

No. 754,261.

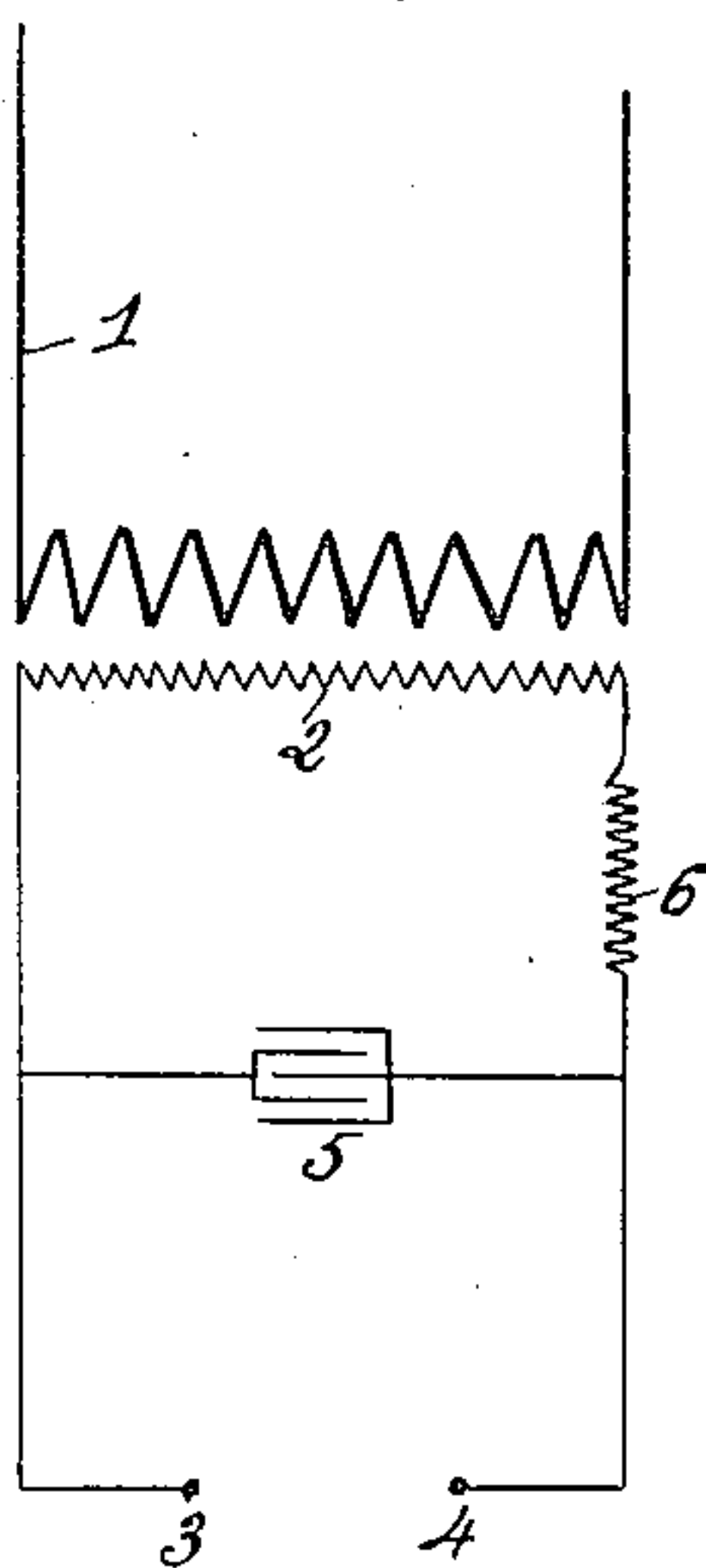
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A. VOSMAER & A. LEBRET.

OZONIZER.

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NO MODEL.



Witnesses:

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UNITED STATES PATENT OFFICE.

ALEXANDER VOSMAER, OF NIEUWERSLUIJ, AMSTERDAM, AND ADRIAAN LEBRET, OF UTRECHT, NETHERLANDS, ASSIGNORS TO OZON MAATSCHAPPY, SYSTEEM A. VOSMAER, OF AMSTERDAM, NETHERLANDS.

OZONIZER.

SPECIFICATION forming part of Letters Patent No. 754,261, dated March 8, 1904.

Application filed September 11, 1902. Serial No. 122,936. (No model.)

To all whom it may concern:

Be it known that we, ALEXANDER VOSMAER, residing at Nieuwersluis, Amsterdam, and ADRIAAN LEBRET, residing at 8 Moreelse Park, Utrecht, in the Kingdom of the Netherlands, engineers, subjects of the Queen of the Netherlands, have invented certain new and useful Improvements in or Connected with Ozonizers, of which the following is a specification.

