

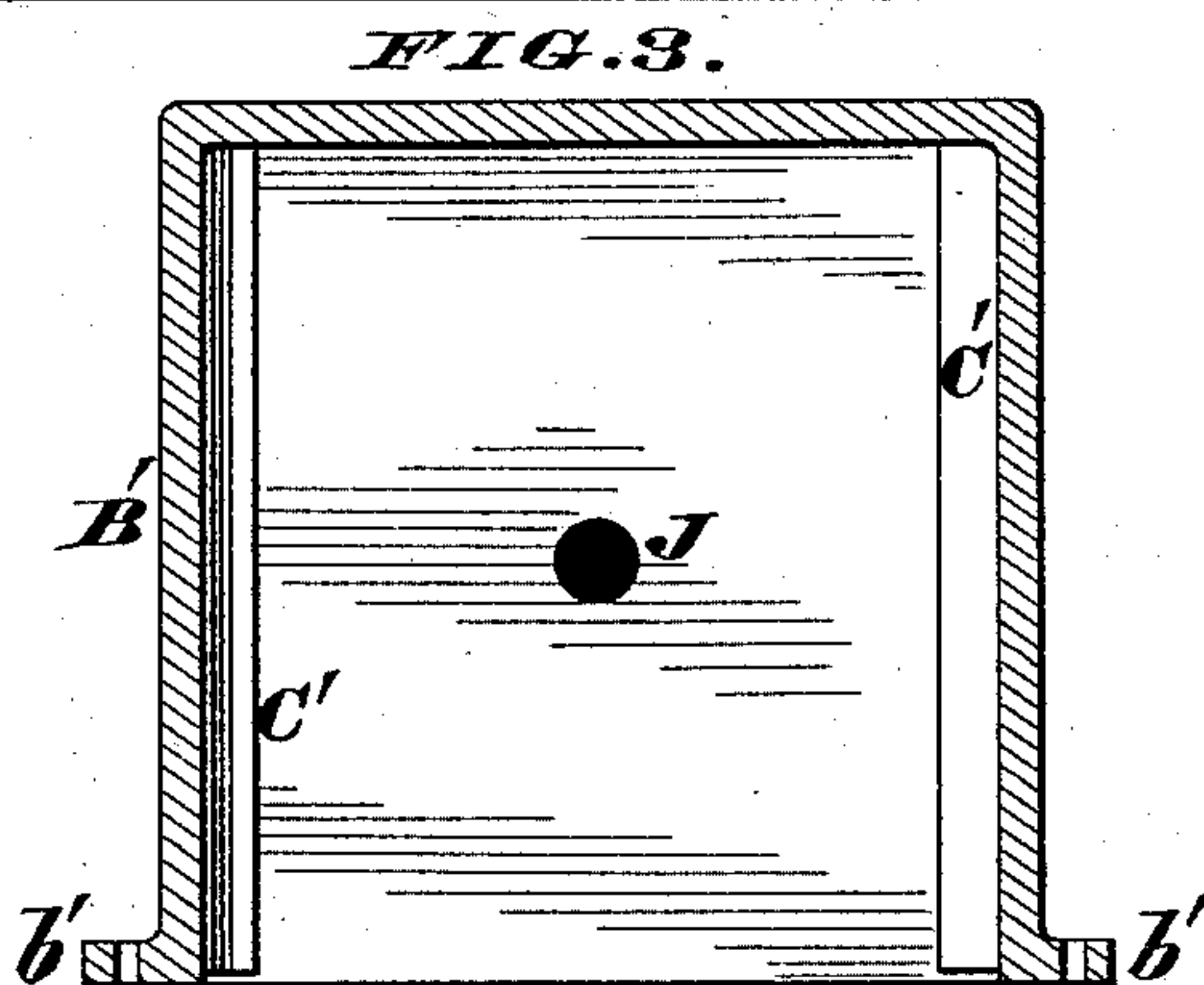
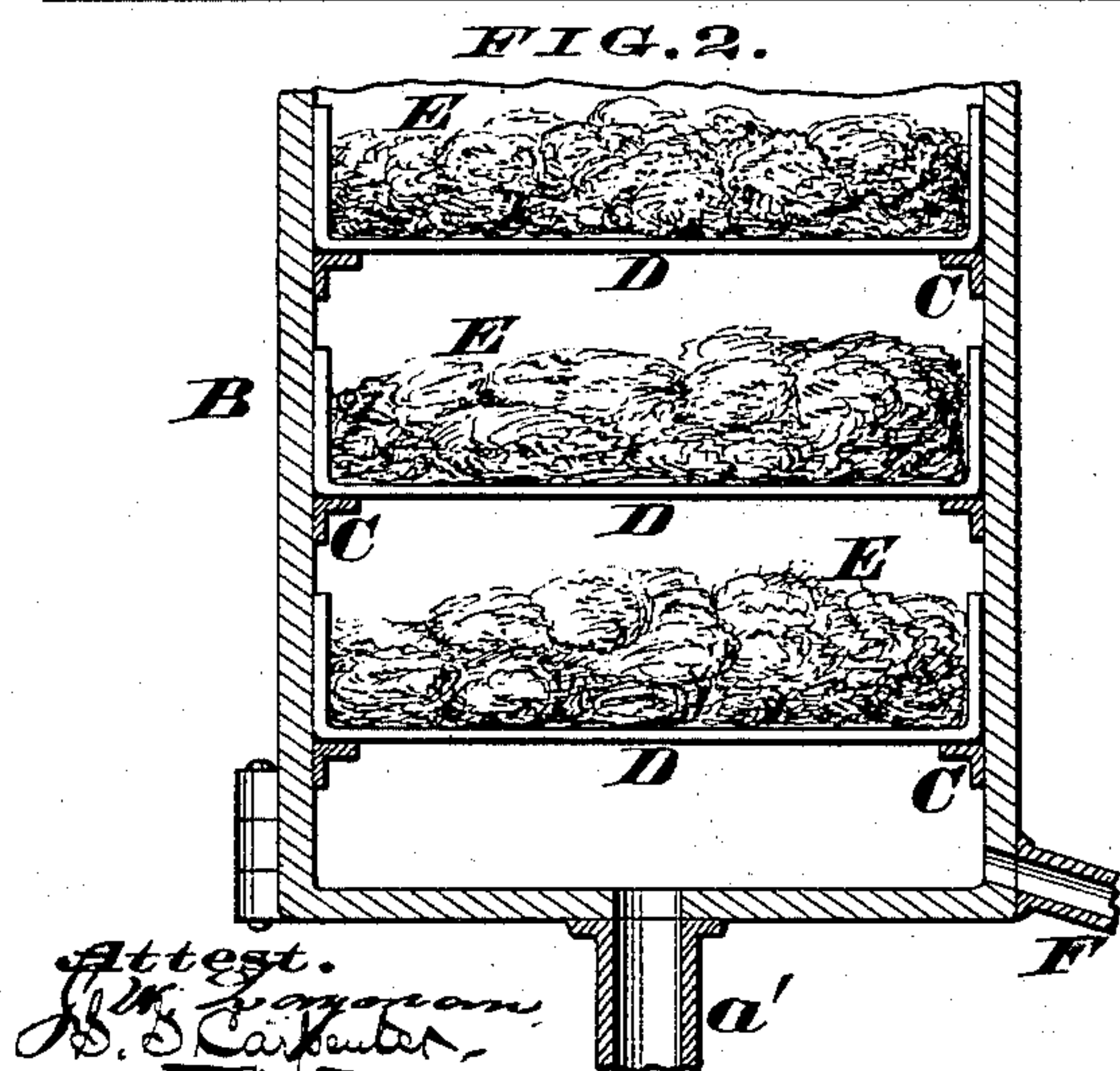
