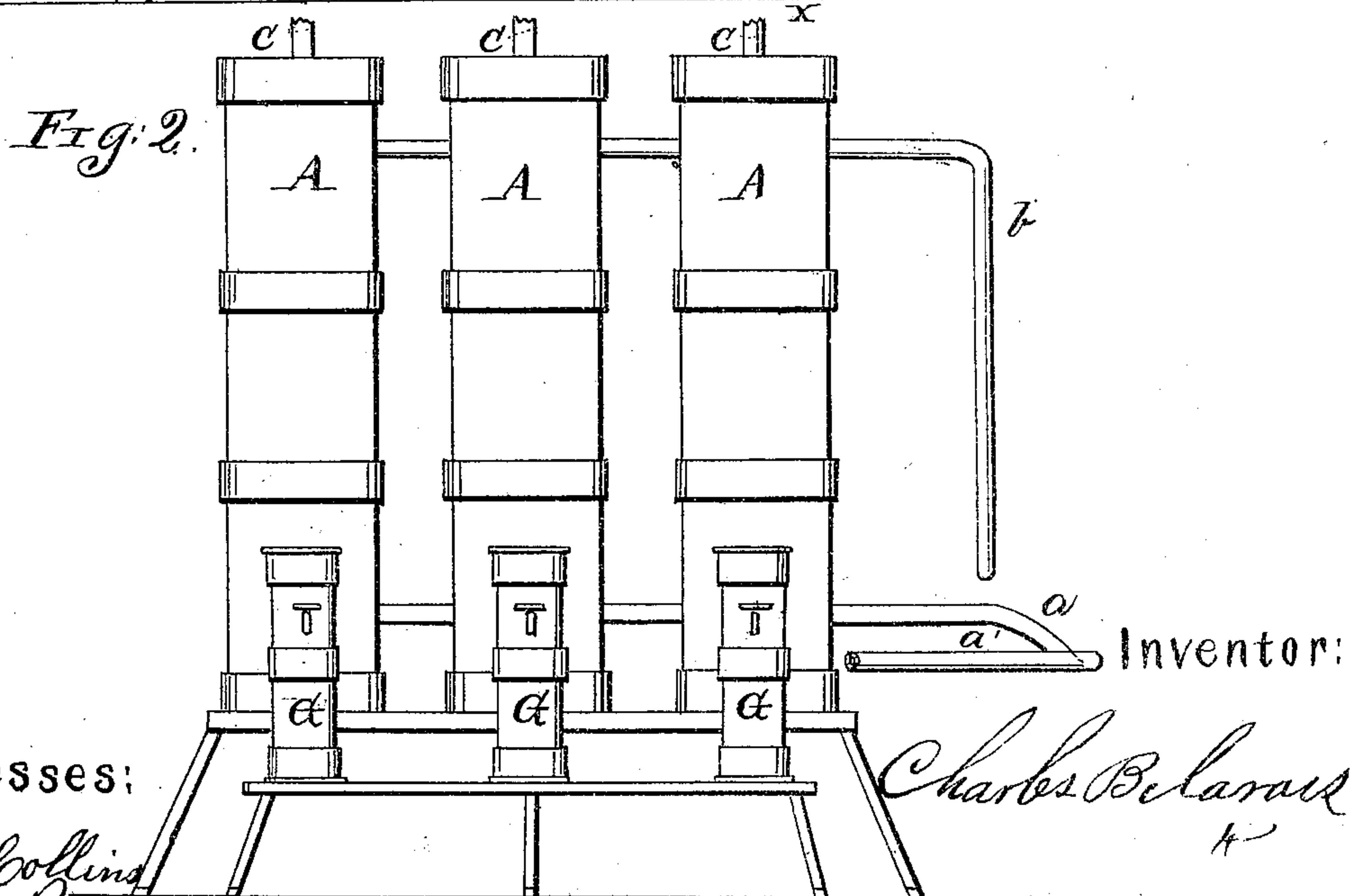
