No. 778,450. PATENTED DEC. 27, 1904

E. GUILLAUME.

ACCUMULATOR AND REGULATOR.

APPLICATION FILED JAN. 21, 1899.

Fig. 1

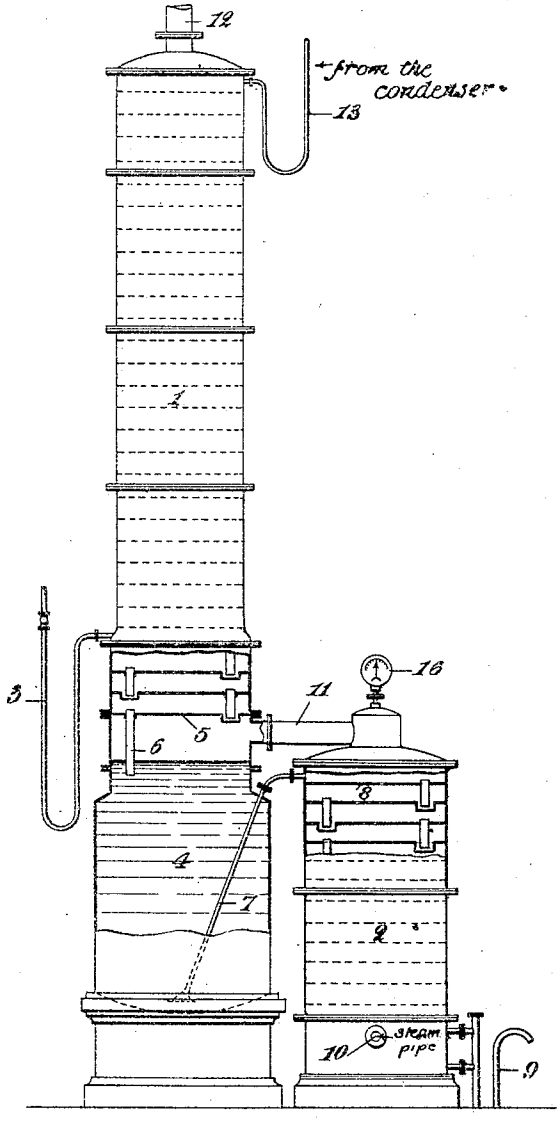


Fig. 2

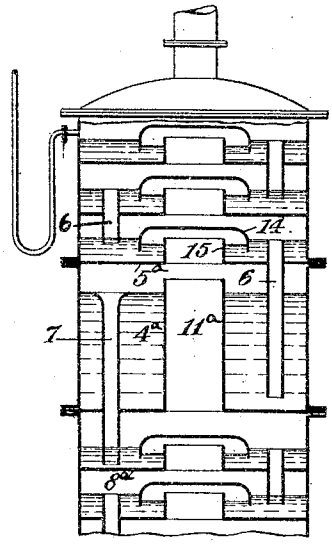
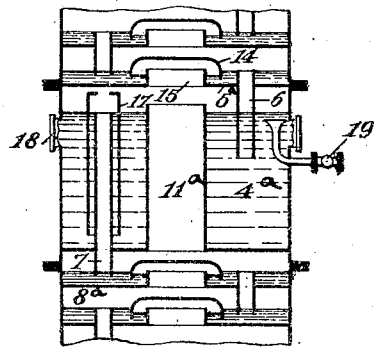


Fig. 3



WITNESSES

Ken. Kuhne

John A. Percival

INVENTOR

Emile Guillaume

BY Richards & Co

ATTORNEYS

No. 778,450. Patented December 27, 1904.

UNITED STATES PATENT OFFICE.

EMILE GUILLAUME, OF PARIS, FRANCE.

ACCUMULATOR AND REGULATOR.

SPECIFICATION forming part of Letters Patent No. 778,450, dated December 27, 1904.

Application filed January 21, 1899. Serial No. 702,964.

To all whom it may concern:

Be it known that I, EMILE GUILLAUME, a citizen of the French Republic, residing at Paris, France, have invented certain new and useful Improvements in Accumulators and Regulators, of which the following is a full, clear, and exact specification.

My present invention relates to improvements in the distillation or rectification of alcohol; and the object of the invention is to provide a device or apparatus by which a more regular or even output may be secured.

