to be adjustable. That partition is made of suitable thickness to afford it the strength required, and is perforated in the centre for the insertion of the spindle C hereafter described.

The vessel B contains the liquor to be operated upon, and should be constructed of any suitable wood, and in cylindrical form, and about twice as high as it is wide, and is placed in the frame, between its sides, under partition N, and upon the bottom of the frame. On the bottom and in the centre of it is constructed a step in which the point of the spindle turns, and upon the sides of this vessel I construct and place three or more vertical ribs, as before stated, marked G G in the drawings.

As these ribs are intended to break the circular current given to the liquor by the arms on the revolving spindle hereafter described, they may be made to extend inwardly more or less, and may be more or less in number, as may best effect the object desired.

This vessel B has no top or cover of its own, but the partition N fits over it as a top, and in order that it may make an air-tight joint with the rim of the vessel, one or more thicknesses of soft India rubber, forming a gasket, are interposed between them, and the said partition is forced and held firmly down upon the gasket by means of the wedge-formed keys M M, that partition being adjustable as before stated.

The vessel R is placed in the upper part of the frame, and between the adjustable partition N and the partition O. This vessel is to contain the alkaline bath hereinafter described, and should be made of white oak or other suitable wood.

This vessel is composed of a circular hoop, which is its outer wall and its bottom, and of an interior hoop extending from its bottom straight upward, about two-thirds as high as the outer hoop and the partition O.

This vessel should be water-tight, and the interior hoop should be large enough to afford ample space for the stuffing-box H, upon the spindle C, and for the spray and vapors to pass up, as indicated by the arrows in the drawings. Then the inverted cup Q, constructed of similar wood, and air-tight, should have its bottom fastened to and against the partition O, and its hoop should be of such size that it will divide about equally the space between the outer and inner hoop of the vessel R, and its lower edge should reach within a few inches of the bottom of the vessel R, as shown in the drawings. The lower end of the spindle C turns in the step in the bottom of vessel B, and the upper end passes through a journal-box in the cross piece E, and upon its extreme end is made a tight pulley, D.

by which the power to revolve the same is communicated, and around it, just below the cross-piece, is placed the stuffing-box H, to make an air-tight joint.

That portion of the spindle within the vessel B is provided with two vertical rows of arms or beaters F F, at right angles to each other. They are made so long as to almost touch the ribs before mentioned when the spindle revolves, and their number and dimensions should be varied according to the capacity of the vessel B. But their form is important in working out the result proposed. They are made half round, in form, and they are so inserted into the spindle that their flat and front faces are at angles of, say, forty-five degrees to the bottom of the vessel B, and they are so fixed in the spindle that when it revolves they will constantly drive currents of the liquor downward.

The fan, blower, or other suitable apparatus is located upon or near the frame, as at I in the drawings, and the current of air collected and set in motion by it is conducted by a pipe, J, through the regulating stop-cock K into the side of the vessel B, near the bottom thereof, and this current acts upon the liquor in a contrary direction to the one given it by the arms of the spindle.

On the top of the frame is placed a tank, P, to contain the fluid for the bath before mentioned, which is conducted into the vessel R by the supply-pipe S, and the supply is regulated by the stop-cock T, and on the opposite side of the vessel R is a waste-pipe, V, to carry off the fluid of the bath when it shall become unfit for further use.

When the apparatus has been thus constructed it will be ready for use. The liquor to be subjected to the operation may be supplied to vessel B in any suitable manner, and, before beginning to operate, this vessel should be filled about five-sixths full of the liquor, and the tank P should be filled with water impregnated with lime or other alkali having a very strong affinity for the impurities and non-condensed gases contained in the liquor, and from this a constant supply is furnished to the vessel R through the pipe S, and that supply is regulated by the stop-cock T. The spindle and fan or blower are then set in motion. The arms upon the spindle drive the liquor around in the vessel, and at the same time, by their peculiar form and setting into the spindle, they also force it into currents downward, and these currents, in going downward are met and opposed by the constant current of air from near the bottom of the vessel. These opposing forces produce a thorough agitation and subdivision of the liquor, and this effect is increased by the ribs before mentioned which obstruct the circular current created by the arms upon the spindle. This agitation and separation set free, and throw into the form of gas, vapor, and spray, the impurities before mentioned, and they struggle to escape and pass upward, as indicated by the arrows in the drawings, and over the inner hoop of the vessel R, and there they come into contact with the bath before mentioned, and it absorbs them in their passage through it, and being impelled by their own elastic nature and the forces behind them, they still seek to escape into the open air, and such portion of them as may not be absorbed by the bath, together with the common air before mentioned, force their way down and pass under the rim of the cup Q, and then up through the fluid of the bath, and out into the open air through the waste-pipe V. When the fluid of the bath shall have become so impregnated with these impurities that it will not readily absorb any more, then of course it should be replaced by a fresh supply, and when the liquor operated upon ceases to throw off these impurities the operation is finished, and the pure liquor should be replaced in the vessel B by a fresh supply of raw liquor.

Other apparatus for the agitation and division of the liquor to be operated upon have been known and used before my invention, but no one by its construction has been so well adapted to produce the desired effect as mine. I refer here merely to the arms of the revolving spindle and the ribs upon the sides of the vessel B. But the introduction of the current of air from near the bottom of the vessel, driving the liquor in a direction contrary to that of the arms, greatly enhances the result, and is in itself a new feature in apparatus of this kind, and renders my improvement far superior to all others. Moreover, the forcing of the non-condensed gases, and other impurities thus eliminated, through the bath composed of the materials discovered by myself, and conducted in the manner in which I have done it, is a vast improvement upon any liquor-purifier ever known or used before. If these gases and vapors were allowed to pass directly and unobstructedly up through the liquid of the bath, as in other machines, into the open air, a large portion of them would escape contact with the material of the bath, and would not be absorbed, but would carry off with them valuable properties of the liquor; but by being compelled to pass down through the fluid of the bath, and under the rim of the cup Q, and up to the surface again, they are thoroughly exposed to the action of that fluid, and, as a consequence, they are almost wholly absorbed by it, while the common air is allowed to escape, and the spirits are left behind in the vessel B, in a state of purity, free from bad flavors and hurtful properties and ingredients.

The temperature of the bath, which would be productive of the best results, would be that of from 40° to 60° Fahrenheit. If the temperature were higher, the bath might absorb too fast and too much of the valuable properties of the liquor. On the other hand, if it were lower, its absorbing-power would not be sufficiently great to take up all the impurities, in a space of time sufficiently short to render the operation economical.

It is believed that by my apparatus and process described, liquors can be refined, purified, and rendered apparently old, with a smaller loss of their valuable material than by any others heretofore known or used; and now, having fully described the same,

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

1. The spindle C, in an apparatus for ageing and purifying liquors, constructed and used substantially as and for the purpose described.

2. The introduction of a current of air into the vessel containing the liquor to be operated upon, in an apparatus for ageing and purifying liquors, in combination with the spindle C, and constructed and used substantially as and for the purpose described.

3. The vessel R, when used in the construction, in an apparatus for ageing and purifying liquors, constructed and used substantially as described.

4. The inverted cup Q, when used in an apparatus for ageing and refining liquors, in combination with the vessel R, substantially as and for the purpose described.

5. The described bath-fluid, when used in an apparatus for ageing and purifying liquors, when composed and used substantially as described and set forth.

6. The vessel B, when used in combination with the spindle C, vessel R, and inverted cup Q, and constructed substantially as and for the purpose described.

A. J. GIBSON.

Witnesses:

GEO. K. ROBERTS,
SAMUEL CARY.