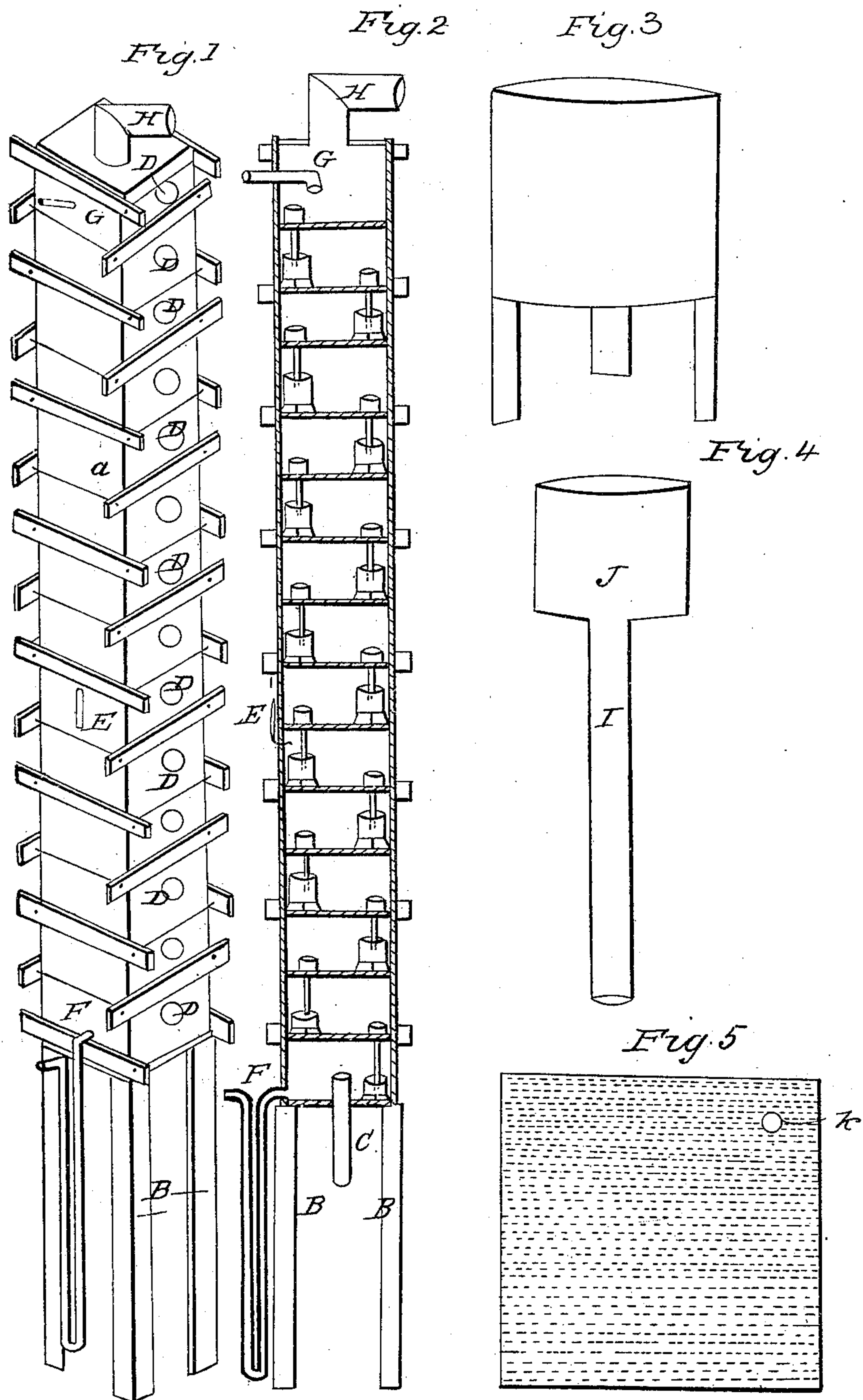


G. RILEY.
Alcohol Still.

No. 6,317.

Patented April 17, 1849.



UNITED STATES PATENT OFFICE.

GEORGE RILEY, OF NEW YORK, N. Y.

IMPROVEMENT IN DISTILLING APPARATUS.

Specification forming part of Letters Patent No. 6,317, dated April 17, 1849.

To all whom it may concern:

Be it known that I, GEORGE RILEY, of the city, county, and State of New York, have invented new and useful Improvements in Apparatus for Distilling and Rectifying Spirituous Liquors and Turpentine; and I do hereby declare that the following is a full, clear, and exact description of the principle or character which distinguishes them from all other things known, and of the manner of making, constructing, and using the same, reference being had to the accompanying drawings, making part of this specification.

Figure 1 is an isometrical view of my apparatus; Fig. 2, the inside of the still, (one of its sides being taken off,) showing the interior and the arrangement of its parts. Fig. 3 is a receiver; Fig. 4, a drop-pipe, and Fig. 5 a plate.

The same letters indicate like parts in all the figures.