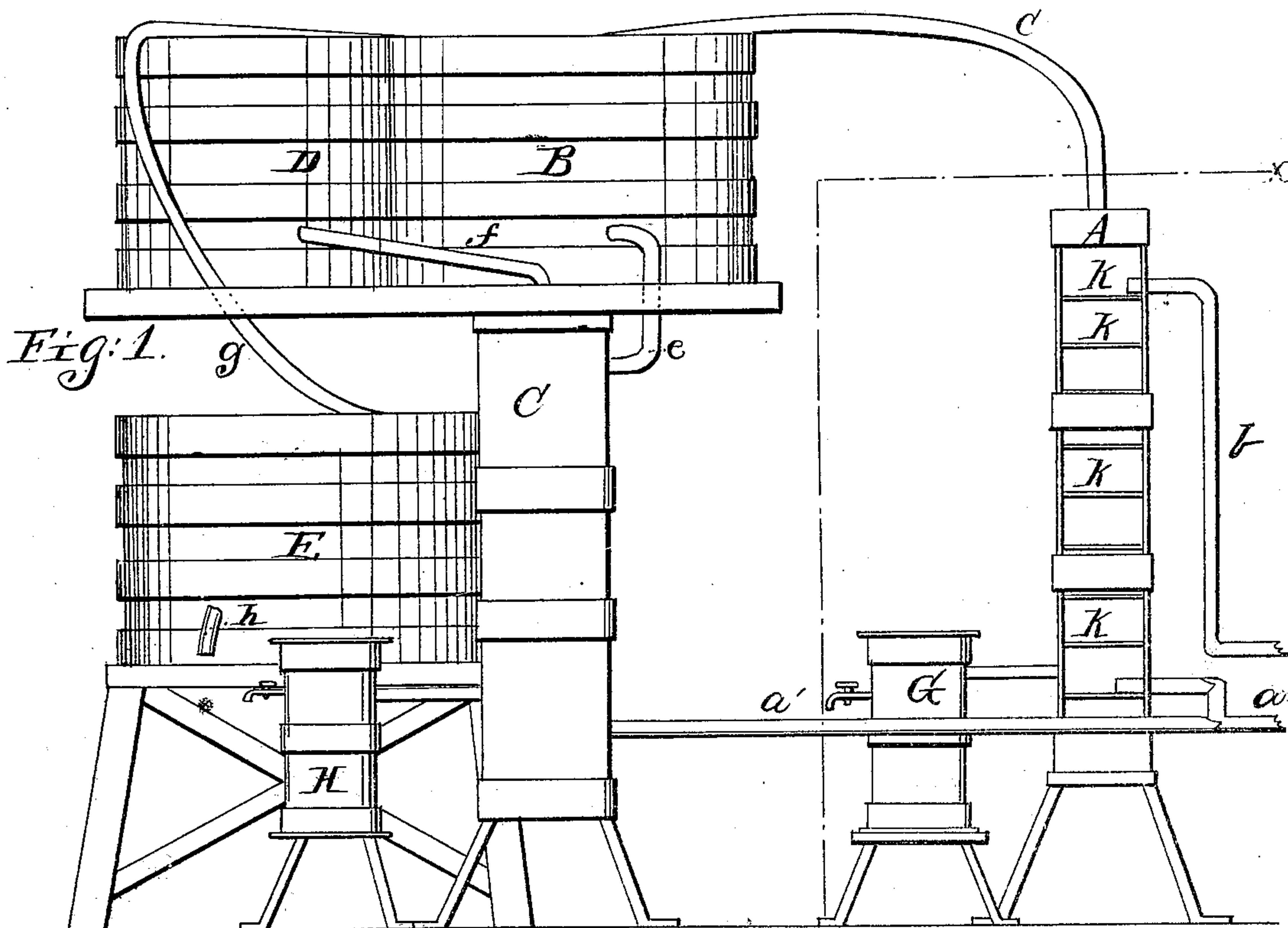


