

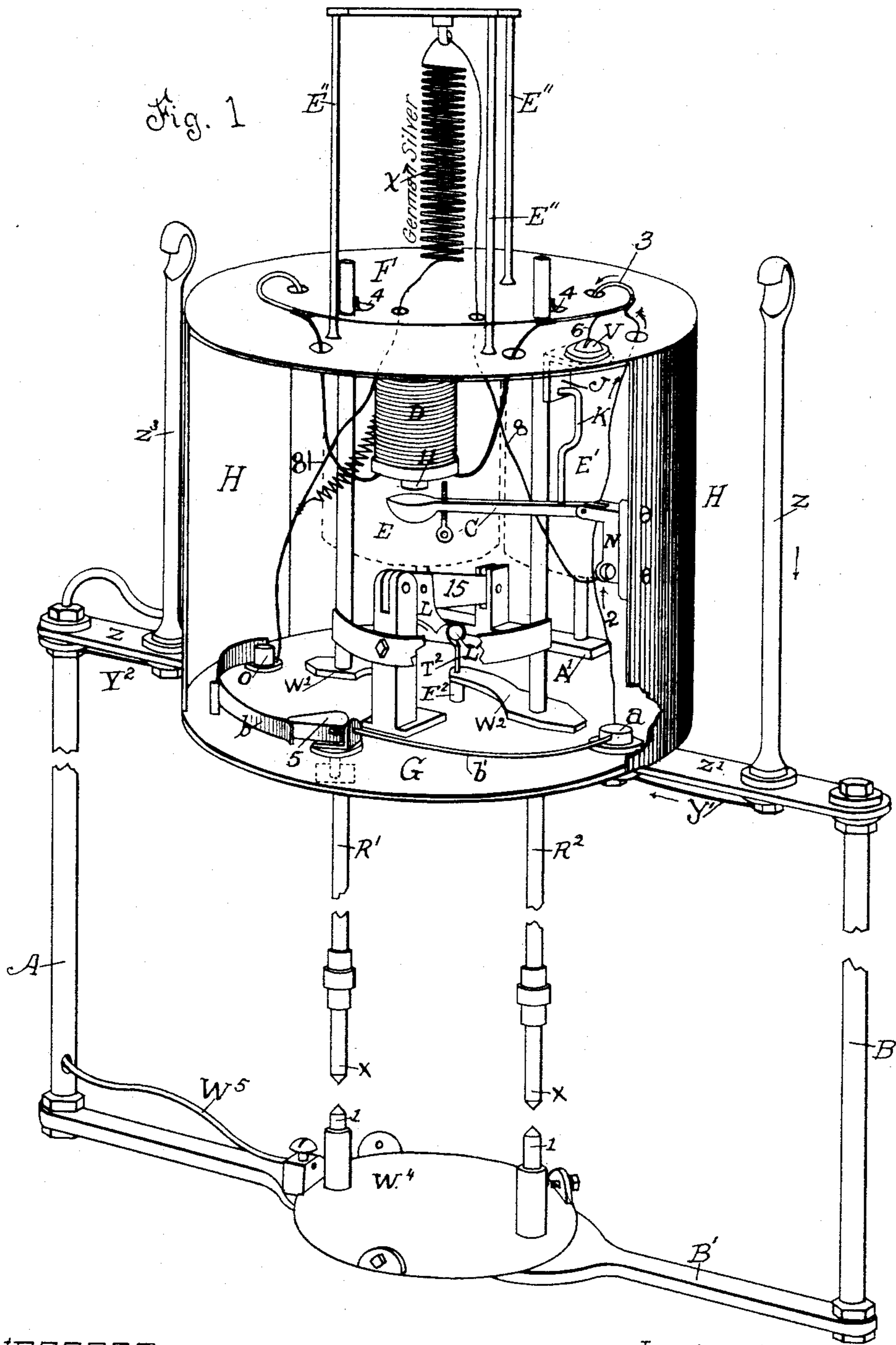
(No Model.)