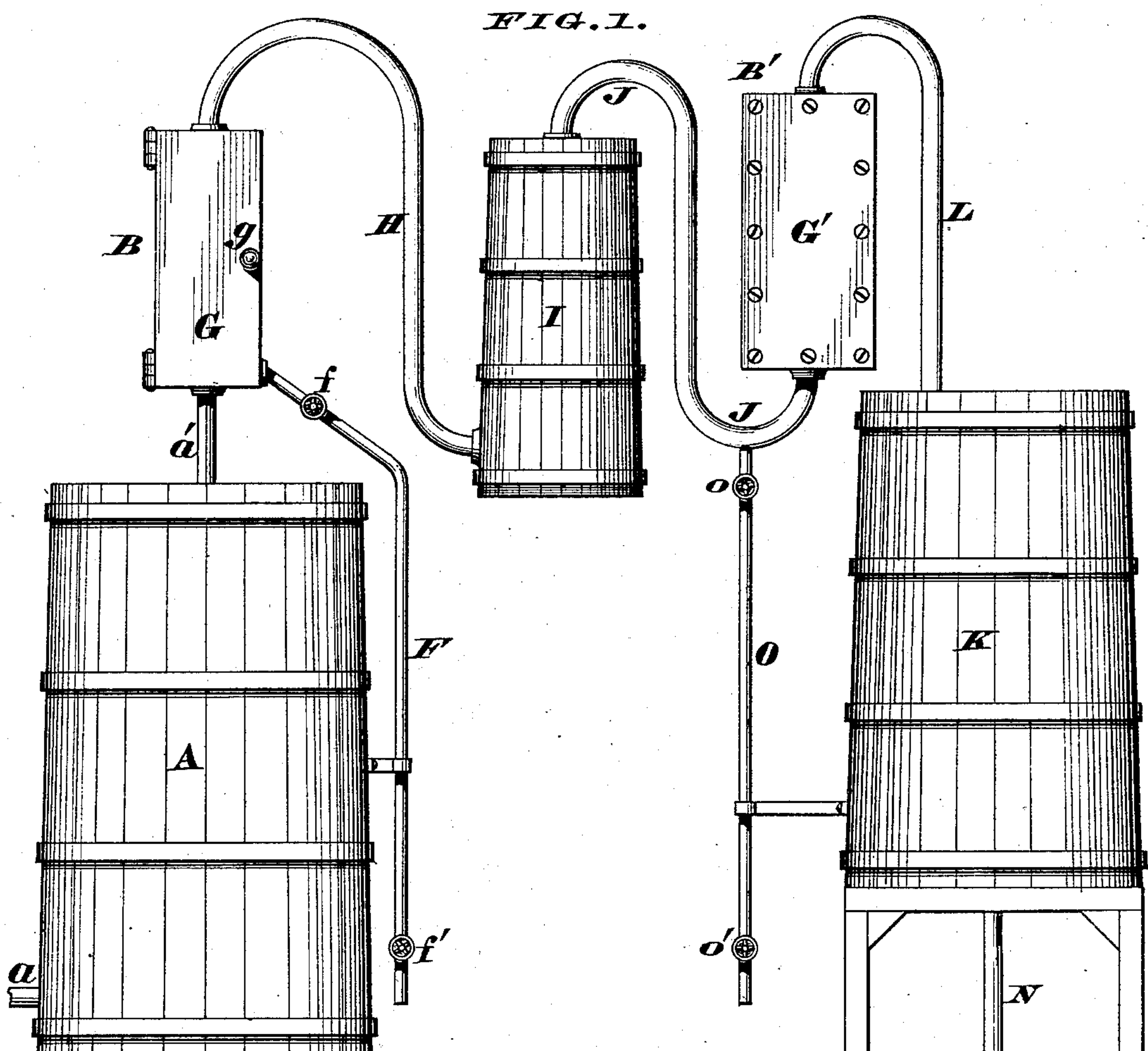
(No Model.)

