

J. A. CAMPBELL.
FRUIT AND ALCOHOL STILL.

No. 105,547.

Patented July 19, 1870.

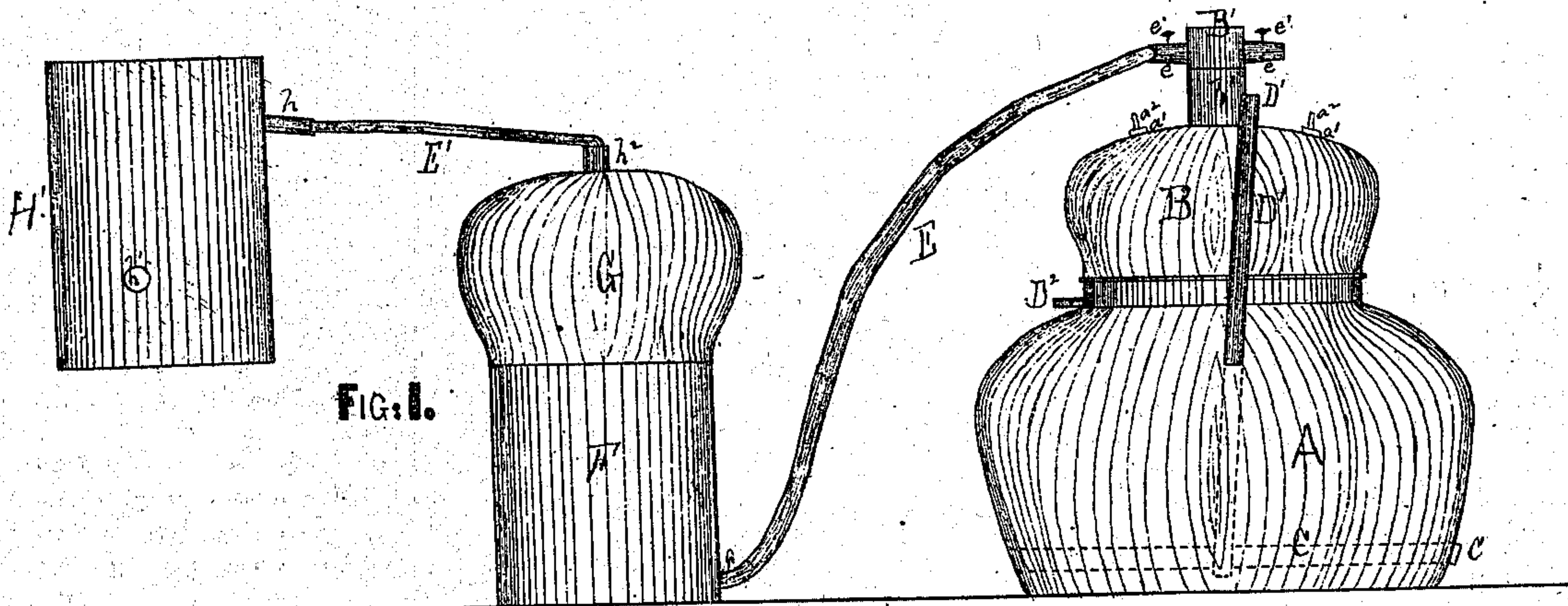


FIG. 1.

