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A. E. STERNE.

PHOTOCHEMICAL AND ELECTROTHERAPEUTICAL APPARATUS.

APPLICATION FILED OCT. 23, 1901.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.

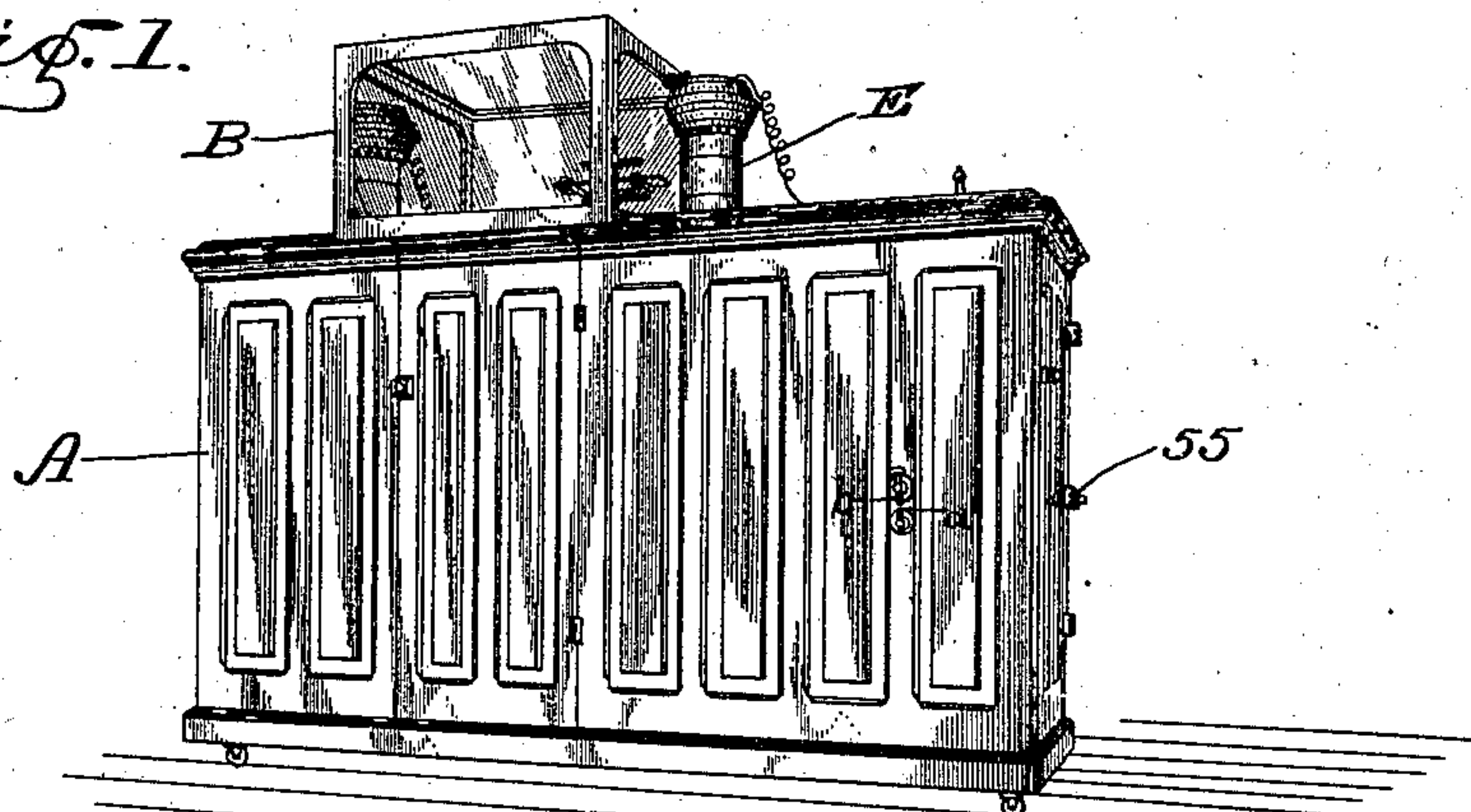
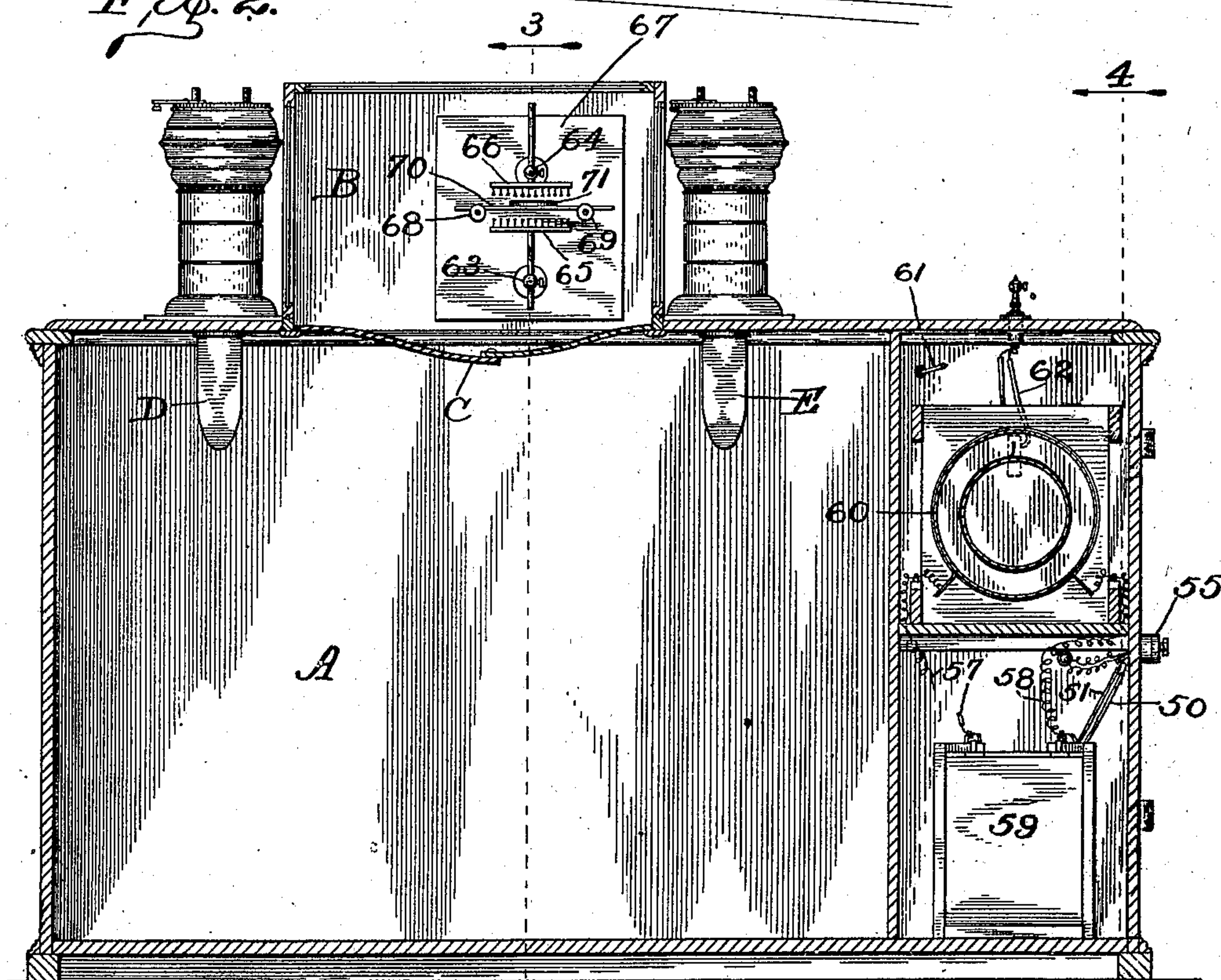


Fig. 2.