D. G. COPPIN.

APPARATUS FOR DISTILLING.

No. 279,918.

Patented June 26, 1883.



Attest.
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UNITED STATES PATENT OFFICE.

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APPARATUS FOR DISTILLING.

SPECIFICATION forming part of Letters Patent No. 279,918, dated June 26, 1883.

Application filed April 18, 1883. (No model.)

To all whom it may concern:

Be it known that I, DANIEL G. COPPIN, a citizen of the United States, residing at Newport, in the county of Campbell and State of Kentucky, have invented certain new and useful Improvements in Apparatus for Distilling, of which the following is a specification, reference being had therein to the accompanying drawings.

My improved apparatus consists, essentially, of a beer-still, a doubler, a condensing-worm, and a pair of purifying chests or boxes, which chests are charged either with sponge or cork, or both of these materials, as occasion may require. Of these purifying-chests the primary one is situated between the beer-still and the doubler, while the secondary chest is located between said doubler and the condenser, a system of pipes being arranged to carry the vapor from the still through the entire apparatus, and finally conduct said vapor into the worm. Furthermore, each purifying-chest is provided with a pipe to draw off the fusel and etherial oils that may collect in said chests, these deleterious fluids being arrested by the sponge or cork fillings wherewith said chests are charged, thus dispensing with the ordinary column. The fillings, whether of sponge or cork, or a mixture of both of these materials, are contained in shallow trays applied to said chests, said trays being either slotted, slatted, or perforated to allow a free passage of the vapor through said fillings, as hereinafter more fully described.

