

P. A. HUGUENIN.
VAPOR ELECTRIC DEVICE.
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919,584.

Patented Apr. 27, 1909.

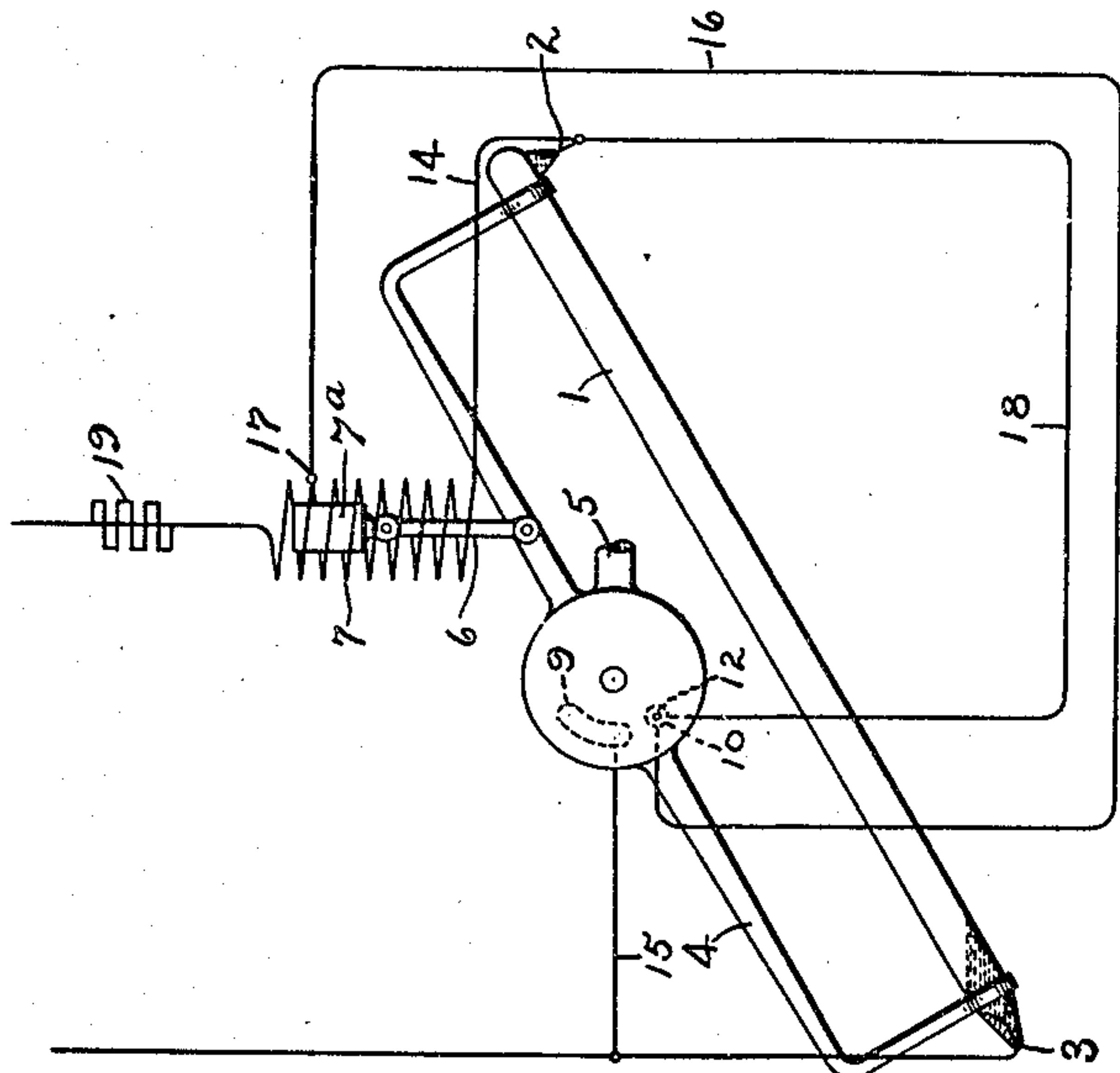


Fig. 2

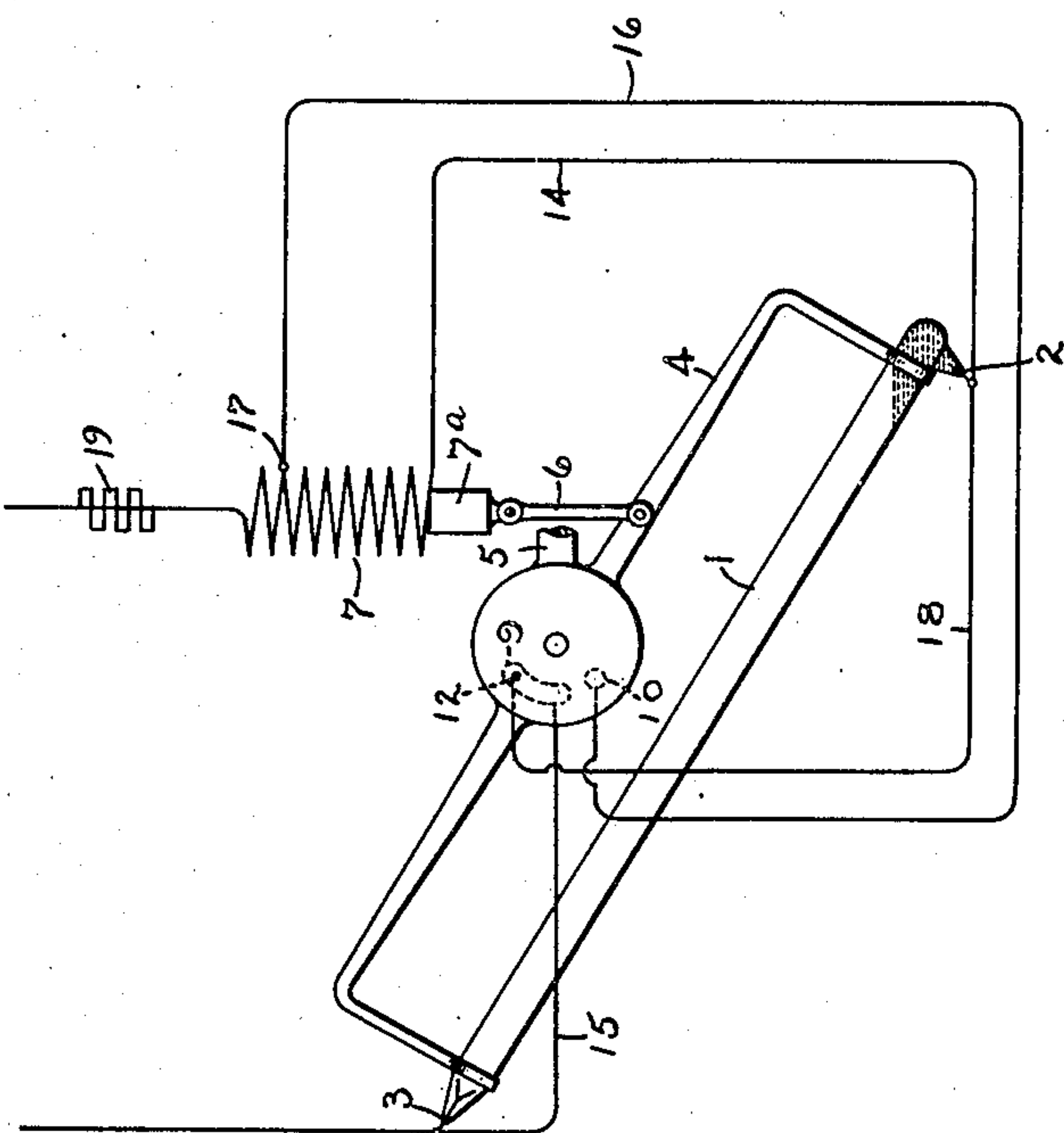


Fig. 1

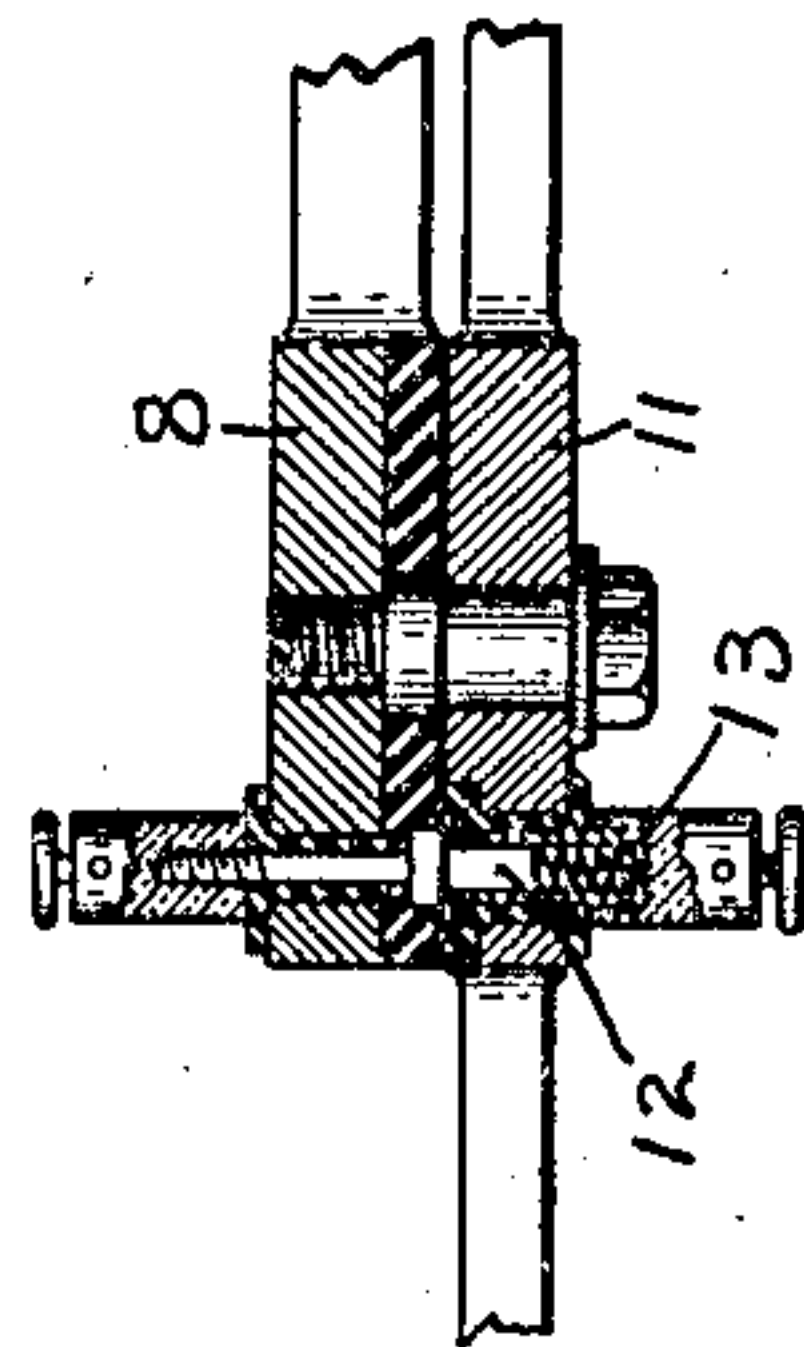


Fig. 5

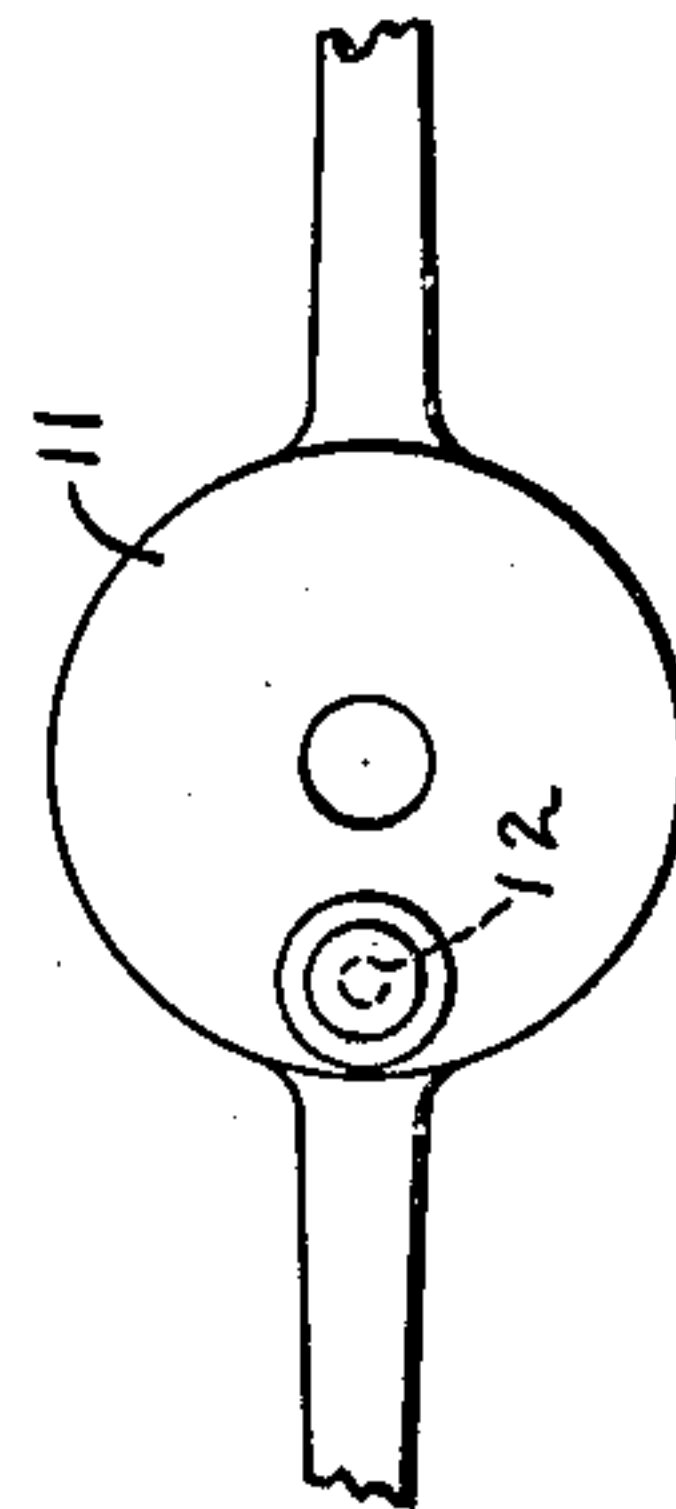


Fig. 4

