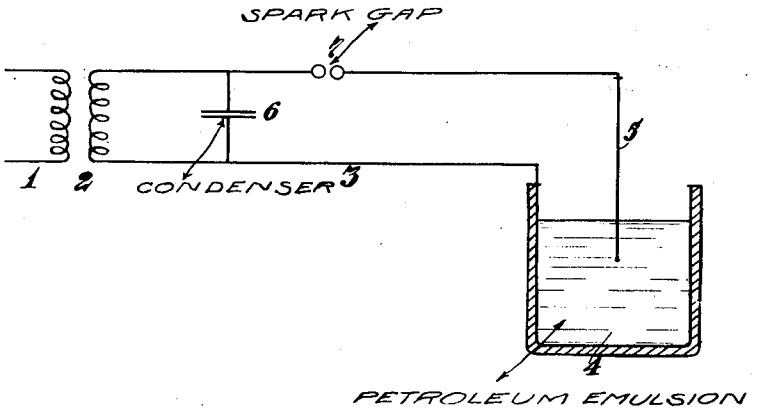
May 26, 1925. 1,539,647

D. E. CHASE

SEPARATING PETROLEUM EMULSIONS

Filed June 3, 1924



Inventor,
Donald E. Chase
by A B Forte
his attorney

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UNITED STATES PATENT OFFICE.

DONALD ERNEST CHASE, OF LONDON, ENGLAND, ASSIGNOR TO NAAMLOOZE VENNOOTSCHAP DE BATAAFSCHE PETROLEUM MAATSCHAPPIJ, OF THE HAGUE, NETHERLANDS.

SEPARATING PETROLEUM EMULSIONS.

Application filed June 3, 1924. Serial No. 717,559.

To all whom it may concern:

Be it known that I, DONALD ERNEST CHASE, a British subject, residing at London, England, have invented certain new and useful Improvements in Separating Petroleum Emulsions, of which the following is a specification.

My invention relates to a process and device for separating the phases of emulsions and particularly of petroleum by means of a high frequency electric discharge therein, (namely such as is ordinarily now referred to as "alternating current of radio-frequency"). Numerous attempts have been made for obtaining a good separation of emulsions by means of electricity, which, however are met by a great many difficulties. These difficulties, which particularly occur with the application of this process on a commercial scale, consist, as is known, in the existence of short circuiting currents owing to the particles of water, which under the influence of the electrical field form conducting circuits.

Attempts have already been made to eliminate the detrimental influence of the short circuiting currents by preventing the same e. g. by the employment of moving or rotating electrodes. Several attempts have also been made for limiting the said short circuiting currents. So e. g. the Dutch patent specification No. 5573 discloses a process in which is made use of an electric current, which is obtained by limiting and rectifying a high voltage one phase or more phase current by means of one or more rectifying tubes. In practice it has however been proved that none of the processes proposed hitherto is adapted to be commercially applied generally. It particularly appeared that emulsions wherein water is present in the form of large drops (with a diameter of about 0.02 mm.) showed such a tendency to short circuiting that it was impossible to supply electrical energy to the emulsion when not employing extraordinary large apparatus.

According to my invention the said difficulties are met with and a satisfactory separation of the phases of the emulsion is obtained by supplying electrical energy in the form of high frequency alternating currents, which are generated by the oscillating discharges of one or more condensers.

For carrying out this process preferably use is made of the apparatus according to the invention, which is characterized by the combination of one or more condensers with one or more spark gaps in the secondary circuit.

The invention is further elucidated by the accompanying diagram of a device according to the invention, wherein 1 represents the primary circuit. The transformer is indicated by the reference numeral 2, the secondary circuit by 3, whilst the emulsion is contained in the receptacle 4. The electrode which can be rotatable if desired (but does not have to be) is indicated by 5. This electrode may be a single wire or small rod, if desired, so that it will have only a very small area exposed to said liquid. If desired the receptacle 4 may also be made rotatable. The spark gap 7 together with the condenser 6 produces the oscillating discharges.

In applying the invention the result is obtained that notwithstanding the low resistance of the emulsion the available electrical energy may entirely or principally be concentrated on the emulsion, thereby enabling the separation into water and oil.

I claim:—

1. A process of separating the phases of emulsions by electrical treatment which comprises applying the electrical energy to the liquid in the form of a high frequency alternating current.

2. A device for carrying out the electrical treatment of emulsion which comprises the combination of a primary and a secondary circuit; a condenser with a spark gap, an electrode included in said secondary circuit, which electrode enters the emulsion.

In testimony whereof I affix my signature.

DONALD ERNEST CHASE.