I have illustrated the invention in the accompanying drawings, in which—

Figure 1 is an elevation, partly in section, of my improved apparatus. Fig. 2 is a detail sectional view of a modification, and Fig. 3 is a similar view of a further modification.

In the drawings, referring first to Fig. 1, the numeral 1 designates a column having a liquid-chamber 4 in the lower portion of a considerable or relatively large capacity (about one hundred times more than that of an ordinary shelf) and in its upper portion a plurality of the ordinary perforated shelves or plates such as are well known to those skilled in the art. Alongside of this column is located a smaller column or "colonnette" 2, as it is sometimes called, which is provided likewise with a plurality of perforated shelves, as indicated at 8. The lower portion of the chamber 4 of the main column is in communication with the colonnette 2 at a point just above its topmost shelf 8, so that as the liquid rises in the chamber 4 it will overflow through the pipe 7 onto said topmost shelf and thence pass down through the successive shelves. The high-wines from which the high-grade alcohol is to be produced by the present apparatus are introduced through pipe 3 into the column 1 at a short distance above the chamber 4, as shown, and from this point they drop down from shelf to shelf into the chamber 4, as hereinafter stated, and thence overflow through pipe 7 onto the topmost shelf 8 in the supplemental column 2, whence they continue to drop down from shelf to shelf. The lower part of the column or colonnette 2 is supplied with the necessary heat by a steam-pipe 10, and the vapors produced thereby rise from shelf to shelf through the descending liquid until the upper part of colonnette 2 is reached, whence they flow through pipe 11 into column 1 below the lowermost shelf 5 and then rise in column 1 from shelf to shelf. It will be understood that as the vapors rise from shelf to shelf the less volatile portions are condensed and drop back, while the more volatile portions continue to rise until finally the high-grade alcohol-vapors pass out through the exit-pipe 12, whence they may be conveyed to any suitable condenser and condensed in the ordinary manner well known to those skilled in the art. If desired, the alcohol may be returned to the column 1 from the condenser by means of a pipe 13 to act on and purify the rising vapors.

At 16 is indicated a thermometer for indicating the temperature of the vapors passing from the top of the colonnette 2 through pipe 11.

The low-wines are removed by a siphon-pipe 9 from the base of the colonnette 2.

It is well known by those skilled in the art to which the present invention appertains that slight variations in the feed of the high wines cause sudden and considerable changes in the character of the liquid contained or held on the respective shelves, and hence corresponding changes in the alcoholic vapors delivered from the column. This objection I entirely avoid by interposing at a suitable point between the heated portion of the apparatus and the point of delivery of the purified vapors a chamber or receptacle of relatively large capacity. The result of this, it will be readily seen, is to equalize the action of the apparatus, as slight variations in the feed have practically no effect on the relatively large quantity of liquid contained in the equalizing-chamber.

Instead of using the ordinary perforated shelves and providing a main column and a supplemental column or colonnette, I may use the form of shelf shown in Figs. 2 and 3 and employ but a single column. In this case a central opening is provided in each plate 5^a and 8^a, having an upwardly-extending flange 15, and a cap or hood 14 above this flange has its edges depending below the level of the

liquid on the shelf, whereby the ascending vapors are caused to pass or bubble through the liquid held on each shelf. The overflow-pipes 6 project sufficiently far above each shelf to maintain the requisite quantity of liquid thereon. In this form the desired regulating or equalizing result is accomplished by largely increasing the capacity of one of the shelves, as indicated at 4^a, the central flange 11^a being made very long and the hood over the same omitted. The overflow-pipe 7 is made of corresponding length.

In Fig. 3 I show a gage-glass 18 for observing the height of the liquid and an outlet-pipe provided with a valve 19, by which a portion of the contents of the chamber 4^a may be withdrawn, the overflow-pipe being shown as having a hood 17.

Having thus described my invention, what I claim is—

In an alcoholic-rectifying apparatus having two portions with a plurality of the ordinary plates or shelves in each, and having an inlet for the alcoholic fluid, an exit for the alcoholic vapors from one portion and heating means for the other portion, a chamber or receptacle interposed between said portions and in communication with both and having a liquid capacity largely in excess of the said ordinary plates or shelves, substantially as described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

EMILE GUILLAUME.

Witnesses:

EDWARD P. MACLEAN,

JULES FAYOLLET.