The nature of my invention consists in causing the wash-beer or other article to be distilled to be subjected to the action of an ascending current of steam passing up through a series of perforated plates of metal, slate, soapstone, or other material securely fixed in a steam-tight vessel, each plate being provided with a drop-pipe and receiver below, the wash or other article being constantly supplied from above, and being deprived of its spirit by the ascending current of steam, (which passes off to the common worm,) the refuse constantly passes off below.

The construction is as follows: I take plates of metal, slate, soapstone, or other material and perforate them with tapered holes of from one-sixteenth to one-sixth of an inch in diameter on the face or upper part of the plate, the holes being tapered from the under or bottom part thereof and at equal distances of three-fourths of an inch. At about four inches from one corner toward the center a hole, K, is made of sufficient size to receive the tube of the drop-pipe, Fig. 4, the cup J of which rests upon the plate. The plates I have of from eighteen inches to three feet in diameter, according to the work required to be done. I make the total area of the holes such as will admit the steam employed to pass freely through them under a pressure of two or three pounds to the inch.

I prefer soapstone plates for my purpose

on account of their non-expansive properties and great durability when properly prepared. These I have made from half-inch to one inch thick, and when properly drilled and smoothed I dip them into the brown glaze commonly used by stoneware-makers and bake them in their stoneware-kiln along with their stoneware. This process, I find, renders the soapstone much stronger, exceedingly hard, and capable of resisting acids. The drop-pipe, Fig. 4, I have made of stoneware, the tube I being eight inches long, the cup J, or part remaining above the plate, being two inches and a half deep and twice the diameter of the tube. The receivers, Fig. 3, are also of stoneware, three times the inside diameter of the tube of the drop-pipe and four inches high or deep, standing upon three legs of two inches and a half long.

The still or case A may be a square or other formed vessel, one-half inch larger than the plates used, made steam-tight, and held securely together with strong grips, and elevated on a frame, B. A pipe, C, enters the bottom of the still for the admission of steam. Four pieces of board three-fourths of an inch thick and eleven inches deep, and as long as the side of the still will admit, are now nailed to the inner sides of the still, resting on the bottom thereof. These form a shelf or frame for the plate, Fig. 5, to rest upon, which is now let down and secured in its place by four other similar pieces of board nailed in the same manner, which form the shelf or frame for the next plate, which is let down with the hole for the drop-pipe at the opposite corner, and so on until the fourteen or sixteen plates are placed, which number I find enough for all ordinary work. A hole, D, is now made between each of the plates of sufficient size to admit the drop-pipe and receiver. The drop-pipe and receiver are put in, the drop-pipe from the first plate going into the receiver below, about two inches, and so on with the rest. The receivers are filled with water and the holes made tight with good sound plugs. Above the fifth plate is placed a thermometer, E, with the bulb within the case and the index outside. There is a tube, F, on a level with the bottom of the still which communicates with the inside. This is of siphon form, bending downward and then turning up again, the outlet being as high as the part

that enters the still. I make the siphon about six feet long to prevent the steam from escaping along with the spent wash or other refuse. Just above the top plate a pipe, G, enters, which is connected with a reservoir or pump for the purpose of admitting the article to be distilled. Another tube, H, is fixed in the top of the still, and is connected with the common worm.

The operation of the above-described apparatus is as follows: Steam is admitted through the tube C and ascends through the small holes in the plates, the bottom of each drop-pipe being immersed in the full receiver below. The steam cannot ascend through them. When the whole is hot—known by the steam passing onto the worm—a stop-cock (not shown in the drawings) is opened and the wash or other article to be distilled is admitted on the top plate. As steam is passing up through the small holes in the plate the wash cannot fall through them, and therefore it accumulates on the plate until its level is above that of the cup of the drop-pipe, when, meeting with no obstruction, it falls down into the receiver below, from which it constantly runs over into the next plate, from whence it proceeds in a similar manner through or over the whole series until it reaches the bottom, from which it constantly passes off through the tube F. The wash or other article in descending from the top plate to the bottom is thor-

oughly heated by the ascending current of steam, and the spirit contained therein is vaporized and passes off through the tube H to the common worm, where it is condensed. This state of things is kept up until the whole of the wash is distilled. The heat is regulated by letting in more or less wash or other article, and the temperature is indicated by the thermometer E, which ought to stand as high as 210° Fahrenheit when distilling alcoholic liquors, and at the boiling-point—212° Fahrenheit—when distilling turpentine.

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

1. Distilling and rectifying spirituous liquors and turpentine by causing a current of steam to pass up through a series of perforated metal, slate, soapstone, or other plates securely fixed in a steam-tight vessel, and provided with drop pipes and receivers below, through or over which the wash or other article is descending, the apparatus therefor being constructed substantially in the manner described.

2. The use of slate or soapstone plates for this purpose, with or without the combination of the drop-pipes and receivers, made and used as described.

GEORGE RILEY.

Witnesses:

D. B. TAYLOR,

UZZIAH WENMANN.