WITNESSES:

C. S. Frye  
A. S. Gearing

INVENTOR

Albert E. Sterne,

BY  
Chester Bradford  
ATTORNEY



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2 SHEETS—SHEET 2.

Fig. 3.

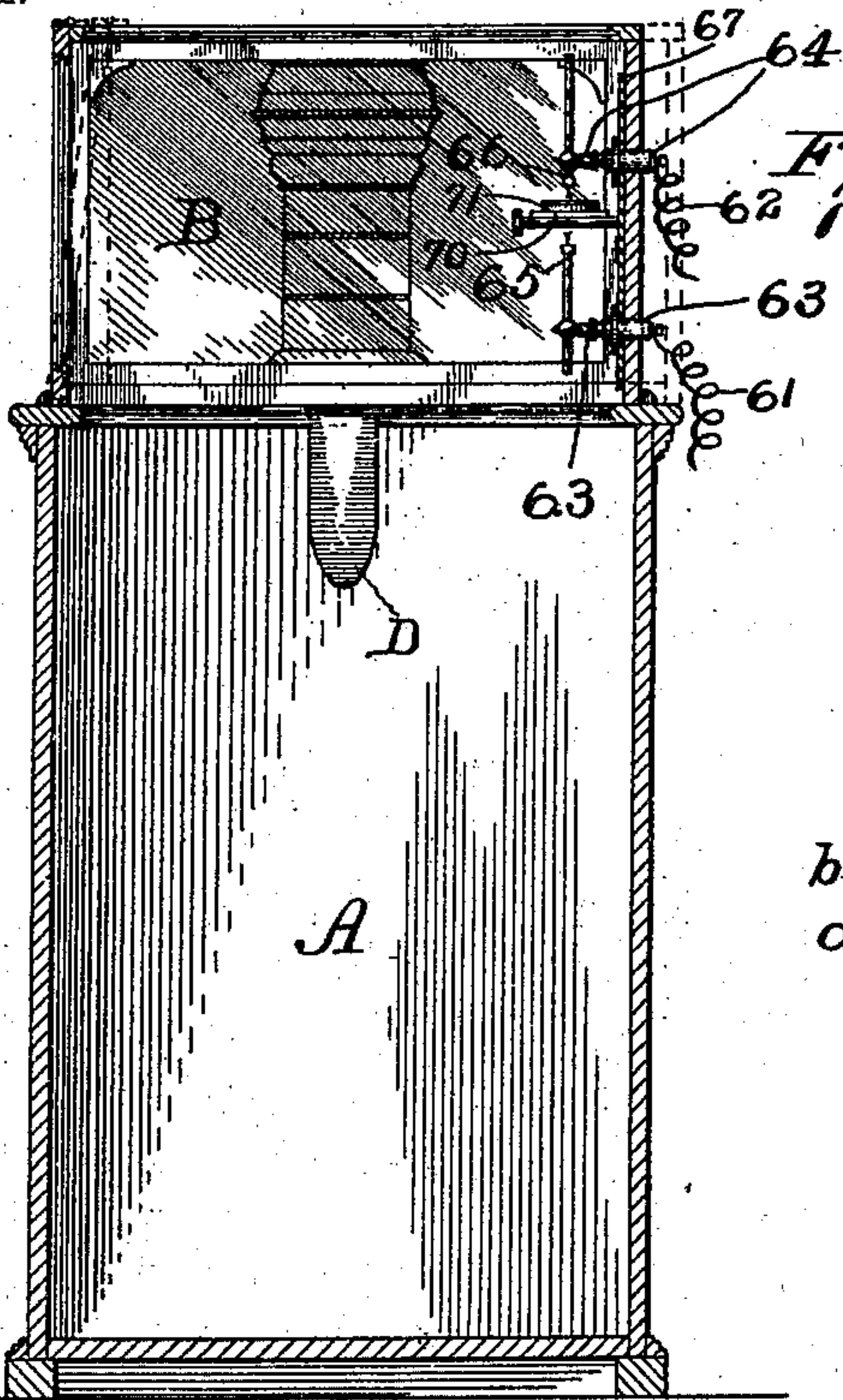


Fig. 4.