10 This invention relates to means for assisting silent discharge in ozonizers, and mainly consists in an arrangement of electric circuits whereby arcing is avoided and sparking diminished.

15 In ozonizing apparatus the electric discharge, as is well known, should be in the form of effluvia, known as "silent" discharges. The latter are, however, frequently accompanied by sparks, which are discharges of higher intensity, and by arcing, comprising discharges of still higher intensity. The sparks, although not contributing to the production of ozone, are not particularly objectionable if they are not produced in too great an abundance. Arc-
20 ing, on the contrary, ought to be completely prevented, because it burns the electrodes of the apparatus and the arcs have a tendency to persist. Various means have been devised for preventing arcing, and consequently assisting the production of silent discharges in
30 ozonizers.

Recourse has been had more particularly to the employment of dielectrics interposed between the electrodes of the ozonizer, and when
35 making use of apparatus without dielectrics a condenser can with success be employed mounted in shunt in the secondary circuit of the transformer.

Experience proves that when a condenser is
40 mounted in shunt in the secondary circuit of the transformer arcing is prevented; but the silent discharges are frequently accompanied by a larger or smaller number of sparks, sometimes in succession for a length of time, so as
45 to constitute a serious objection. On the other hand, in studying the effects due to the condenser we have found that when a condenser is employed the effective secondary

tension rises to a higher value than when the condenser is not employed, the value being
50 higher than that derived from the relation of the primary and secondary coils of the transformer and chiefly depending on the relation which exists between the current passing in the shunt of the condenser and that in the
55 ozonizer.

Experience has proved that the two phenomena resulting from the employment of the condenser (superelevation of the secondary tension and suppression of arcing) are inti-
60 mately connected one with the other and that the sparking produced in the ozonizer decreases in proportion to the degree of superelevation of the secondary tension, (obtained by properly proportioning the transformer
65 and the dimensions of the condenser,) the said sparks, on the contrary, occurring more frequently and in series of a relatively long duration in proportion to the decrease of superelevation of the secondary tension. It will thus
70 be clear that the more the secondary tension is superelevated (providing the intensity of the current in the branch of the ozonizer is low) the better will be the production of the electric effluvia, which, like the silent dis-
75 charges, while requiring a very high tension only call for a low intensity of current. To attain this result, we have devised an arrangement which will allow of superelevating to a
80 maximum degree the effective secondary tension produced in the transformer.

The annexed drawing shows diagrammatically this arrangement.

The arrangement consists mainly in the combination, with a condenser 5, mounted in shunt
85 in the secondary circuit 2 of a transformer I^2 , of a choking-coil or high self-induction 6 of proper dimensions interposed in series in one of the branches of the secondary circuit 2 of the transformer. To the terminals 3 4 of the
90 said circuit is connected an ozonizing apparatus working without any interposition of dielectrics between the electrodes. The superelevation of the secondary tension will be considerable by making use of the arrangement
95 hereinbefore described, especially if the di-

mensions or electric proportions of the system have been chosen so that the electric oscillations, which may spontaneously manifest themselves (after an initial charge) in the circuit 2 5 6, will be synchronous, or nearly so, to the magnetic flux inducing the electromotive forces, or, in other words, synchronous with the alternating current employed. This superelevation, which varies with the secondary current employed, can, moreover, be mathematically calculated, and experience has confirmed that it is possible by proportioning the dimensions and at the same time by reducing the secondary current to an extremely low value to obtain a secondary tension double that which is derived in the ordinary way from the primary tension through the relation of the number of windings in the primary circuit to the number of windings in the secondary circuit of the transformer.

The choking-coil can obviously be interposed in either of the branches of the secondary circuit or even in each of the said branches.

We are aware that a condenser has already been mounted in shunt in the secondary circuit of a transformer connected to an ozonizing apparatus in order to avoid arcing; but, as above stated, when such a condenser is

used alone the silent discharges are frequently accompanied by a larger or smaller number of sparks, sometimes in succession for a length of time, so as to constitute a serious objection, which inconvenience is practically suppressed when making use, as above described, of choking-coils joined up to the terminals of the secondary of the transformer. We therefore do not claim, broadly, the use of a condenser in shunt in the secondary of the transformer.

What we claim is—

The combination of an ozonizing apparatus, a transformer, the connections between said transformer and ozonizing apparatus, a condenser mounted in shunt in the secondary of the transformer and choking-coils joined up to the terminals of the secondary circuit of the transformer between said secondary circuit of the transformer and the shunt of the condenser, for the purpose set forth.

In witness whereof we have hereunto set our hands in presence of two witnesses.

ALEXANDER VOSMAER.
ADRIAAN LEBRET.

Witnesses:

WILLEN TENNBERGER,
AUGUST SIEGFRIED DOCEN.