

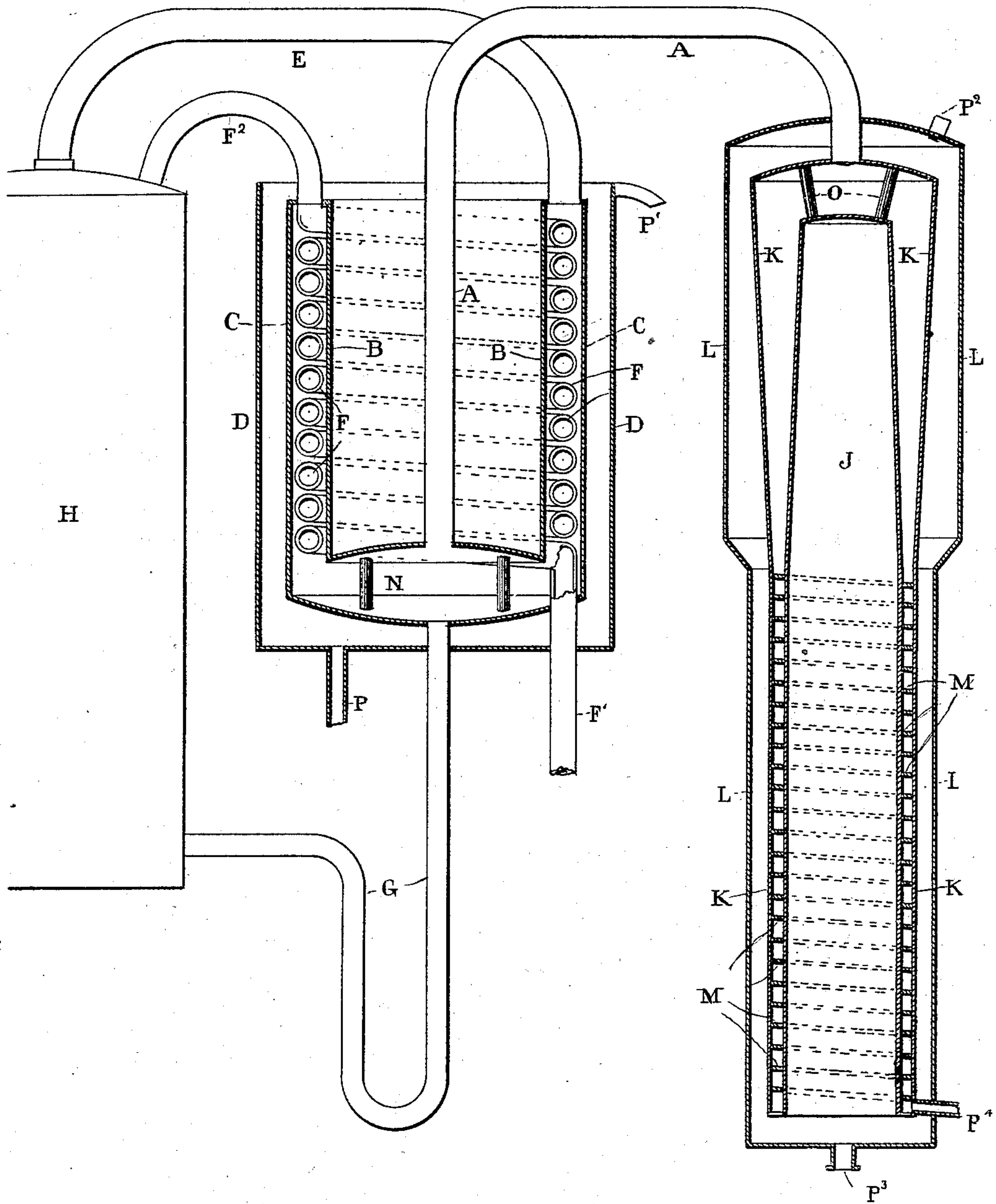
(No Model.)

F. SONIER.

SEPARATING CONDENSER AND COOLER.

No. 278,056.

Patented May 22, 1883.



Witnessed,
H. W. Wells.
J. M. Morse.

Inventor,
Frank Sonier,
per A. B. Upham,
His Attorney.

UNITED STATES PATENT OFFICE.

FRANK SONIER, OF PEORIA, ILLINOIS, ASSIGNOR OF ONE-HALF TO WILLIAM E. KINSEY, OF SAME PLACE.

