Specification of Edward Loysel : obtaining infusions or extracts.

A.D. 1854 . . . . . N° 2387.

SPECIFICATION

OF

EDWARD LOYSEL.

OBTAINING INFUSIONS OR EXTRACTS.

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1855.

A.D. 1854 . . . . . N° 2387.

Obtaining Infusions or Extracts.

LETTERS PATENT to Edward Loysel, of Rue de Grétry, Paris, in the Empire of France, Civil Engineer, for the Invention of "IMPROVEMENTS IN OBTAINING INFUSIONS OR EXTRACTS FROM VARIOUS SUBSTANCES."

Sealed the 20th February 1855, and dated the 10th November 1854.

PROVISIONAL SPECIFICATION left by the said Edward Loysel at the Office of the Commissioners of Patents, with his Petition, on the 10th November 1854.

I, EDWARD LOYSEL, of Rue de Grétry, Paris, in the Empire of France, Civil Engineer, do hereby declare the nature of the said Invention for "IMPROVEMENTS IN OBTAINING INFUSIONS OR EXTRACTS FROM VARIOUS SUBSTANCES" to be as follows:—

This Invention has for its object to extract the coloring matter from dye woods, the aromatic and nutritious elements from coffee, the saccharine matter or juices from beet-root, from malt, barley, or grain, and hops; and infusions or other extracts from various vegetable and other substances, when such properties can be eliminated by the use of water or other liquid. In carrying

out my Invention, I crush the substance to be operated upon, or reduce it to powder, when necessary so to do, previous to subjecting it to subsequent operation. The substance, whatever it may be, having been properly prepared, is placed in a vessel, in which the water or other liquid may be supplied to it at the bottom; and the whole apparatus is arranged in such a manner that the liquid shall rise up through the mass of material to be operated upon. I first introduce a sufficient quantity of liquid to moisten and cover the whole mass of material in the vessel, and then allow it to remain in a state of rest, for the purpose of effecting a proper maceration; I then cause a current of the liquid to pass up through the material, so as to remove the whole, or as much as practicable, of the extractive or other matters which the liquid may be able to take up or carry off with it. In each case I cause the water or other liquid by hydrostatic pressure to rise up through the material operated upon, and the apparatus may, of course, be made of various shapes and sizes for carrying out the object of my Invention.

SPECIFICATION in pursuance of the conditions of the Letters Patent, filed by the said Edward Loysel in the Great Seal Patent Office on the 10th May 1855.

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, EDWARD LOYSEL, of Rue de Grétry, Paris, in the Empire of France, Civil Engineer, send greeting.

WHEREAS Her most Excellent Majesty Queen Victoria, by Her Letters Patent, bearing date the Tenth day of November, in the year of our Lord One thousand eight hundred and fifty-four, in the eighteenth year of Her reign, did, for Herself, Her heirs and successors, give and grant unto me, the said Edward Loysel, Her special license that I, the said Edward Loysel, my executors, administrators, and assigns, or such others as I, the said Edward Loysel, my executors, administrators, and assigns, should at any time agree with, and no others, from time to time and at all times thereafter during the term therein expressed, should and lawfully might make, use, exercise, and vend, within the United Kingdom of Great Britain and Ireland, the Channel Islands, and Isle of Man, an Invention for "IMPROVEMENTS IN OBTAINING INFUSIONS OR EXTRACTS FROM VARIOUS SUBSTANCES," upon the condition (amongst others) that I, the said Edward Loysel, by an instrument in writing under my hand and seal, should particularly describe and ascertain the nature of the said

Invention, and in what manner the same was to be performed, and cause the same to be filed in the Great Seal Patent Office within six calendar months next and immediately after the date of the said Letters Patent.

NOW KNOW YE, that I, the said Edward Loysel, do hereby declare the nature of my said Invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement, reference being had to the Drawing hereunto annexed, and to the letters and figures marked thereon (that is to say):—

This Invention has for its object to extract the coloring matter from dye woods; the aromatic and nutritious elements from coffee; the saccharine matter or juices from beet-root, or from malt, barley, or grain; and to obtain infusions or extracts of hops and other vegetable substances, as well as other matters, from which certain of their properties are required to be eliminated, by the use of water or other liquid.

In carrying out my Invention, I first crush the substance to be operated upon, or reduce it to powder when necessary, and place it in a vessel in which the water or other liquid is introduced at the bottom, and caused to rise up through the mass of material to be operated upon.

I find it advisable first to introduce a sufficient quantity of liquid to moisten and cover the whole mass of material in the vessel, and then to allow it to remain in a state of rest until a proper maceration has taken place; I next cause a current of the liquid to pass up through the material by hydrostatic pressure, so as to remove the whole (or as much as practicable) of the extractive or other matters which the liquid may be able to take up or carry off with it.

In order, however, that my Invention may be clearly understood, I have shewn in the accompanying Drawing sectional views of two forms of apparatus which I propose to employ. The arrangement shewn in sectional elevation at Fig. 1 is intended for operating upon large masses of crushed or pulverized matter, as for extracting the colour from dye woods, or the sugar from beet-root; and the other, shewn in section at Fig. 2, is intended to be employed for obtaining the extract from pulverized coffee.