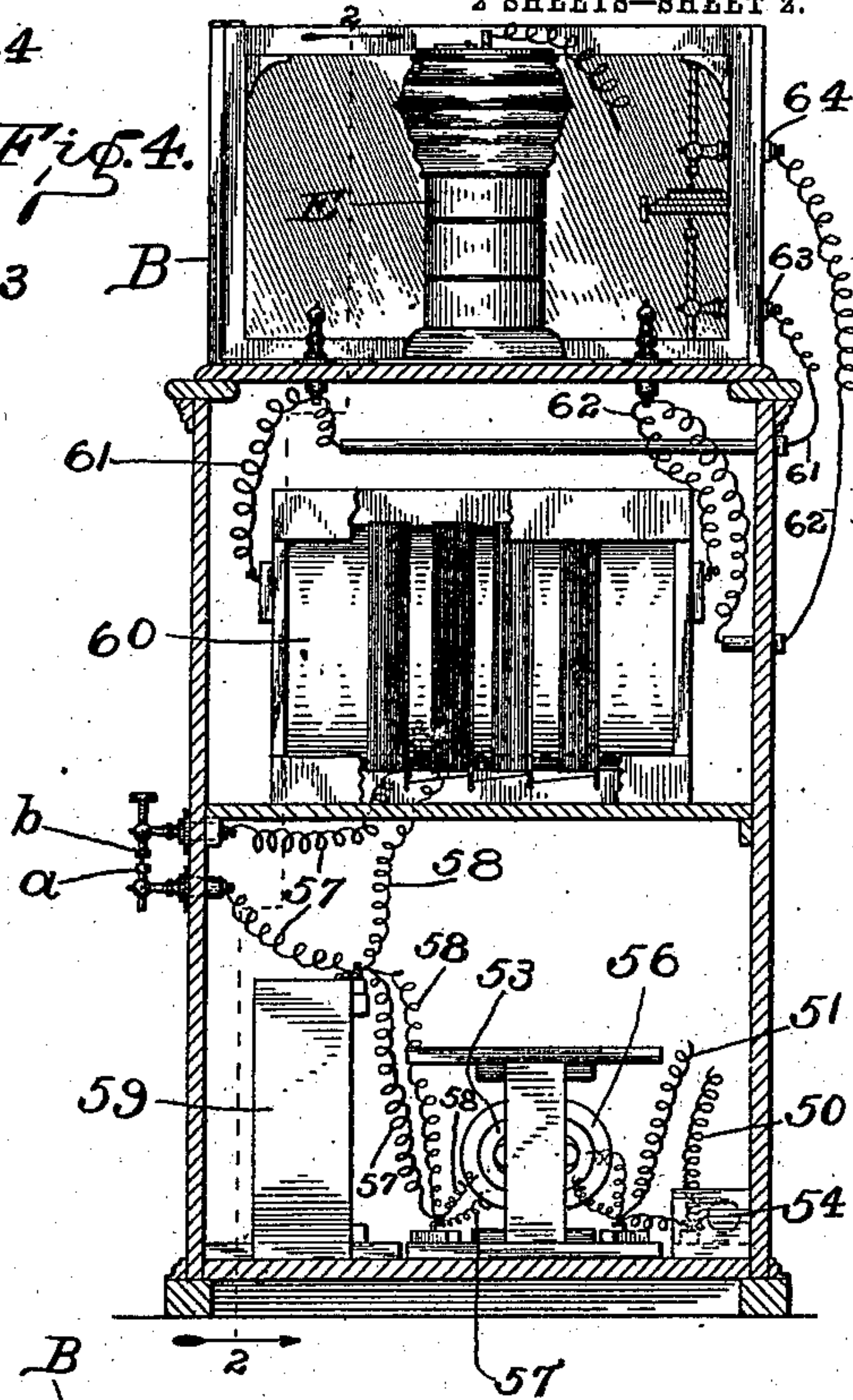