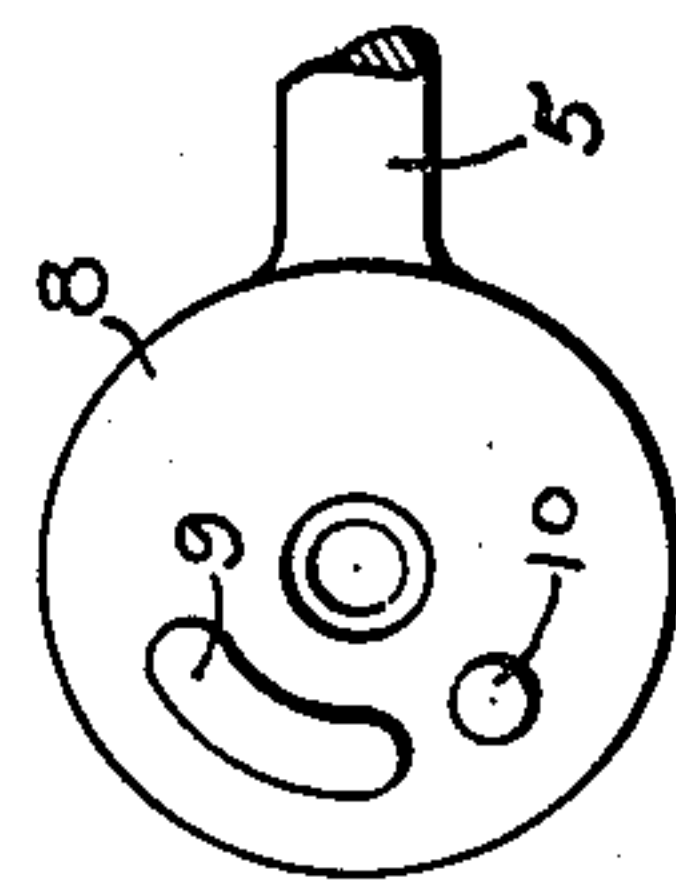


Fig. 3

WITNESSES:

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UNITED STATES PATENT OFFICE

PAUL ALBERT HUGUENIN, OF PARIS, FRANCE, ASSIGNOR TO GENERAL ELECTRIC COMPANY,
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VAPOR ELECTRIC DEVICE.

No. 919,584.

Specification of Letters Patent.

Patented April 27, 1909.

Application filed November 21, 1907. Serial No. 403,125.

To all whom it may concern:

Be it known that I, PAUL ALBERT HUGUENIN, a citizen of the French Republic, residing at 219 Rue de Vaugirard, Paris, France, have invented certain new and useful Improvements in Vapor Electric Devices, of which the following is a specification.

My invention relates to a device for automatically starting a mercury vapor apparatus by tilting the same.

The novel features of my invention are particularly pointed out in the appended claims. The invention itself will be better understood by reference to the accompanying drawing.

