

R. J. McNITT.
PROCESS OF DISTILLATION.
APPLICATION FILED SEPT. 18, 1909.

994,022.

Patented May 30, 1911.

Fig. 1

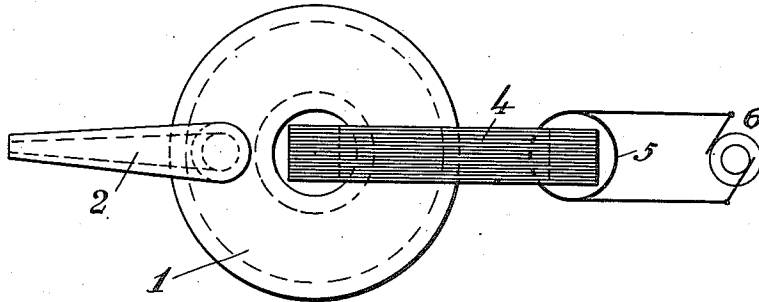
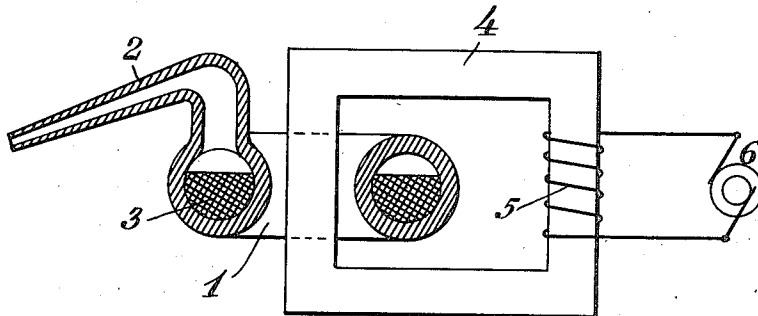


Fig. 2



Witnesses
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By his Attorneys
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UNITED STATES PATENT OFFICE.

ROBERT J. McNITT, OF NIAGARA FALLS, NEW YORK, ASSIGNOR TO ROESSLER AND HASSLACHER CHEMICAL COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

PROCESS OF DISTILLATION.

994,022.

Specification of Letters Patent.

Patented May 30, 1911.

Application filed September 18, 1909. Serial No. 518,398.

To all whom it may concern:

Be it known that I, ROBERT J. McNITT, a citizen of the United States of America, residing at Niagara Falls, county of Niagara, and State of New York, have invented a certain new and useful Improvement in Processes of Distillation, of which the following is a specification.

My invention relates to a new and useful improvement in processes of distillation in which processes the temperature of distillation is so high that difficulty is experienced in finding materials of construction capable of withstanding the hot gases incident to external heating and the object of my invention is to overcome this difficulty of excessive external temperature.

My invention consists in passing an electric current through the substance which it is desired to submit to distillation, or if said substance is not an electrical conductor, the inside walls of the still may be lined with a suitable electrical resistor, or there may be placed within the substance an electrical resistor through which the current is passed, the current being led into the still by suitable conductors or induced by magnetic induction. By properly proportioning the parts and adjusting the electric current and pressure, any desired temperature may be maintained within the substance submitted to distillation, while the walls of the containing vessel or still will be kept at a lower temperature than when heat is applied externally. Furthermore, the walls of the still may be made of heat insulating and resisting materials to secure greater economy and withstand better the temperature employed.

In the following I have described, in connection with the accompanying drawings, one means of practicing my invention, the features thereof being more fully referred to hereinafter in the claims:

In the drawings Figure 1 is a plan view and Fig. 2 a side view partly in section of one form of device adapted for the carrying out of my invention.

Similar numerals of reference indicate similar parts throughout the several views.

1 represents a still or vessel of suitable material, preferably of cast iron and annular in form, as shown in Fig. 1. The still is

provided with a suitable discharge opening or gooseneck 2 for the exit of products of distillation from the still.

3 represents the material to be operated upon.

4 represents the magnetic circuit of a transformer and is made preferably of laminated soft iron plates.

5 represents the primary coil of the transformer. If an alternating current conducted from a suitable source such as 6, be passed through the primary coil 5, a secondary current will be generated by induction in the material to be operated upon and by properly proportioning all parts and regulating the current passing through the primary coil, the energy due to the secondary current, which is all transformed into heat, may be made to maintain any temperature desirable in the material 3.

The apparatus as illustrated is particularly adapted for use in connection with the distillation of alkali metals from alloys, as for example sodium or potassium from their respective alloys with lead. The temperature to which such substances must be subjected in order to distil them, is so high that the application of external heat to cause such temperature results in a destructive effect upon the walls of the distilling vessels, whereas, a sufficiently high degree of heat may be generated by an induced electric current as described, without causing such destructive effect. Such induced current may be generated in the substances themselves or in another suitable body adjacent thereto or contained therein, as is obvious. In this case, 3 represents the alloy from which it is desired to distil the alkali metal, the alkali metal passing over through gooseneck 2 and being caught in a suitable receptacle (not shown). Suitable openings (not shown) should be provided for the charging of the still and for the removal of the residual material after the distillation.

I do not desire to restrict myself to the particular means employed nor to the particular application described, as it is obvious that the process may be practiced in many ways by the use of many kinds of apparatus and for many purposes without departing from the spirit of my invention.

What I claim and desire to secure by Letters Patent of the United States is:

1. A process of distilling substances which cannot be distilled by the application of external heat on account of the destructive effect of such heat upon the walls of the distilling vessels, consisting in generating the required degree of heat by induced electric currents.
2. A process of distilling substances which cannot be distilled by the application of external heat on account of the destructive effect of such heat upon the walls of the distilling vessels, consisting in generating the required degree of heat within the substances by induced electric currents.
3. A process of distilling alkali metals, consisting in generating the required degree of heat within the substance containing the metal by induced electric currents.
4. A process of distilling alkali metals from their alloys, consisting in generating

the required degree of heat within the alloys by induced electric currents.

5. A process of distilling sodium from an alloy, consisting in generating the required degree of heat within the alloy by induced electric currents.

6. A process of distilling sodium which consists in generating the required degree of heat within the substance containing the sodium by induced electric currents.

7. A process of distilling sodium from sodium lead alloy, consisting in generating the required degree of heat within the alloy by induced electric currents.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

ROBERT J. McNITT.

Witnesses:

CHAS. FULNALLY,
WM. F. FLAHERTY.