I would here observe, that on the Eighteenth day of February, One thousand eight hundred and fifty-four, Letters Patent were granted to me for an apparatus for obtaining extracts from various substances, by causing water or other liquid, by means of hydrostatic pressure, to pass up through the mass of material to be operated upon, and afterwards to descend through the mass, and thus become strained and clarified or filtered, previous to being drawn off.

I have, however, found, that although this apparatus acts satisfactorily in many cases, in some other cases, and according to the nature of the substance operated upon, it is unnecessary or difficult to cause the liquid to percolate backwards or downwards again through the substance. This apparatus I subsequently modified and applied to the obtaining of extracts from tea, and the improved apparatus having been found to give very good results, I obtained Letters Patent for the same on the Thirtieth day of May, One thousand eight hundred and fifty-four. The present Invention refers to a modification of that previously patented by me as aforesaid, and is intended to give a wider application to the principle of action embraced in the last-mentioned Patent, the object being to obtain the valuable extractive matter from various vegetable or other substances, and, in fact, from any substance or matter for which the apparatus or process may be found applicable. A is an elevated vessel, containing water or other liquid, which is heated by the fire B below. The water or other liquid, when heated to the right temperature, is conveyed by the pipe C to the macerating vessel D below. The pipe C is provided with a stop-cock E, to cut off or regulate the supply of the liquid.

The material to be operated upon is placed in the vessel D in layers of convenient thickness, the several layers being placed upon perforated plates *d*, *d*, *d*, which will divide them one from the other. These perforated plates are provided with perforated tubes *e*, *e*, which, by projecting into the mass of pulverized material, will allow of the water or liquid from the pipe C rising up and percolating through the mass with facility. On the top of the pulverized mass is placed another perforated plate *d**, which will prevent the upper layer of the mass from mixing with the liquid extract, which will pass through the plate, and rise in the upper part of the vessel, as at F, and from which it may be drawn off when required through the cock G.

It will now be seen that when the cock E on the pipe C is opened, the heated liquid from the elevated vessel will be caused by hydrostatic pressure to ascend through the layers of pulverized material in the vessel A, and in so doing will displace any air that may be contained therein. When the liquid has entirely filled the space between the perforated plates *d* and *d**, the cock E should be shut, and the heated liquid allowed to macerate the pulverized material for some minutes, the length of time of course depending upon the nature of the material to be operated upon; and when the macerating operation has continued long enough, the cock E is to be again opened, and a further supply of heated liquid from the vessel A is allowed to pass up through the mass in the vessel D. By this means, the first supply of liquid, which has

become impregnated with the soluble parts of the substance under treatment, will rise into the upper part F of the vessel D, from whence it may be drawn off into another vessel. If thought desirable, a further quantity of liquid may be supplied from the vessel A, and the pulverized material submitted to the macerating operation a second, and even a third time, as found desirable. When the liquid extract obtained from the second or third maceration is considered too weak to mix with the first, it may be pumped up into the vessel A, and passed through a second quantity of the pulverized material, replacing the spent mass which has been removed from the apparatus; by this means all the valuable extractive matter may be economically obtained from the substance under operation. I would here remark, that in constructing this apparatus care should be taken that sufficient space is left between the layers of the material to be operated upon, to permit the material to swell during maceration, for, if too confined, the efficiency of the apparatus will be somewhat interfered with.

The apparatus shewn at Fig. 2 is intended to be employed more particularly for obtaining an extract from coffee. A is a vessel or funnel into which water heated to the proper temperature is pored, and, by descending the tube or pipe C, will act with hydrostatic pressure on the pulverized coffee or material in the vessel D. It will be seen that the coffee or pulverized material rests upon a perforated plate *d*, and the mass is covered by a perforated plate *d**, which prevents the coffee from rising, and yet allows the liquid to flow upwards and pass through to the upper part of the vessel D, whence it will run off through the lateral openings *g*, *g*, and fall down into the reservoir H below. It will be seen that the mass is not divided into layers, as in the former instance, as the quantity of material is not sufficiently great to offer any very serious obstacle to the passage of the water.

Having now set forth the nature of my Invention of "Improvements in Obtaining Infusions or Extracts from various Substances," and described the means of carrying the same into effect, I wish it to be understood that, under the above in part recited Letters Patent, I make no claim to the exclusive right to obtain extracts from various substances by causing water or other liquid by hydrostatic pressure to pass up through the mass of material to be operated upon, and then downwards through the same for the purpose of being filtered or clarified, nor do I claim obtaining extracts from tea by the process or apparatus above described; but what I do claim is, obtaining infusions or extracts from various other substances by causing water or other liquid to ascend by hydrostatic pressure through the mass of material to be operated

upon, and, after properly macerating the same, to carry off the useful extractive matter from the upper part of the macerating vessel, as above set forth.

