

No. 719,901.

PATENTED FEB. 3, 1903.

A. E. STERNE.

PHOTOCHEMICAL AND ELECTROTHERAPEUTICAL APPARATUS.

APPLICATION FILED OCT. 23, 1901.

NO MODEL.

Fig. 1.

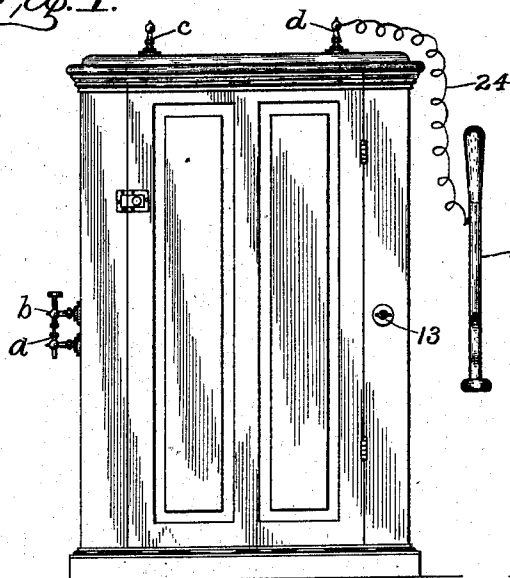


Fig. 2.

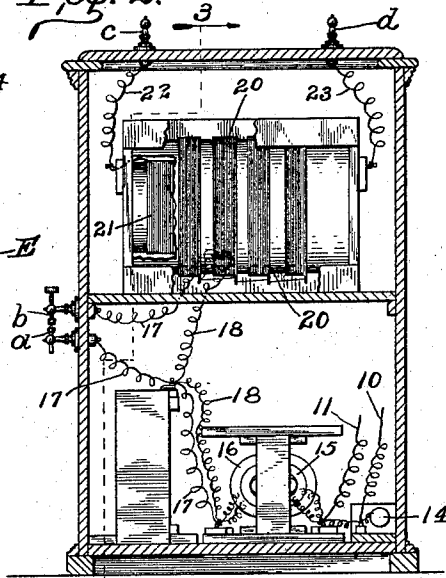


Fig. 3.

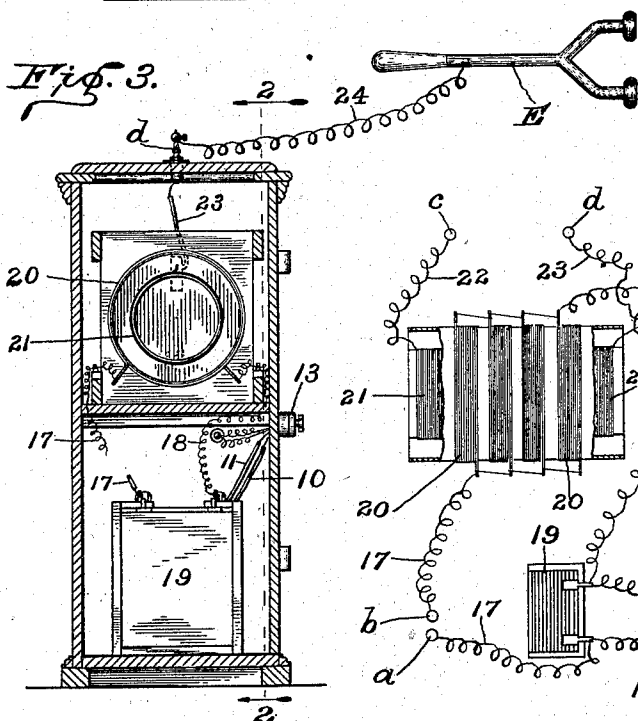
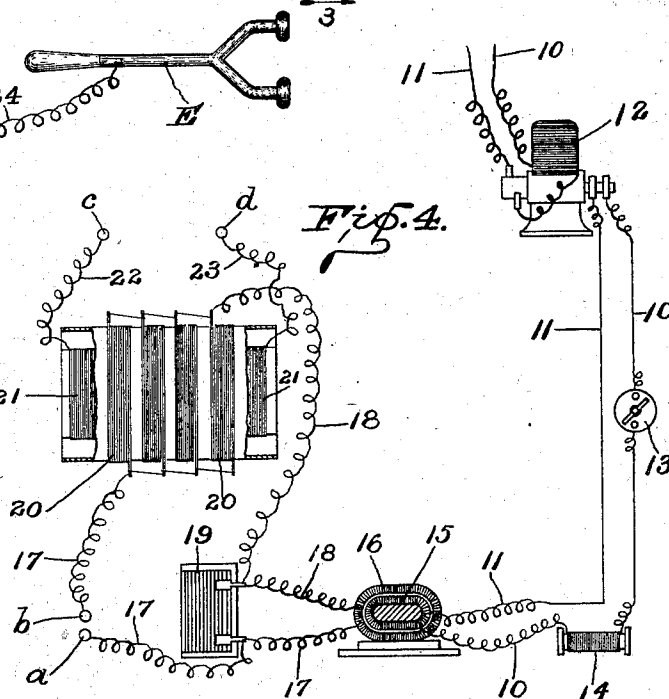


Fig. 4.



WITNESSES:

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PHOTOCHEMICAL AND ELECTROTHERAPEUTICAL APPARATUS.