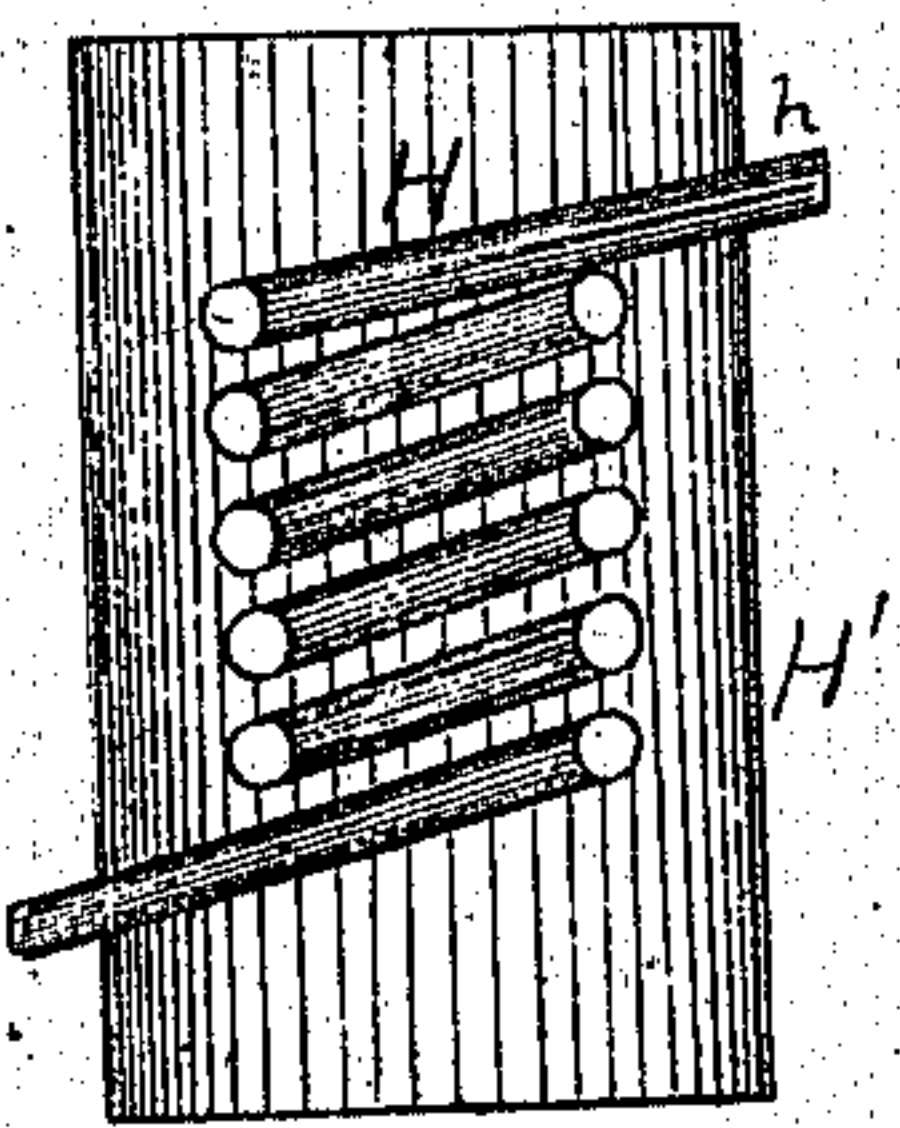


FIG. 3.

