

(No Model.)

A. H. JOHN.  
DISTILLING APPARATUS.

No. 265,323.

Patented Oct. 3, 1882.

Fig. 2.

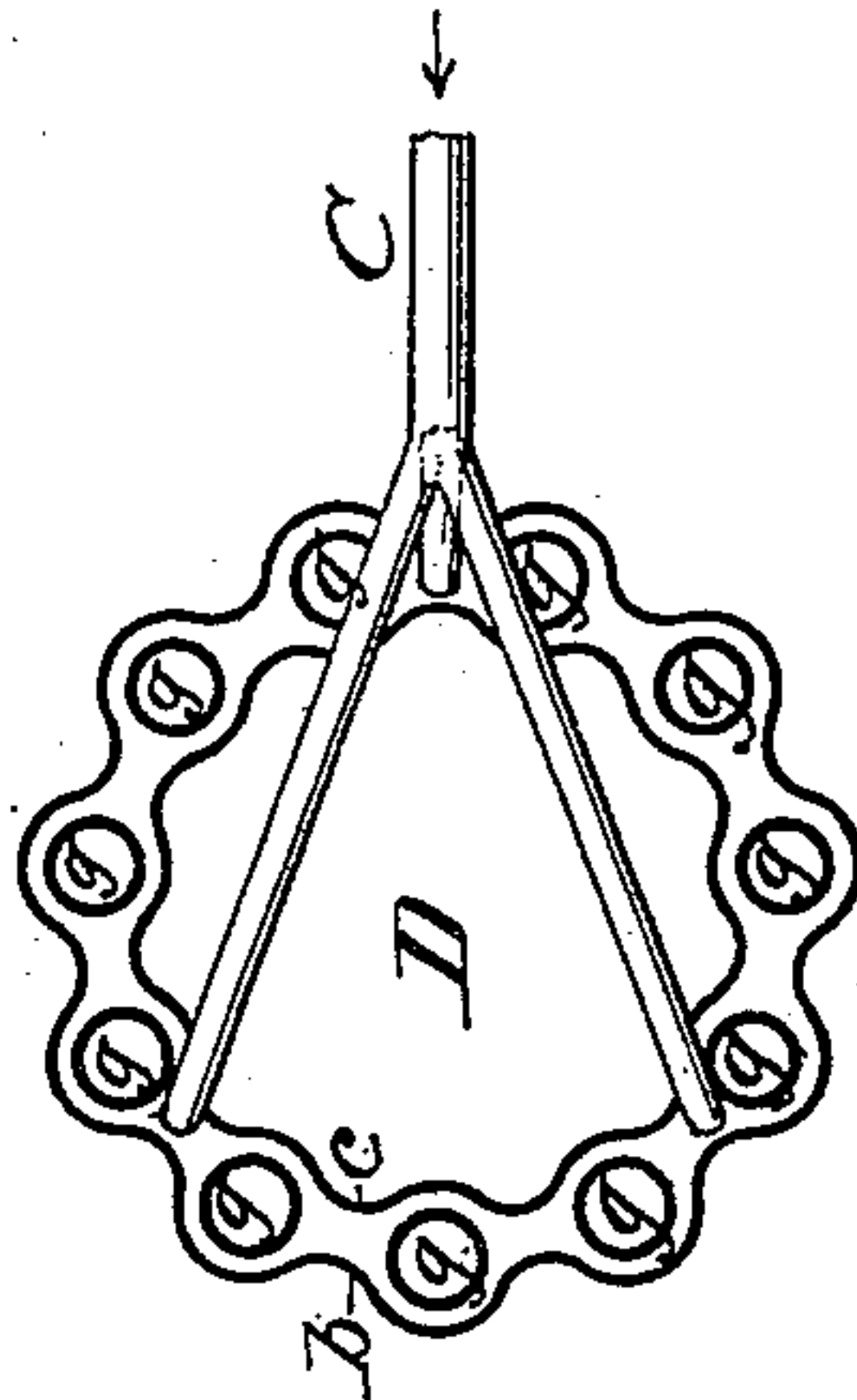
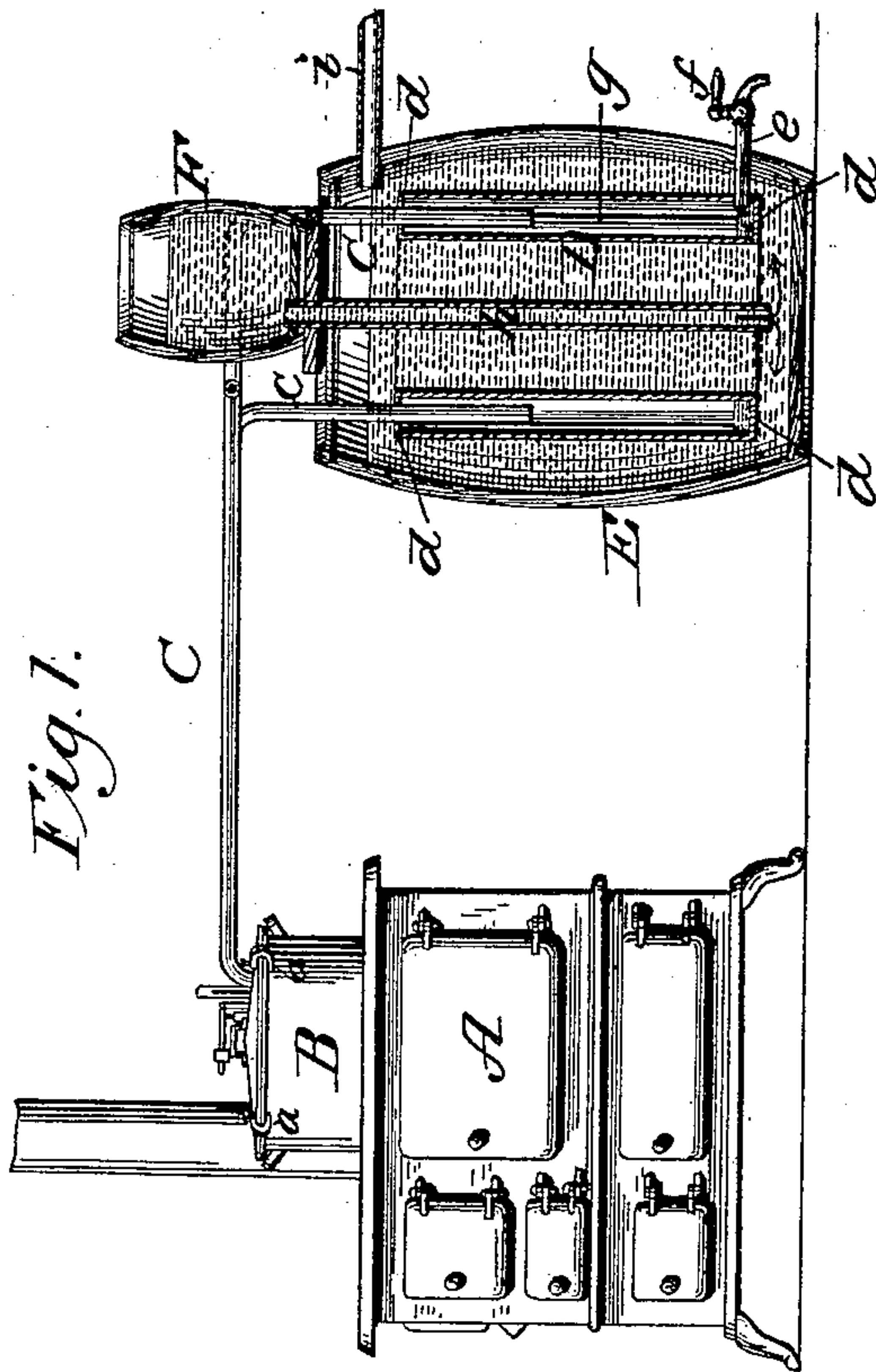