3 Sheets—Sheet 1.

A. WAGNIERE.  
ELECTRIC ARC LAMP.

No. 436,814.

Patented Sept. 23, 1890.



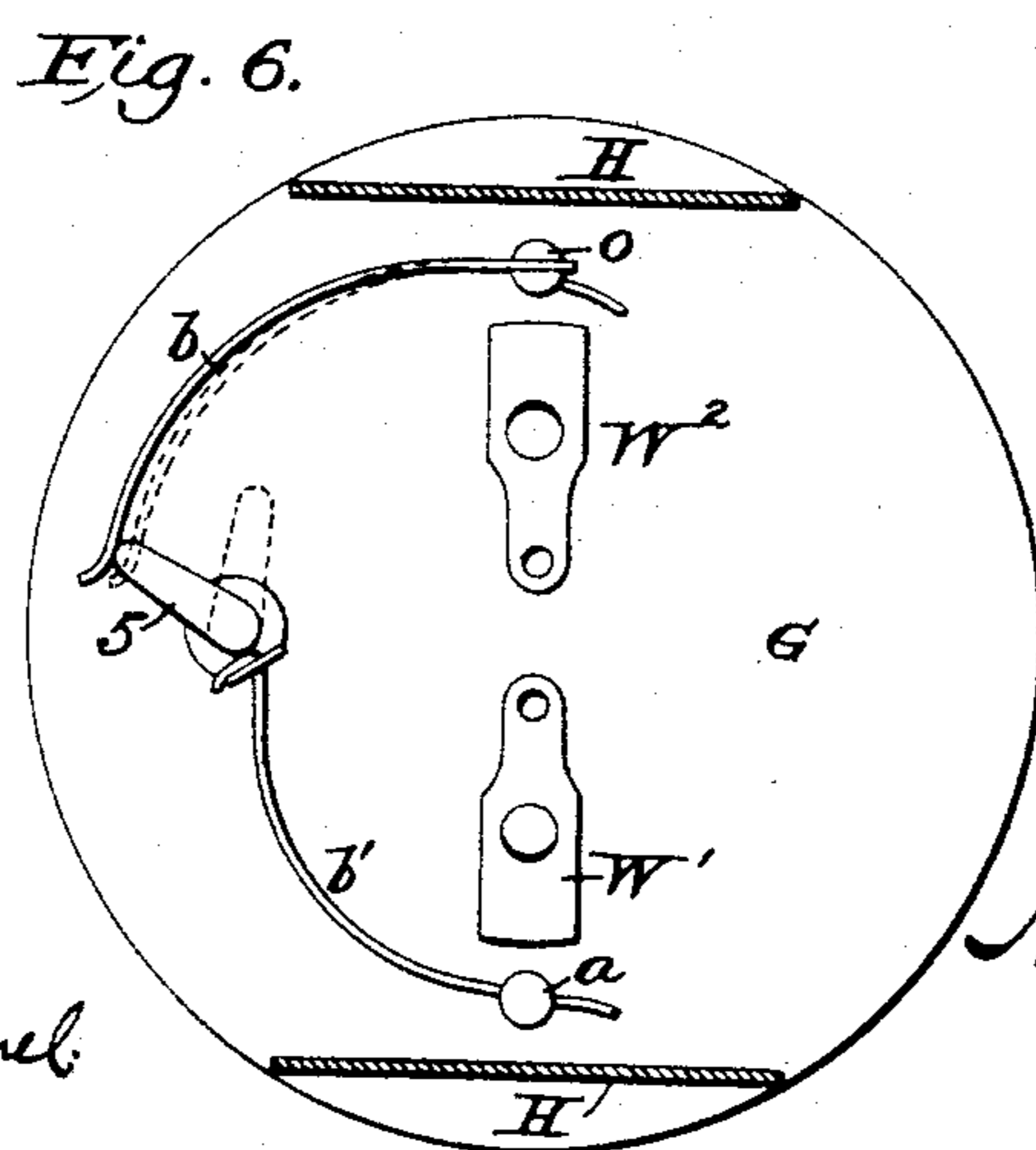