*C. B. Jarvis. Sheet 1, 2, Sheets.*

*Process of Distilling Spirits.*

*N<sup>o</sup> 89,318. Patented Apr. 27, 1869.*



Witnesses:  
*Geo. Collins*  
*Thos. J. Baldwin*

Inventor:  
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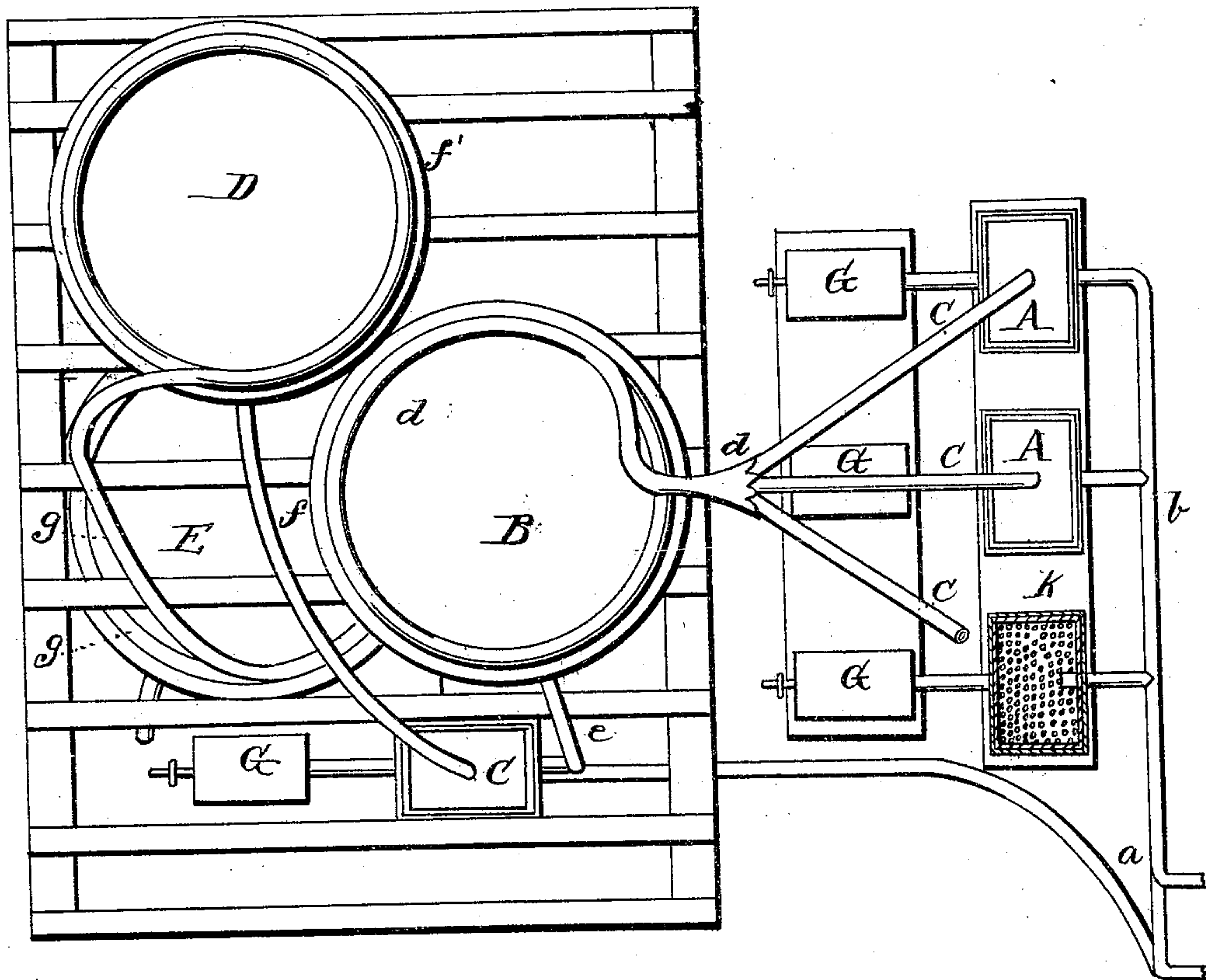
C. B. Jarvis. *Sheet 2, 2 Sheets.*

*Process of Distilling Spirits.*

*N<sup>o</sup> 89,318.*

*Patented Apr. 27, 1869.*

*Fig. 3.*



Witnesses:

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*Thos. J. Baldwin*

Inventor:

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# United States Patent Office.

CHARLES B. JARVIS, OF NEW YORK, N. Y.

Letters Patent No. 89,318, dated April 27, 1869.

## IMPROVED PROCESS OF DISTILLING SPIRITS.

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, CHARLES B. JARVIS, of the city of New York, and State of New York, have invented a new Process of Distilling Spirits from Grains, or any fermented material; and I hereby declare that the following is a full, clear, and exact description thereof, and the apparatus for doing the same continuously, reference being had to the accompanying drawings, making a part of this specification, and the letters of reference marked thereon, in which the same letter represents the same thing in each figure.

Figure 1 is a front view of my apparatus, showing the principal parts, and their arrangement to each other.

Figure 2 is a section, taken as represented by line *x x* in fig. 1, showing the columns.

Figure 3 is a top view, showing the worms, and the top of columns and worm-tubs, also the perforated plates with which the columns are supplied.