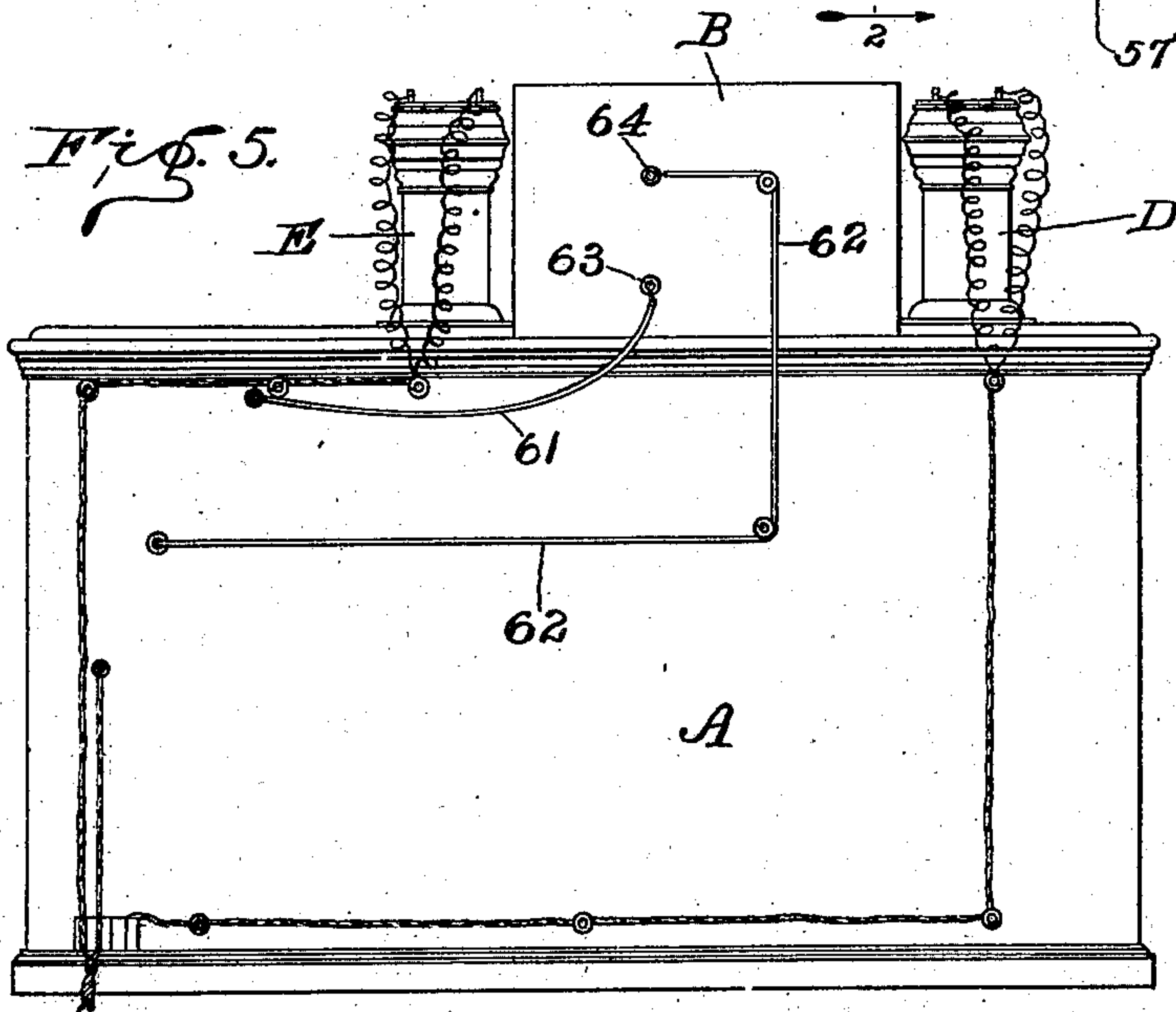