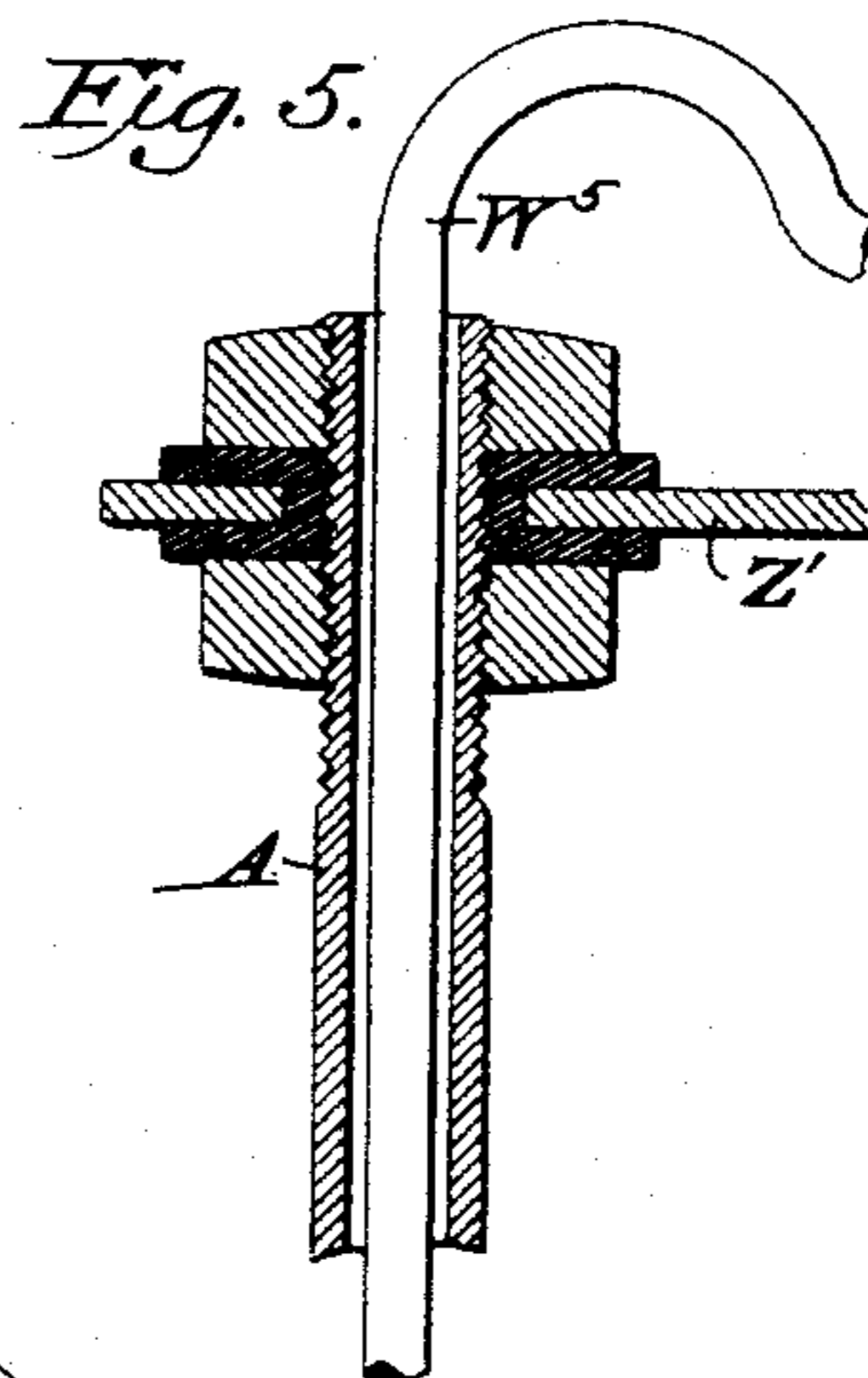
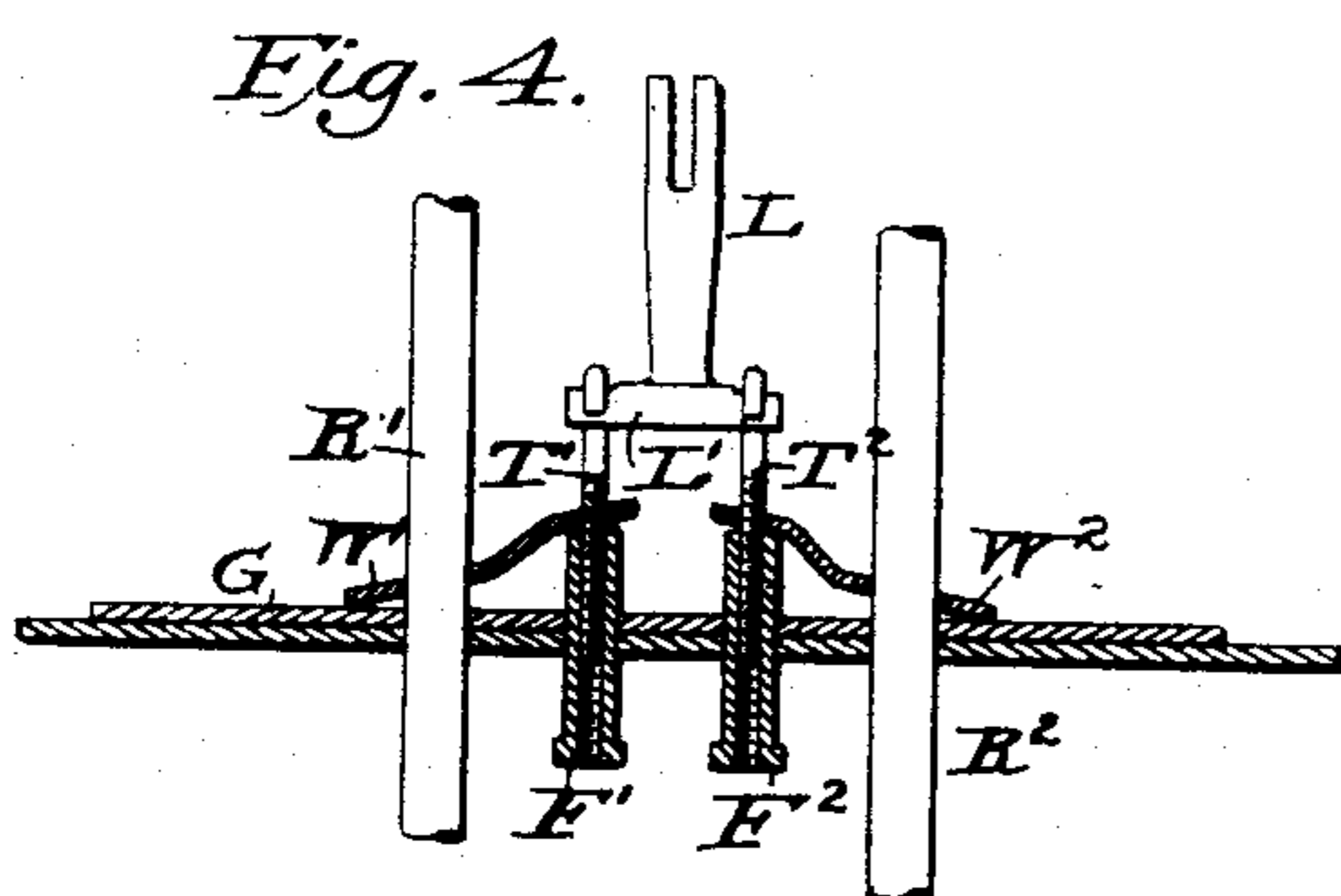