Fig. 1.



Attest.  
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# UNITED STATES PATENT OFFICE.

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TO SAMUEL M. PICKLER, OF SAME PLACE.

## DISTILLING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 265,323, dated October 3, 1882.

Application filed June 27, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, ABRAHAM H. JOHN, of  
Kirksville, in the county of Adair and State  
of Missouri, have invented certain Improve-  
ments in Distilling Apparatus, of which the  
following is a specification.

My invention relates to the distillation of  
spirituous liquors, essential oils, &c., and is  
mainly designed for domestic or general use,  
with small portable apparatus instead of the  
costly plan commonly employed.

The invention consists in the adaptation of  
the apparatus to domestic use and rendering  
the same conveniently portable; in the employ-  
ment of a tin or tin-surfaced evaporator, and  
in a peculiar construction of the condenser.

The apparatus consists of a boiler or evap-  
orator adapted to be placed and used upon a  
common stove, a condenser, and a water tank  
or supply adapted to maintain a continuous  
and uniform flow of water through the water-  
chamber of the condenser.

In the accompanying drawings, Figure 1 rep-  
resents a side elevation of my improved appa-  
ratus mainly in section, and Fig. 2 a plan view  
of the condenser.

A indicates a common cook-stove, and B an  
evaporator or boiler in which molasses or other  
saccharine matter previously fermented by the  
aid of yeast in the ordinary and well-known  
manner is placed. The evaporator may con-  
veniently be a common wash-boiler; but the  
cover should be clamped down or made fast by  
clamping-screws *a*, or equivalent devices, to pre-  
vent the escape of vapor otherwise than through  
the pipe C, which communicates with the con-  
denser D.

