E. L. Morse,

Still.

No. 92,633. Patented July 13. 1869.

Figure 1.

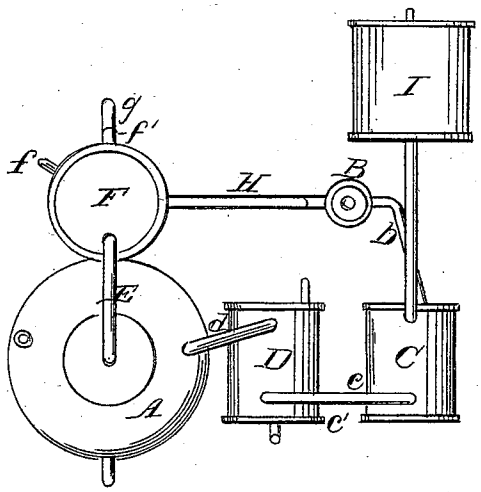


Figure 2.

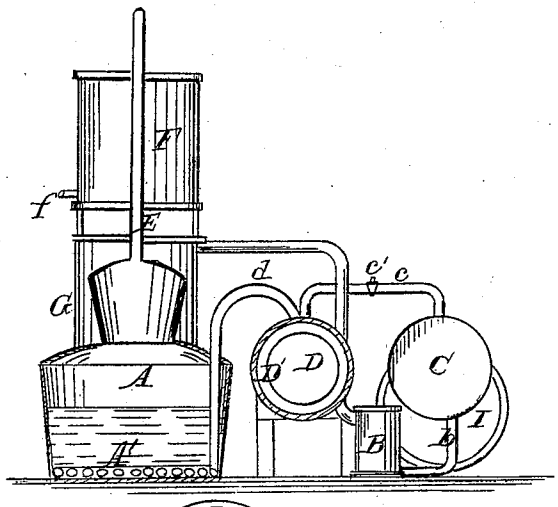
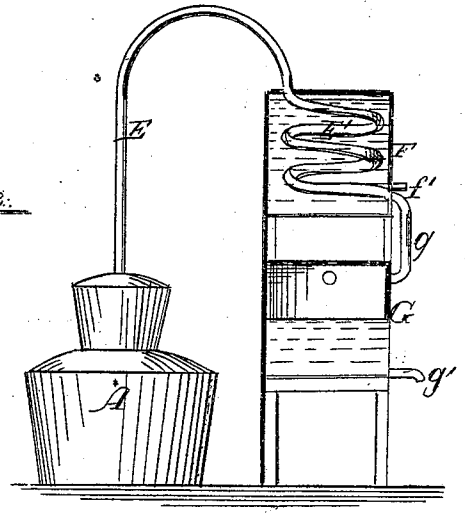


Figure 3.



Witnesses

Wm. H. Kerthel

Robert Burns

Inventor.

E. L. Morse by his Attys

Kerthel & Co.

N. PETERS. PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

EDMUND L. MORSE, OF ST. LOUIS, MISSOURI.

IMPROVED APPARATUS FOR AGING SPIRITS.

Specification forming part of Letters Patent No. **92,633**, dated July 13, 1869.

To all whom it may concern:

Be it known that I, EDMUND L. MORSE, of the city of St. Louis, in the county of St. Louis and State of Missouri, have made certain new and useful Improvements in Processes for Purifying and Aging Liquors and Similar Fluids; and I do hereby declare that the following is a full and correct description thereof, reference being had to the accompanying drawings and the letters of reference marked thereon.

The object of this invention is to free new and impure liquors from distasteful and deleterious admixtures, and to cause a quickened fermentative or other action tending to a production of the essential oils characterizing old and smoothly-flavored liquors.

The said object I effect by causing a well-distributed body of properly-heated air to enter a suitable still or other vessel containing the new liquor, and thus creating a stream of vapor which shall contain the better ingredients of the said liquor, and conveying said vapor to a proper condensing-vessel. It will be plain, therefore, that said volume of air will extract the more volatile components of the liquor, and at the same time, by its oxygenizing presence, improve the quality and age of the extractive resultant.