Fig. 5.



WITNESSES:

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A. S. Gearing

INVENTOR

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BY

Chester Bradford,  
ATTORNEY



# UNITED STATES PATENT OFFICE.

ALBERT E. STERNE, OF INDIANAPOLIS, INDIANA.

PHOTOCHEMICAL AND ELECTROTHERAPEUTICAL APPARATUS.

SPECIFICATION forming part of Letters Patent No. 724,215, dated March 31, 1903.

Application filed October 23, 1901. Serial No. 79,673. (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.

My present invention relates to that class of apparatus by means of which patients are subjected to the influence of remedial agents while inclosed within a cabinet. In the treatment of certain classes of disease great advantage is derived from sojourning in places of high altitude, where the patient may have the benefit of the more direct rays of the sun and of the superior quality of the atmosphere due to the greater proportion of ozone. In the devising of my present apparatus I have labored to obtain as nearly as possible conditions similar to those existing at high altitudes, as on mountain-tops, without the necessity of actually visiting such places. It is evident that if this can be done greater advantage will accrue than is possible from mere change of residence, as the patients thus avoid the bad effect of changing from the denser atmosphere of their usual place of abode to the rare atmosphere of the high altitude and then again changing from the rarer to the denser atmosphere upon return.

My apparatus has two compartments A and B, one of which when in use contains the body of the patient and the other the head. Within that compartment which contains the body I provide lamps producing light of a character approximating that of the sun's rays, and within the compartment containing the head I provide an apparatus which operates to liberate the oxygen in the atmosphere and form ozone. This may be either separate or by a means hereinafter to be described commingled with remedial agents of various sorts.

Referring to the accompanying drawings, which are made a part thereof, and on which similar reference characters indicate similar parts, Figure 1 is a perspective view of a cabinet embodying and provided with the various devices constituting my invention; Fig. 2, an elevation of the interior of the apparatus, the front of the case being cut away at the point indicated by the dotted line 2 2 in Fig. 4;

Fig. 3, a transverse vertical sectional view of the apparatus as seen when looking in the direction indicated by the arrows from the dotted line 3 3 in Fig. 2; Fig. 4, an elevation of the electrical apparatus as seen when the end of the casing is cut away as when looking from the position indicated by the dotted line 4 4 in Fig. 2; and Fig. 5, a rear elevation of the complete apparatus from the outside, showing the electrical connections.

In carrying out my invention I use an alternating current of high intensity. This current may be taken from any suitable source of electrical supply and may be generated by any of the methods commonly employed. The wires 50 and 51 may be understood to be branches from any ordinary commercial circuit and lead to and through the primary coil 53 of a transformer and a choke-coil 54 and out, a suitable switch 55 being provided for throwing the current on and off in the ordinary manner. From the secondary coil 56 of the transformer wires 57 and 58 lead first to a condenser 59 (which absorbs the surplus current) and thence to the primary coils of the high-frequency coil 60, one of said wires being intercepted by a Tesla primary spark-gap formed by points *a* and *b* before reaching the high-frequency coil. From the secondary coil of this high-frequency or Tesla coil wires 61 and 62 run, respectively, to the binding-posts 63 and 64, which binding-posts carry brushes 65 and 66, forming the terminals to the circuit. These brushes are adjustable in their binding-posts and are in the relation to each other (when in condition for use) that terminals ordinarily are when arranged for the purpose of producing an electric arc. This is best illustrated in Fig. 2, and, as will be readily understood, the passage of the electrical current across the arc, owing to the numerous fine points of the brushes, gives practically a continuous sheet of electrical discharge as wide as the length of the brushes. In other words, the current is diffused and in passing through the atmosphere liberates the oxygen, which condenses three parts to two, forming ozone. These brushes are positioned in that compartment of the apparatus which contains the head of the patient, who thus gets the benefit of the changed atmospheric conditions. The brushes 65 and 66 are arranged in front of and in close prox-



imity to an insulating-plate 67, and this plate carries two suitable shelf-rests 68 and 69, upon which (when desired) I place a suitable shelf 70, and upon this shelf place a vessel 5 71, containing any desired remedial agent. The shelf 70 and the vessel 71 I prefer to form of glass. The remedial agent may be anything desired. The vessel being between the terminals, (or within the brush-discharge,) 10 the operation is to disintegrate the remedial agent or substance therein, and thus separate it into its original elements, the gases being thus set free and enabled to commingle with the ozone. The patient being in near prox- 15 imity (with the head in the compartment where the brushes and vessel are situated) is enabled to breath the gases as they are liberated, being thus treated by a medicated ozone. For example, when eucalyptus is 20 placed in the vessel the result is a combination of eucalyptus and ozone, or eucalyptozone. Any other suitable remedial agent can be used to produce a similar compound.