SPECIFICATION forming part of Letters Patent No. 719,901, dated February 3, 1903.

Application filed October 23, 1901. Serial No. 79,672. (No model.)

To all whom it may concern:

Be it known that I, ALBERT E. STERNE, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Photochemical and Electrotherapeutical Apparatus, of which the following is a specification.

The essential feature of my invention consists in the use of an electrode having a non-conducting exterior and a conducting interior without terminals in connection with an electrical apparatus of high voltage and by means of which a force is produced or generated of novel character and appearance, whose results are analogous or superior (when employed in the treatment of diseases) to those of electricity as ordinarily applied.

Referring to the accompanying drawings, which are made a part hereof, and upon which similar reference characters indicate similar parts, Figure 1 is an elevation showing a cabinet within and upon which the apparatus which I employ in carrying out my invention is mounted. Fig. 2 is a view of the interior when the side of the cabinet is removed as the same would appear when seen from the position indicated by the dotted line 2 2 in Fig. 3, some portions of the electrical devices, however, being broken into to illustrate the interior construction; Fig. 3, a transverse sectional view as seen looking in the direction indicated by the arrows from the dotted line 3 3 in Fig. 2, and Fig. 4 a diagrammatic view of the electrical devices and connections.

The circuit until it reaches my apparatus is of any suitable character, and the line-wires 10 and 11 may be understood as coming from any suitable source of electric energy. If the apparatus is connected to a circuit having a constant current, a rotary transformer 12 is inserted in the circuit, as an alternating current is necessary to the operation of this apparatus. If the current on the line is already an alternating current, then the transformer is unnecessary and is dispensed with. At a suitable place in the line is an ordinary switch 13. The current passes first through a choke-coil 14 and thence to the primary coil 15 of a transformer. From the secondary coil 16 of

this transformer wires 17 and 18 first run to a condenser 19 and thence to the outer or primary coils 20 of a high-frequency coil, commonly known as a "Tesla" coil. The wire 17 is separated, the two parts terminating at points *a b*, making a primary Tesla spark-gap. From the inner or secondary coil 21 of the Tesla or high-frequency coil wires 22 and 23 extend and terminate in points *c d*, making a secondary Tesla spark-gap. In the apparatus as I use it the points *c d* are for convenience in the form of binding-posts. For the purpose of securing steadiness and uniformity of result I connect a wire 24 to one of these binding-posts and lead it to the peculiar "electrode" E. This electrode is a hollow glass device hermetically sealed. It is not necessarily actually connected to one of the binding posts or points in operation, as it can be operated by holding it near such binding post or point; but as steadiness of result is advantageous I prefer to connect it by means of the wire 24, as shown, which simply prolongs the point to the end of the wire and permits the electrode to be moved about by the operator without causing variations or unsteadiness. In use the operator holds this electrode in his hand and applies it to the patient being treated. I make these electrodes in several forms for purposes of convenience. The one illustrated is fork-shaped, with flattened bulbs at the ends of the forks. This peculiar form is designed for use in treatment of the eyes, the bulbs in question being formed and positioned suitably to rest upon both eyes of the patient, one upon each. When the apparatus is in use, there is the appearance of a colored flame flowing through the interior of the electrode from the point adjacent to or in connection with the terminal point of the machine or its connecting-wire toward the end of the electrode, and this irrespective of whether or not said end is in contact with the person being treated. The character of this visible current or flow I am unable to state; but although it is the result of an electrical current of many thousands of volts intensity its application is accompanied by no pain or discomfort, no sensation resulting from its use except a certain degree of warmth, varying according to the size, pro-

portion, and arrangement of the various devices.

The effect of the treatment, as above stated, while analogous to that resulting from the ordinary application of electricity, is in many respects different and more highly effective.

Having thus fully described my said invention, what I claim as new, and desire to secure by Letters Patent, is—

- 10 1. The combination, in an electrical apparatus, of the main circuit leading to the primary coil of a transformer, one of the wires of which leads through a choke-coil, said choke-coil, said transformer, wires leading
15 from the secondary coil of the transformer to the primary coil of a Tesla high-frequency coil, one of which leads through a condenser and is separated by a primary Tesla spark-gap, said condenser, said Tesla high-frequency coil, wires leading from the secondary coil of the said high-frequency coil and
20 terminating in points forming a secondary Tesla spark-gap, and a single "electrode" having a non-conducting exterior and a conducting interior arranged to be operated when in
25 proximity to or contact with one of the points

where the last-named wires terminate, substantially as set forth.

2. The combination, in an electrical apparatus, of the main circuit leading to the primary coil of a transformer, one of the wires of which leads through a choke-coil, said choke-coil, said transformer, wires leading from the secondary coil of the transformer to the primary coil of a Tesla high-frequency coil, one of which leads through a condenser and is separated by a primary Tesla spark-gap, said condenser, said Tesla high-frequency coil, wires leading from the secondary coil of the said high-frequency coil and
35 terminating in points forming a secondary Tesla spark-gap, and an "electrode" for applying the electrical results therapeutically, substantially as set forth.

In witness whereof I have hereunto set my hand and seal, at Indianapolis, Indiana, this 45 19th day of October, A. D. 1901.

ALBERT E. STERNE. [L. s.]

Witnesses:

CHESTER BRADFORD,
C. S. FRYE.