It is important that the evaporator or boiler  
be made of or surfaced with tin, in order to pre-  
vent chemical action, which, when copper ves-  
sels and pipes are used, produces verdigris and  
other poisonous matters which can only be re-  
moved from the distillate with difficulty and  
by subsequent evaporate treatment, if at all.

The pipe C is branched or divided and caused  
to enter the condenser at several points equi-  
distant from each other, in order to evenly dis-  
tribute the vapor through the condenser and  
insure its rapid condensation, the drawings rep-  
resenting three branches to said pipe. The

pipes are carried downward within the drum  
or body of the condenser to about one-third or  
one-half its length, to deliver the vapor at or  
about the medial line of temperature of the sur-  
rounding water. By thus carrying the mouths  
of pipe C below the top of the condenser the  
vapor is brought at once to the cooler portion  
of the condenser-surface, and the condensation  
is very rapid instead of remaining at the top of  
the condenser, as it would otherwise be apt to do.

The condenser consists of a double-walled  
cylinder or drum, D, formed of two concentric  
pipes, *b* and *c*, the intervening space between  
which is closed at the ends by annular heads  
*d*, forming a closed chamber or vessel, into  
which the vapor is conducted by the pipe C,  
and from which the distillate is withdrawn  
through a pipe, *e*, and cock *f* at the bottom.  
Pipes or tubes *g* extend through the closed an-  
nular chamber of the condenser from end to  
end and through the heads *d*, said pipes being  
of a diameter somewhat less than the width of  
the annular space or chamber of the condenser,  
and placed at distances apart corresponding  
substantially to their diameter. The corruga-  
tions of the pipes or walls *b c* are made concen-  
tric with the tubes *g*, or practically so. This  
construction affords a very extended surface  
for condensation of the vapor, which comes in  
contact with the corrugated interior faces of  
the pipes *b c* and the exterior surface of the  
tubes *g* in the form of a thin film or stratum.  
The condenser thus formed is immersed in wa-  
ter in a tank, E, for which I preferably employ  
a common cask, as being readily obtainable  
and very suitable, the outlet-pipe *e* of the con-  
denser passing out through its side, as indicated,  
and being properly packed to prevent leakage  
around it, the condenser being raised some-  
what above the bottom of the tank or cask E,  
to permit the water to pass beneath it.

To maintain a proper temperature of the wa-  
ter it is necessary to change the same con-  
stantly, and to do this to the best advantage I  
employ a smaller tank, preferably cask or keg  
F, and place the same directly above the cask  
E, which serves as a support therefor. From  
the bottom of the tank or keg F a pipe or tube,  
*h*, passes downward centrally through the drum  
or body of condenser D to a point somewhat



below the bottom of the condenser, as shown in Fig. 1. The tanks or vessels being filled with water, that contained in tank F flows down through pipe *h*, and escaping at the lower end is discharged equally in all directions around the same, and rises to displace the warmer water, which overflows through a pipe or outlet, *i*. In this way the water is caused to pass upward through the tubes *g* and in contact with the inner and outer walls of the condenser. The vapor in the chamber or interior of the condenser D is thus exposed to a very extended cooling or condensing surface, and is rapidly and efficiently cooled, the quantity of water required being reduced to the minimum.

In practice I prefer to slightly dish the bottom of tank F to insure the perfect discharge of water therefrom.

The apparatus thus constructed is exceedingly simple, efficient, and easy of manipulation, and can be constructed, set up, and operated by persons having little or no previous experience in such matters. The parts required can be procured in any town or village, and the apparatus is therefore peculiarly suited for farm or domestic use.

It is obvious that mash may be distilled in this apparatus, as well as molasses, sirups, or other saccharine preparations.

The evaporator is provided with a thermometer and a safety-valve, as indicated.

Having thus described my invention, what I claim is—

1. The herein-described portable distilling apparatus, consisting of evaporator B, pipe C, condenser composed of tanks E F, pipes *h i*, and corrugated body D, having tubes *g* within the corrugations, all combined and operating as explained.

2. The herein-described condenser, consisting of corrugated hollow-walled cylinder D, having open-ended tubes *g* within the corrugations, tank E, surrounding cylinder D, and tank F, mounted above tank E, and having discharge-pipe *h*, extending downward centrally within the cylinder D, substantially as shown and described.

3. In combination with the condenser consisting of cylinders or drums *b c*, corrugated as shown, and tubes *g*, placed within said corrugations, water-tanks E and F, the latter being placed above the condenser and provided with a pipe, *h*, extending centrally through the condenser to a point below the same, whereby the water is caused to pass upward through the tubes and in contact with the inner and outer walls of the drum.

ABRAHAM H. JOHN.

Witnesses:

WILLIAM H. JOHN,  
GEO. F. GRAHAM.