SEPARATING CONDENSER AND COOLER.

SPECIFICATION forming part of Letters Patent No. 278,056, dated May 22, 1883.

Application filed January 13, 1883. (No model.)

To all whom it may concern:

Be it known that I, FRANK SONIER, of Peoria, in the county of Peoria, in the State of Illinois, have invented a Separating Condenser and Cooler; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the annexed drawing, making a part of this specification, in which like letters of reference refer to like parts, and in which the figure represents a central vertical section of the same.

This invention is for the purpose of constructing a simple and effective apparatus for the distillation of high-proof high-wines from beer and separating the same from the low-wines.

In the drawing, H represents a Jarvis column or other distilling apparatus; B C D F, the condensing and separating part of the apparatus; and J K L M the further condensing and cooling part.

D D is a water-tank having inlet-pipe P and overflow-pipe P'. Within this tank D, I place a copper cylinder, C, having a convex bottom, and within said cylinder C a still smaller copper cylinder, B, having a concave bottom. The top of this latter cylinder, B, is left open, but the space between the sides of the two cylinders B and C is securely closed by an annular cover. Within this said closed space is placed a coil of copper tubing, F, the lower end, F', of which connects with the beer-pump, and the upper end, F², goes over into the Jarvis column H. At the top of this inclosed annular space there is a copper pipe, E, opening therein, the other end of which connects with the column H. At the bottom of this said space, between the two cylinders B and C, there are two outlet-pipes, A and G, the latter of which goes to the column H, and the other, A, passes up and over to the cooler and condenser J K L.

The condenser and cooler J K L consists of the outer column, L, for the reception of water introduced through the pipe P³ and overflow P². Within said column L is a smaller copper cylinder, K, the upper one-third of which is invertedly conical, as shown. Within this cylinder K is a still smaller copper cylinder, J, the upper part of which is somewhat conical. These two cylinders J and K have closed and independent tops, but no bottoms, except the

bottom of the annular space between them, which is securely closed. Two or more pipes, O, permit a free circulation of water up through the cylinder J, as well as the column L. The pipe A passes through the top of the column L and opens into the space between the cylinders J and K. About the lower two-thirds of the cylinder J, and fitting against the cylinder K also, is wound a helical web, M, the last turn of which terminates in an outlet-pipe, P⁴. One or more pipes, N, permit the water to circulate freely within the cylinder B as well as the water-tank D.

The operation of my apparatus is as follows: The beer, being pumped up through the pipe F', passes on through the coil F', and from thence over into the column H, where, dripping downward, it is vaporized by an upward current of steam. This vapor and the steam then pass upward together through the pipe E, and down into the space between the cylinders B and C, and all about the coil of pipe F, which, with the beer therein, is quite a little heated thereby. Further cooling and condensation of this vapor and steam is effected by the water in the tank D and cylinder B, the temperature of which is kept at about 160°. The condensed steam and low-wines thence flow downward through the pipe G into the column H, while the uncondensed high-wines pass up through the vapor-pipe A, and thence down into the space between the cylinders J and K, where it is condensed by the enveloping cold water. From here the high-proof high-wine goes down and around through the long spiral channel made for it by the helical web M, where it is sufficiently cooled by the surrounding water, and from which it is conducted to any desired receptacle.

I claim as my invention the following, to wit:

1. The two cylinders B and C, arranged as described, in combination with an inlet-pipe, E, outlet-pipes A G, and coil of pipe F, substantially as and for the purpose specified.

2. The two cylinders B and C, arranged as described, coil of pipe F, and pipes E, A, and G, in combination with a water-tank, D, substantially as and for the purpose set forth.

3. In combination with a water-containing column, L, two cylinders, J and K, the space

between their sides being inclosed and provided with a helical web, M, substantially as and for the purpose described.

4. In combination with a water-containing column, L, the two cylinders J K, the space between their sides being inclosed and enlarged at its upper part, as shown, and the lower portion of said space being provided with a helical web, M, as set forth.

5. The cylinders B and C, coil of pipe F,

pipes E, G, and A, and water-tank D, in combination with the cylinders J and K, helical web M, and column L, substantially as and for the purpose specified.

In testimony that I claim the foregoing invention I have hereunto set my hand this 8th day of January, 1883.

Witnesses: FRANK SONIER.

H. W. WELLS,

J. M. MORSE.