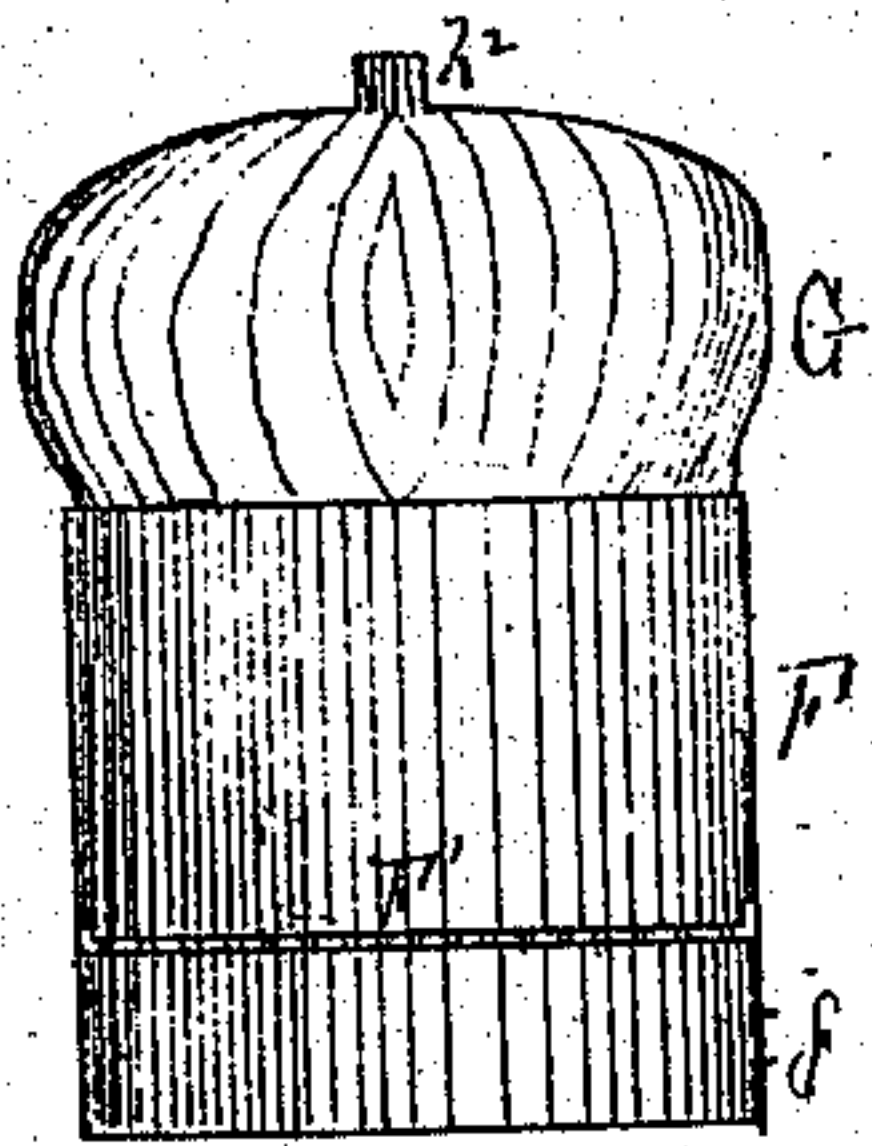


FIG. 4.

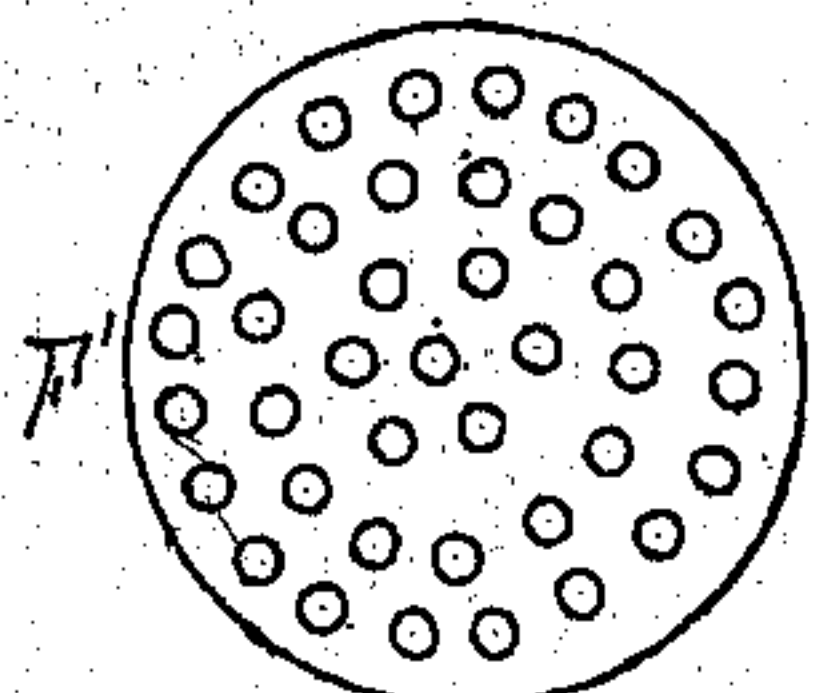


FIG. 5.