In witness whereof, I, the said Edward Loysel, have hereunto set my hand and seal, the Fifth day of May, in the year of our Lord One thousand eight hundred and fifty-five.

EDWARD LOYSEL. (L.S.)

Witness,

BRUN, Notaire,

341, Rue St. Honoré, à Paris.

LONDON:
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Fig. 1.

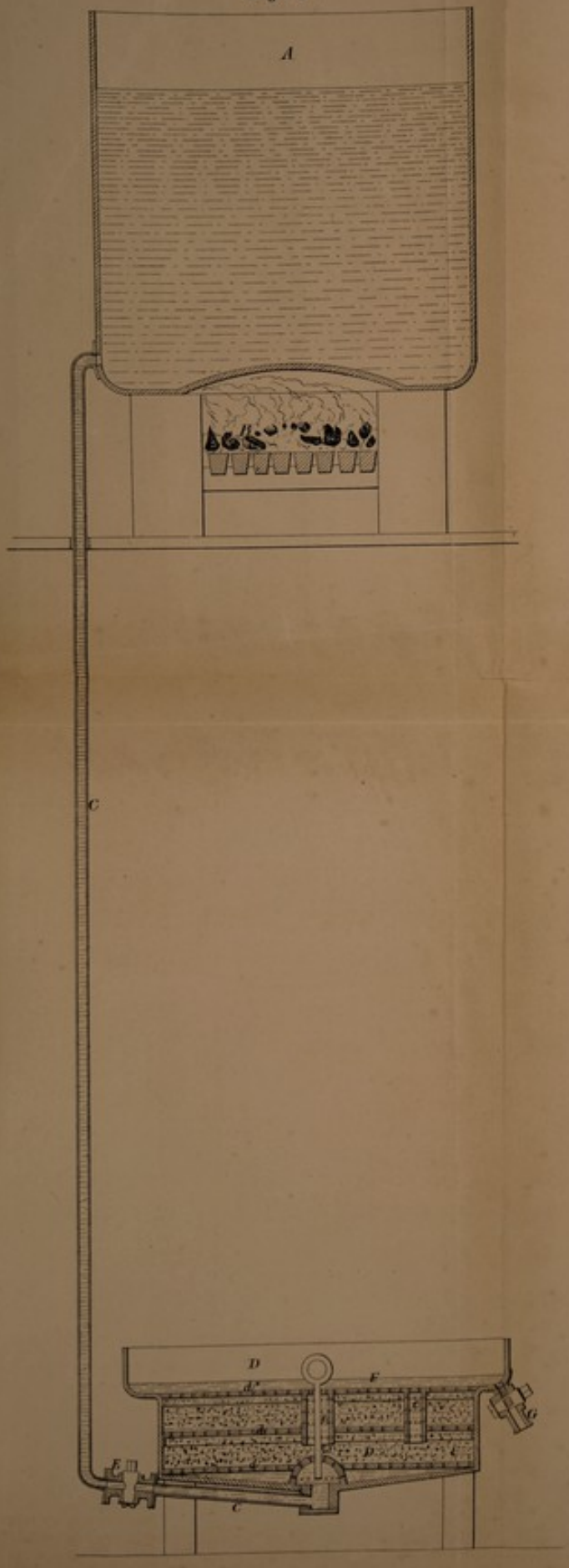
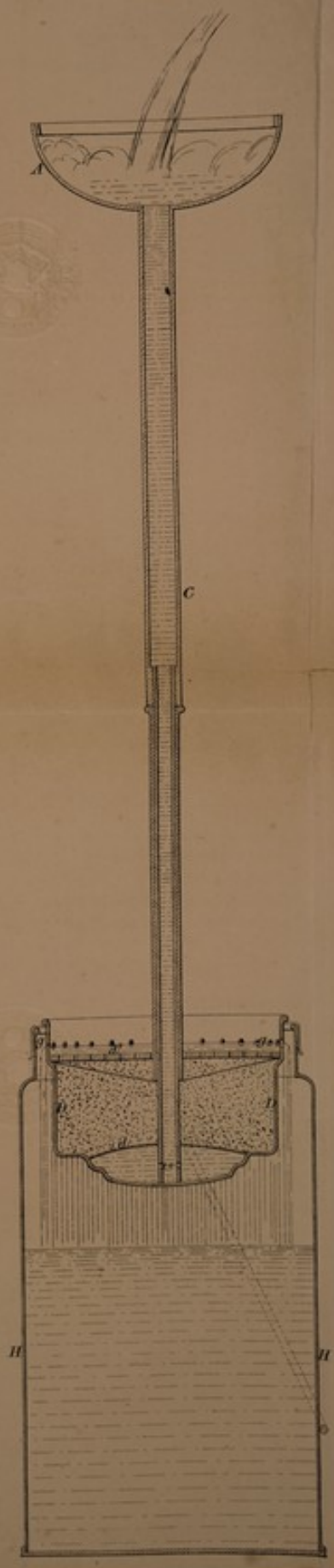


Fig. 2.



The filed drawing is colored.

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