To enable those herein skilled to make and use my said improvements, I will now more fully describe the same, referring to the accompanying drawings, of which—

Figure 1 is a plan; Fig. 2, a longitudinal elevation; Fig. 3, transverse sectional elevation.

I place the high wines or other impure or imperfectly-rectified liquors in a still, A, of the usual form and material. In order to cause the extracting air-current to properly act upon the said liquor I have arranged in the manner following: I use an air-pump, B, for forcing air, of the usual construction and form, from which the air is forced, by the pipe *b*, to the accumulator or receiver C, said pipe *b* having proper valves to prevent the reflow of the air from the receiver. From said vessel C, I pass the air, by the pipe *c*, to the heater D, the pipe *c* being coiled within said heater, so as to properly heat the air within the coil. The vessel D may be heated by the steam from a steam-pipe connected with the boiler, or by any other convenient source. The air-pipe *c* has a valve or stop-cock, *c'*, for regulating or checking the air-feed to the coil in the heater. From the coil D' the air (now heated) passes, by the pipe *d*, to the still A, and runs to the lower surface of said still, to a horizontal coil, A', which is perforated, to allow the heated air to rise up through the liquor in said still, carrying with it such volatile hydrocarbons as usually constitute the valuable and choice components of ordinary liquors. The vapors thus formed are passed, by the pipe E, out of the top of said still to the condenser F. The pipe E, when it is contained in said condenser, forms a coil, E', to give an enlarged surface for the condensing action of the water in said condensing-vessel. In order to keep the temperature of the water in the condenser moderated, the feed-pipe *f* is arranged to furnish a constant supply, and the discharge-pipe *f'* runs off the surplus of warmer water. The condensed liquor and the non-condensable air or vapor pass from said coil E', by the pipe *g*, to the receiving-tub G, and the liquor itself may be drawn off at the bottom of said tub by the cock or valve *g'*. The air and non-condensable vapor occupy the upper part of said tub G, and may be discharged by a vent arranged therefor. In order, however, that the air and vapor thus accumulating above the liquor in the tub G may not create a pressure to retard the inflow of fluid and vapor by the pipe *g* to said tub, I connect the said tub with the air-pump B by a pipe, H. Thus the pump may be applied to exhaust said air and vapor. Said pipe H will have a proper stop cock or valve to cut off the connection with the pump B, if desired. It is apparent that when the pump B is operated to exhaust the air and vapor from the tub G the reduced pressure thus created will aid the inflow of the fluid and vapor from the pipe *g*, and also act to draw the vaporized product from the still A, in this manner effectually aiding the process of extraction there performed by the heated air, and increasing the beneficial effect of the partial vacuum formed by the condensation in the condenser-coil E'. During said process the contact heated air with the vaporized products of liquor acts to cause a fermentative action, by which the essential oils characterizing old

liquor are incited and formed, and the action of the air-current here used is thus doubly beneficial. In case it be desired to continue the aging of the resultant liquor here obtained, I pass said liquor to the aging-vessel I. This vessel will be connected with the air-receiver C, or directly with the air-pump B, so that air may be supplied thereto. The air thus supplied will be properly distributed in the vessel I by a coiled perforated pipe, or by other means, and in this wise the oxidation of the liquor will be accelerated.

In the use of devices for performing the processes aforesaid, I do not confine myself to coils alone for giving an extended surface, but perforated diaphragms or other similar devices may be used.

The product remaining in the still A (usually impure low wines) will be drawn off by a proper valve or cock, *a*, to a return with new high wines, in case it be sufficiently valuable, or wasted if worthless, and thereupon the still may be recharged by the pipe *a'*, in the ordinary manner.

Having thus fully described my said invention, what I claim is—

1. The combination of air-pump B, pipe *b*, vessel C, pipe *c*, heater D, having the coil-pipe inclosed, with pipe *d*, and still A, and coil A', when used for purifying liquors, in the manner substantially as described.

2. The combination of the air-pump B, pipe H, and tub G, for the purpose substantially as described.

In witness of said invention I have hereunto set my hand.

EDMUND L. MORSE.

Witnesses:

WILLIAM W. HERTHEL,

GEO. P. HERTHEL, Jr.