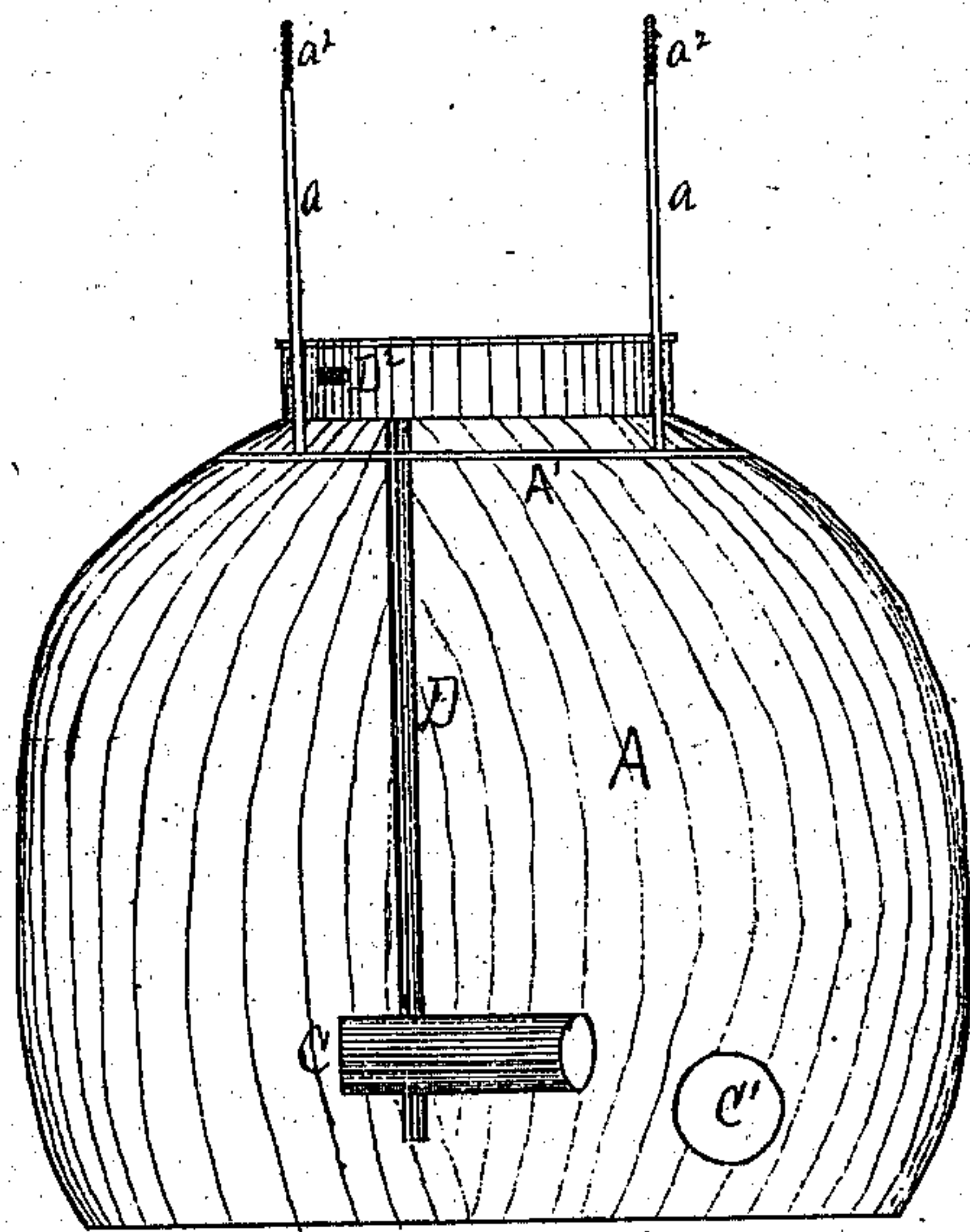


FIG. 2.