The larger compartment A in the cabinet 25 I line with some reflecting material, such as bright metal or mirrors, in order that the rays of light may both be more evenly distributed and more completely utilized. This compartment is divided from the upper compart- 30 ment B by means of a partition C, composed of flexible material, such as sheet-rubber, formed to fit around the neck of the patient, thus substantially separating the atmosphere in the two compartments one from the other.

35 Within the lower compartment A (in which the body of the patient is to be while undergoing this treatment) I place two electric-arc lamps D and E, one near each end. These lamps are connected to the main circuit by 40 suitable wires, as shown in Fig. 5, and differ only from ordinary high-class electric-arc lamps in that they are adapted to and operated by an alternating electric current instead of a direct current, as is common. The 45 result is that the body of the patient is subjected to the action of rays of light of great brilliancy, which act similarly to the rays of sunlight through the rarefied atmosphere of high altitudes. With this apparatus, there- 50 fore, I obtain conditions (in any location) both of exposure and inhalation similar to those which are natural only in places located at high elevations.

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

1. The combination, in an electrotherapeutical apparatus, of a compartment adapted to contain the head of the patient, an electrical 60 circuit terminating within said compartment in fine brushes arranged to form an electric arc and whereby the electrical current is diffused at the point of discharge, and a suitable vessel interposed between the brushes 65 and adapted to contain a remedial agent, whereby the properties of such remedial agent are commingled with the ozone produced by

the operation of electrical discharge, and a medicated gas thus formed adapted to be administered by inhalation, substantially as set 70 forth.

2. An electrotherapeutical apparatus consisting of a cabinet embodying an electrical transforming apparatus, one chamber for the 75 body of the patient, and a second chamber for containing the head of the patient divided from the first chamber by a means for excluding the passage of air and extending above the general level of the first chamber, a pair 80 of electric-arc lamps of high intensity one arranged on either side of the chamber for containing the head of the patient and extending to within the chamber for containing the body of the patient, said chamber for contain- 85 ing the body of the patient being also provided with reflecting-linings, an electric circuit terminating within the chamber for containing the head of the patient in brushes arranged to form a diffused electric arc, said brush-ter- 90 minals, means for producing an electrical discharge of high intensity at the said brush-terminals which thus operate to liberate the oxygen in the atmosphere and form ozone, and an electric circuit for operating said elec- 95 tric-arc lamps, said several parts being arranged as described, whereby separately but simultaneously the body of the patient may be subjected to light-rays of high intensity and ozone or ozone gas may be administered by inhalation, substantially as and for the 100 purposes set forth.

3. An electrotherapeutical apparatus consisting of a cabinet embodying one chamber for the body of the patient, and a second 105 chamber for containing the head of the patient divided from the first chamber by means for excluding the passage of air and extending above the general level of the first chamber, a pair of electric-arc lamps of high in- 110 tensity one arranged on either side of the chamber for containing the head of the patient and extending to within the chamber for containing the body of the patient, said chamber for containing the body of the pa- 115 tient being also provided with reflecting-linings, an electric circuit terminating within the chamber for containing the head of the patient in brushes arranged to form a diffused electric arc, said brush-terminals, and an electric circuit for operating said electric-arc 120 lamps, said several parts being arranged as described, whereby separately but simultaneously the body of the patient may be subjected to light-rays of high intensity and ozone or ozone gas may be administered by in- 125 halation.

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

ALBERT E. STERNE. [L. S.]

Witnesses:

CHESTER BRADFORD,  
C. S. FRYE.