Figure 1 is a diagram showing the mercury vapor device before starting same; Fig. 2 is a diagram showing the device after the starting operation; and Figs. 3, 4 and 5 are diagrams showing in detail the parts of a cut-out device to cut out current from a solenoid after same has started the apparatus.

The apparatus is pivotally suspended at an angle to the horizontal. Displacement from this position is accomplished by a rod attached to the core of a solenoid. The current when turned on energizes this solenoid and by an upward movement of the rod reverses the inclination of the apparatus, and starts the same. Instead of employing a special magnetic device later to cut out the solenoid resistance from the circuit, the change of position of the apparatus itself effects a change of electrical contact so as to short-circuit the solenoid, or, partially cut it out of circuit if so desired.

Fig. 1 shows the mercury vapor device, as for example, a mercury vapor lamp consisting of a tube or container 1 containing mercury or other liquid, with suitable electrodes 2 and 3, supported by a suitable frame work 4. This frame work is pivotally suspended by a fixed bracket, a broken-off end of which is shown at 5. The pivotal frame work is attached by means of a link 6 to the core 7^a of the solenoid 7, by which means it may be moved.

The fixed support or bracket for the frame work, as shown best in Figs 3 and 5, carries a disk 8 with two electrically insulated contacts 9 and 10. The frame work 4 itself carries an adjacent disk 11, provided with an electrically insulated contact 12, which is best shown in Fig. 5 and indicated by a dotted circle in Fig. 4. This latter contact 12

is pressed against the contacts 9 and 10 by means of a spring 13 or other suitable device. Electrical connections, as shown, will be explained in connection with the operation of the device.

When connection is made the current passes through the solenoid 7, which possesses enough inherent resistance to enable it to serve as a steadying resistance, though it may be supplemented by an external resistance 19, and from thence is conducted by 14 to electrode 2, of the apparatus. From this electrode connection is made to the movable contact 12 of the cut-out device by means of 18. Contact 12 is diagrammatically indicated in Figs. 1 and 2 by means of a dot. This contact, in the positions shown, is spring-pressed against the contact 9, which latter is permanently connected through conductor 15 to the supply main going to the opposite electrode 3 of the apparatus. A complete circuit is thus established. The current energizes the solenoid 7, causing link 6 to draw the apparatus, say a mercury vapor lamp, to the position shown in Fig. 2. Because of the above-mentioned displacement of the tube, the contained mercury has been caused to flow along the length of the tube establishing a complete circuit, and later breaking this metallic connection as the inclination increases in the opposite direction. The arc formed across the broken ends of the mercury stream, continues as the break lengthens.

When the tube or other device, has come to the position indicated by Fig. 2, the following changes have taken place in the position of contacts: Electrical connection from electrode 2, which formerly was made with contact 9, is now made with contact 10. This contact 10 being permanently connected by conductor 16 with an intermediate point 17 of the solenoid, partially short circuits the solenoid. The current instead of passing through the entire solenoid, goes from the point 17 at once to electrode 2, then through the tube and out at electrode 3, which is connected to the positive supply main as above stated.

When the apparatus is cut out of circuit it may be arranged to return to its original position, Fig. 1, by means of gravity or other suitable means.

What I claim as new and desire to secure by Letters Patent of the United States, is,

1. A mercury vapor device occupying an inclined position and suitably pivoted, the said device comprising a container and electrodes, a solenoid to move the container to the opposite side of the horizontal, and a cut-out for the solenoid operated by movement of said container.

2. The combination of a pivoted mercury vapor device and a cut-out actuated by the motion of said device, said cut-out consisting of a fixed part having two electrically insulated contacts and a movable part having an electrically insulated contact sliding over said fixed part.

3. The combination of a vapor-electric device having a plurality of electrodes, electromagnetic means for tilting the device, thereby starting the same, and mechanical means for placing the vapor-electric device during the starting operation first in shunt with part of the starting means, then opening the shunt, and finally short circuiting at least a portion of said starting means.

4. The combination of a pivotally supported envelop containing electrodes, electromagnetic means for tilting the same, and mechanical means actuated by the movement of said envelop for short circuiting at least a part of said electromagnetic means when the envelop is in an operative position.

5. The combination of a mercury-vapor device, an electromagnetic tilting device for establishing and breaking metallic connection between the electrodes of the mercury-vapor device, and mechanical means for including a part of the circuit of the tilting device in series with the mercury-vapor device when the latter is tilted to the operative position.

In witness whereof, I have hereunto set my hand this fourth day of November, 1907.

PAUL ALBERT HUGUENIN.

Witnesses:

C. MYRMERIAUX,
DEAN B. MASON.