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JAMES A. CAMPBELL, OF ROCKINGHAM COUNTY, VIRGINIA, ASSIGNOR
TO HIMSELF, JOHN W. RIBBLE, AND P. PHARES.

Letters Patent No. 105,547, dated July 19, 1870.

IMPROVEMENT IN FRUIT AND ALCOHOL STILLS.

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, JAMES A. CAMPBELL, of Rockingham county and State of Virginia, have invented certain new and useful Improvements in Fruit and Alcoholic Stills; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing and to the letters of reference marked thereon, making part of this specification, in which—

Figure 1 is a front view of the distilling apparatus complete, showing the connection between the different features.

Figure 2 is a vertical sectional view of the boiler or generator.

Figure 3 is a vertical sectional view of the worm.

Figure 4 is a vertical sectional view of the still.

Figure 5 is a plan view of the perforated false bottom of the still.

The nature of my invention consists in so attaching the cap to the boiler or generator by means of vertical rods, having their bearing in a plate secured within the boiler, as to insure a safe connection no matter what the pressure of steam may be, said rods being provided with screw-threads to receive the taps or nuts.

My invention, also, consists in providing the boiler or generator with a series of pipes, so arranged that I am enabled to fill the boiler by the natural flow of the water, thus, dispensing with the force-pump; also, to have indicated by an overflow-pipe when the boiler is sufficiently supplied, and to disclose the instant the water is so exhausted as to fall below a given point.

My invention, also, consists in providing the cap of the boiler or generator with a cross-shaped tube or faucet; or, if desired, one consisting of a double-cross, whereby the distiller is enabled at the same time to feed or supply with steam either one, two, or four stills.

My invention, also, consists in constructing the main vessel of the still of wood, and providing the same with a perforated diaphragm or false bottom on which the fruit or mash is to be placed, and a copper cap, whereby I obtain all the advantages incident to the copper distillation.

The steam-generator, still, and vessel containing the worm, are all connected by the goose-neck pipes or vapor-duct in the usual manner.

The advantages resulting from this construction and arrangement of apparatus will readily suggest themselves to all familiar with the art to which it appertains.

The fruit, grain, or mash, not being placed in what is generally used as the singling still, and which alone is subjected to the direct action of the heat, the brandy or other liquor is never burned, and, consequently, the purity of its flavor is never destroyed.

Again, my still is so easily kept clean, as the material out of which the alcohol is to be extracted, being placed directly on the perforated bottom, so soon as its strength has been exhausted, the same can be removed and the still is cleansed.

Another great advantage of my invention is found in its cheapness, simplicity, and durability, and the readiness with which the steam-generator can be attached to and made to run two or more stills with the same facility it would run one.

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

A is the main body of the boiler or steam-generator, and, like its cap, B, is made of copper, or any other suitable material, and of any desired form.

A' is a bearing-plate, and is secured at or near the mouth of the boiler or generator A. To this plate A' are secured two vertical rods, *a a*, as clearly shown in fig. 2.

By means of the screw-threads *a² a²* cut on the ends of these rods *a a*, and the taps or nut *a¹ a¹*, the main body of the generator A and its cap B are securely bolted together, so that, no matter what the height or pressure of the steam may be, all danger of accident resulting from the blowing off of the cap is securely guarded against.

C is a cylinder or tube running horizontally through the generator, as shown in section in fig. 2, and by dotted lines in fig. 1. One or more of these pipes may be introduced and so connected by flue, or equivalent device, with the furnace under the generator or boiler A, that a continuous current of heated air shall constantly pass through the body of water, and thus facilitate the generation of steam. These pipes may be, if desired, connected by elbows or supplied by independent flues. They may, also, be of any desired dimension, but I usually construct them about nine inches in diameter, which furnishes twenty-seven inches heating-surface for each cylinder or tube.