In the annexed drawings, Figure 1 is an elevation showing the arrangement of my distilling apparatus, the exact proportions of the same not being adhered to. Fig. 2 is an enlarged vertical section through the lower part of the purifying-receptacle, situated between the beer-still and "doubler." Fig. 3 is an enlarged horizontal section through the purifying-receptacle, located between the doubler and worm, the trays being removed from said receptacle and the cap detached therefrom.

A represents a beer-still, of any suitable size and construction, said still being furnished with a pipe, *a*, for admitting either live or escape steam in the usual manner. Proceeding from the top of this still is another pipe, *a'*,

communicating with the bottom of a chest, box, or other appropriate receptacle, B, of which chest the details of construction are seen in Fig. 2. Reference to this illustration will show that said box has secured in it a series of angular supports or bearers, C, that sustain either slotted, slatted, or perforated trays, racks, or drawers D, which trays should be made of copper or other material that will not injuriously affect the liquor. These shallow vessels D are charged either with sponge or cork E, or a mixture of both of said materials may be used, a space of about three inches being preferably left between each layer or stratum of sponge and the shelf immediately above it.

F is a waste-pipe communicating with the lower portion of receptacle B, said pipe being provided with an upper cock or valve, *f*, and a lower cock, *f'*, for a purpose that will presently appear. G is a hinged door of this receptacle, and *g* is a lock or equivalent device capable of closing said door so tightly as to effectually prevent the escape of vapor from said box B, a packing-ring or gasket being interposed between the door and box, if desired. Attached at one end to the top of this box is a pipe, H, whose other end communicates with the lower part of a doubler, I, of any approved construction. Proceeding from the upper head of this doubler is a pipe, J, which is so bent as to discharge into the bottom of a secondary receptacle, B', the latter being in all respects similar to the box B previously described. Reference to Fig. 3 will show that receptacle B' is square in transverse section, and is furnished with internal bearers, C', to support a series of trays similar to those seen in Fig. 2, these trays being of course charged either with sponge or cork, or a mixture of both of these materials. Furthermore, Fig. 3 shows that the box B' is provided with a marginal flange, *b'*, to which latter is bolted the cap or plate G' seen in Fig. 1, thereby indicating that the open side of said box may be closed with any convenient covering. Reaching from the top of this chest B' to the worm-tub or condenser K is a pipe, L.

N is the discharging-pipe of the worm, which pipe may communicate with ordinary high and low wine tubs. O is a pipe attached to the

lower bend of pipe J, and provided with two cocks or valves, *o* and *o'*.

The operation of my distilling apparatus is as follows: The various trays D in the two receptacles B and B' are first charged with clean sponge or cork E, or a mixture composed of both of these materials, as occasion may require, and the covers G G' of said receptacles are then hermetically closed. The valves *f f'* and *o o'* being now closed, steam is admitted to the beer-still A, and the distillation of liquor is then carried on in the usual manner. It is evident, however, that before the vapor can pass from said still into the doubler I it must first traverse the slots or perforations of trays D, and then pass through the various layers of sponge in the chest B, thereby enabling the porous medium E to absorb from the vapor a large proportion of the fusel or ethereal oil or other deleterious matters contained therein. Consequently the vapor is purified to a certain extent before it enters the doubler I preparatory to passing through the secondary chest B' and worm K.

At any time during the distilling operation the cock *f* can be opened, so as to allow any oil that may have accumulated in chest B to run into pipe F. Said cock can then be closed and the lower one, *f'*, opened, thereby draining the pipe. The same operation can be gone through with for the purpose of drawing off the deposits from the bottom of receptacle B'.

If the sponge should at any time become clogged with impurities, the covers G or G' can be opened, the old sponges removed, and clean ones substituted in their place. The soiled sponges can then be purified at leisure.

Instead of using sponge alone, I have found that better results may be obtained by putting such filling in the first box, B, and charging the second box, B', with cork. This arrangement is preferred, because the sponge is not liable to become inoperative by the highly-heated vapor arising from the beer-still A, while the cork is more readily affected by heat.

Again, in some cases it may be found advisable to lead the pipe *a'* into the top of chest B and conduct the other pipe, H, from the bottom of the same; but the results would not prove as satisfactory as the arrangement shown.

I claim as my invention—

An improved distilling apparatus, consisting of the beer-still A, doubler I, condenser K, pipes *a' H J*, and a pair of purifying-chests, B B', located as herein described, said chests being charged with stratum of sponge and cork, through which the vapor passes, as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

DANIEL G. COPPIN.

Witnesses:

JAMES H. LAYMAN,

AUGUSTUS KAYSER.