My invention is applicable to the distillation of spirits, or any kind of beer, from fermented mash, from grains, molasses, or any suitable material, and is so constructed as to avoid the usual necessity, which existed in all stills prior to my invention, of stopping the operation to replenish the still and draw the waste or slop from the still. But in my still I have a continuous distillation, a continuous renewal, a continuous discharge of the refuse slop, and a continuous delivery of the spirits produced, and at a very great saving of time, labor, and expense, while, at the same time, a greater quantity of spirits is produced from the same quantity of grain than is produced by any other process.

My apparatus consists of a series of mash-columns, A A A, and an alcohol-column, C, worm-tubs B D E, each supplied with suitable worms, siphon for each column, G G G, and H, and the necessary connecting-pipes to secure a perfect operation.

To construct a distillery according to my plan, I erect a series of columns, the number being in proportion to the amount of grain which I desire to run, the number represented in my application being three, and are marked in the drawings A A A. These are made about forty to forty-five feet in height, and about two feet six inches by three feet, in the clear, across. They are usually constructed of wood, and securely clamped together in such manner as to give them strength, and keep them steam-tight, and are provided with perforated plates, set in at short distances from each other, the entire height of the column; or, in the place of plates, bars can be used. (In the drawings, these plates are marked *k*.)

In front of each column, I put a siphon, G, through which the slop or waste passes off, and which also serves as pressure to prevent the steam from passing out with the waste slop.

From the top of each column is a pipe, *c*, which connects with the worm *d*, through which the vaporized spirits pass off from the columns A A A into the worm *d*, and thence into the alcohol-column C, which

is provided with siphon H, for the same purpose as siphons G G G.

From alcohol-column C, the vaporized spirits pass upward through the ascending worm *f*, and thence down through the descending worm *g*, and off at *h* into its receptacle. Each of these worms is properly coiled in its respective tubs B, D, and E, which are properly located for their use.

My manner of operation is as follows:

I let steam from my boiler into the columns A A A, at the base, through pipe *a*; and when the steam has reached the top of the columns, I inject the mash, by means of a force-pump, into the columns at the top, through pipe *b*, and as the mash falls down the column, through the perforations in plates *k k*, &c., it comes in continuous contact with the steam, which heats it, and vaporizes and forces all the spirits from it, before it reaches half its downward passage through the column, and the vaporized spirits are forced through pipes *c c c* into the worm *d*, through which they pass downward, and are condensed, and pass off at from twenty to forty per cent. above proof. Or, if I desire a higher proof, I pass them from worm *d* directly into the top of alcohol-column C, through pipe *e*, into the base of which I let steam through pipe *a'*, which passes up, and heats and vaporizes the spirits as they drop from plate to plate in the column, as in the columns A A A, and the vapors pass upward, through the pipe *f*, into the worm *f*, through which they pass upward, and then from it downward, through pipe *g* and worm *g*, from which they are drawn off at pipe *h*, at from eighty to ninety per cent. above proof, thus making a continuous distillation by a continuous replenishing and a continuous discharge.

The slop, or waste, passes off at the siphon of each column, and can be advantageously used to heat the mash by running the waste-pipe through the reservoir or vat from which the mash is thrown into the columns.

By the great length of column through which the mash falls, it being in constant contact with the steam the whole distance, the entire spirits contained in the mash become vaporized and pass into the worm, and a greater proportion of spirit is obtained from it than by any previous process, and the necessity of reheating or reboiling is obviated; and by the use of the siphon, the waste, or slop, is continuously discharging through the waste-pipe, and serves to heat the mash before it is thrown into the column.

By this process, no low-wines are made, and great expense is saved in rectifying, and great rapidity also secured.

Having thus described my improvement,

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

1. Distilling spirit from mash, or wash, continuously injected into a column with perforated divisions, wherein, as it passes, vaporization is induced by a continuous current of steam, substantially as described.



2. The combination of column A, perforated plates *k*, pipes *a*, and worm *d*, constructed and operating together substantially as explained.

3. Column A, furnished with and divided by perforated plates *k*, for purposes of distillation.

4. The combination of columns A and C, perforated and dividing-plates *k*, pipes *c*, *e*, and *f*, worms *d*, *f*, and *g*, constructed and operating together to distil spirit, substantially in the manner described.

5. The combination of column A, perforated and dividing-plates *k*, and siphon G, acting together for

the purposes of distillation, substantially in the manner described.

6. A continuous distillation, in the manner set forth, by continuously contacting steam with the mash, or wash, and vaporizing the spirits therein, and continuously discharging the slop; or waste, during the distillation, substantially in the manner set forth.

CHARLES B. JARVIS.

Witnesses:

GEO. H. COLLINS,

THOS. J. BALDWIN.