C is a discharge-tube, by means of which the water is drawn from the generator at pleasure.

D is a tube or pipe, by means of which the water is fed to the generator.

D¹ is a tube or pipe which indicates, by the escape of steam, when the water in the boiler or generator is too low, and by means of which the crown-sheet can be kept from becoming overheated, and explosion from this cause guarded against. If desired, this tube or pipe may be supplied with an alarm-whistle.

D² is a short pipe inserted near the mouth of the generator A, and, by its overflow, indicates when the generator is sufficiently full.

B' is a cross-shaped tube which is inserted in a pipe, *b'*, secured in an opening in the top of the cap, and to

which the goose-neck or vapor-duct E is attached, and by means of which the steam is conveyed from the generator to the still F. This tube may be in the form of a double reverse cross, when the generator can readily be attached to and made to supply four stills instead of one or two.

The short horizontal tubes *e e*, to one of which the goose-neck E is directly attached, are provided with cocks or faucets, *e' e'*, by means of which the steam can be shut off at pleasure.

F is the still, and may be made of any suitable material. I prefer to make it of wood. This still F is provided with a perforated false bottom, F', shown in plan view, fig. 1.

This false bottom F' is held by suitable supports a short distance above the bottom of the still F, and above and clear of the opening *f*, at which the goose-neck E meets and is attached to the still, so that the steam shall all be caused to enter under the false bottom.

G is a copper cap inserted in the vessel F, and in which the vapor, as fast as generated, gathers, and from which, through the goose-neck or vapor-duct E', it is conveyed to the condensing-worm H.

h² is a short tube secured to the top of the cap G, and to which the vapor-duct E' is attached.

h is a short tube connected with the upper section of the worm H, and through which the vapor from the distillation of the fruit, or grain, is received from the goose-neck E'.

In passing through the worm H, the vapor, becoming condensed, is drawn off at *h¹*.

H is an ordinary condensing-worm, and is secured in the water-vessel H' in the usual manner.

The operation is as follows:

The fruit, grain, or mash, being properly prepared, is placed on the false bottom F'. The boiler A is placed over a suitable furnace, and subjected to the direct action of its heat, the heated air at the same time passing through the cylinder or tube C in a con-

tinuous current, and thus materially assisting in heating the water.

The cock or faucet *e'* in the pipe *e*, to which the goose-neck E is attached, is opened, so that, as soon as the steam is generated, it is conveyed to the still F, and, entering under the false bottom F', passes up through its perforations, driving all the vapor generated from the fruit, or grain, into the copper cap G; thus furnishing an exceedingly cheap and simple device which will impart to the brandy, or other liquor, all the advantages incident to and which result from copper distillation.

From this cap G, through the goose-neck or vapor-duct E', the vapor is conveyed to the condensing-worm H, entering through the tube *h*, and the liquor being discharged through the tube *h¹*.

By placing a cloth over the perforated plate F', and repeating this operation, the singlings being put in the still F G instead of the mash, the same is made to perform the functions of both "singer" and "doubler."

Having thus fully described my invention,

What I claim therein as new, and desire to secure by Letters Patent of the United States, is—

1. The generator A, having a series of pipes, D D² D³, and cap B, when said generator and cap are connected by vertical rods *a a* and nuts *a¹ a¹*, or their equivalent, substantially as described.

2. The generator A, cap B, and tube B', when the latter is so constructed as to enable the steam to be fed to two or more stills, substantially as described.

3. The vessel F, when constructed of wood, or other like material, false bottom F', and copper cap G, when the same are combined and arranged substantially as described, as and for the purpose specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

Witnesses:

JAMES A. CAMPBELL.

C. W. STINESPRING,

WM. MCK. FISHBACK.