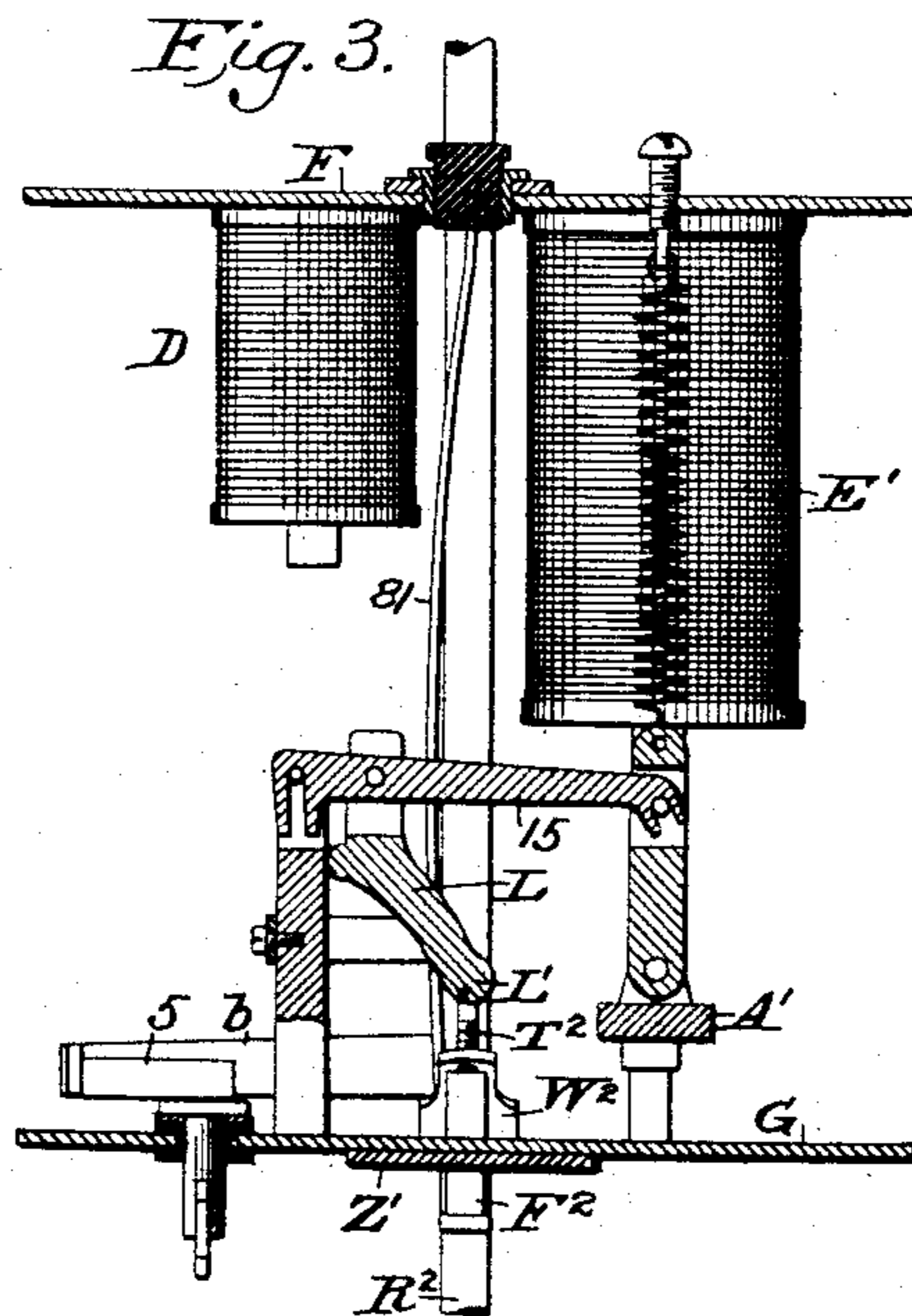
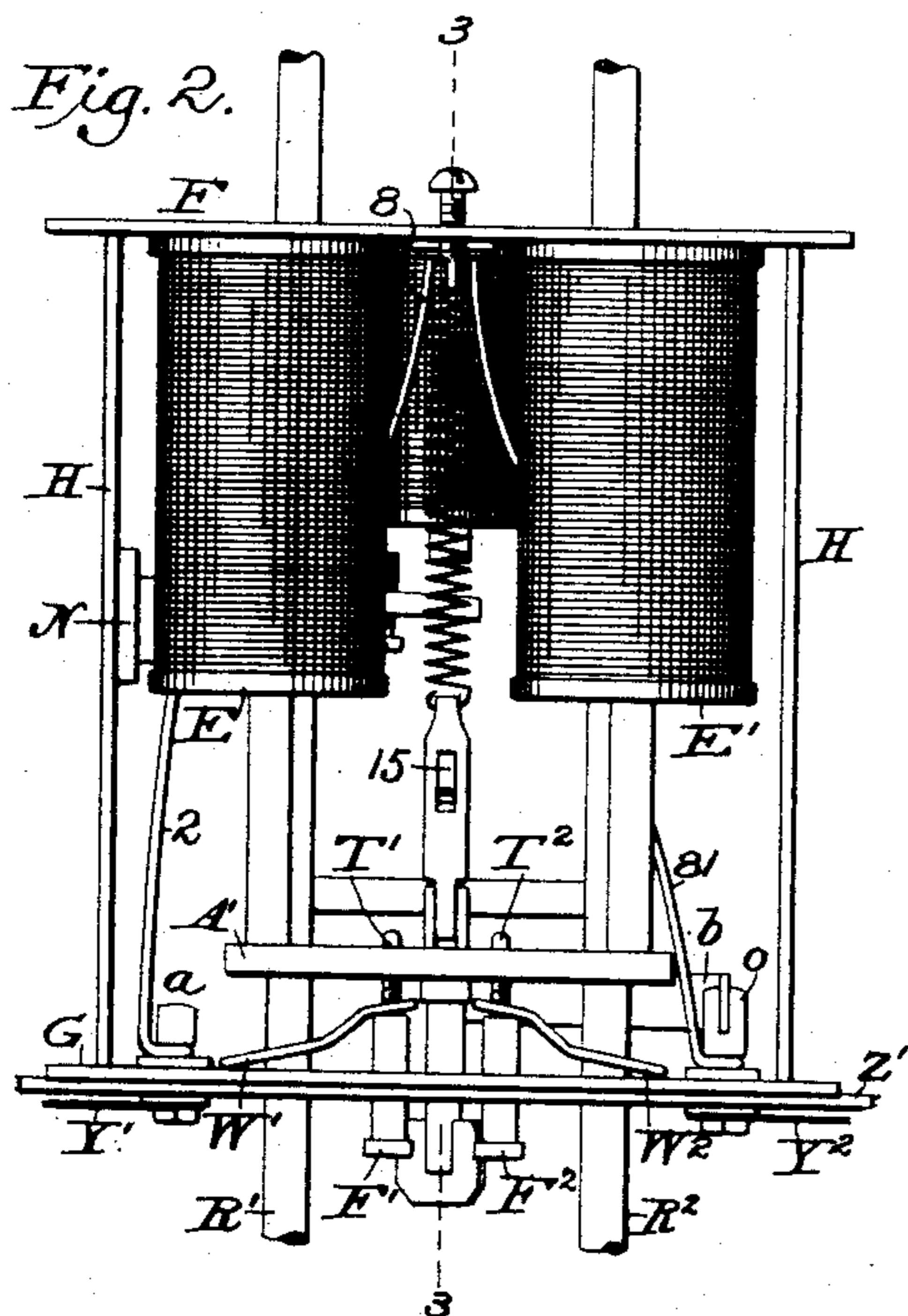
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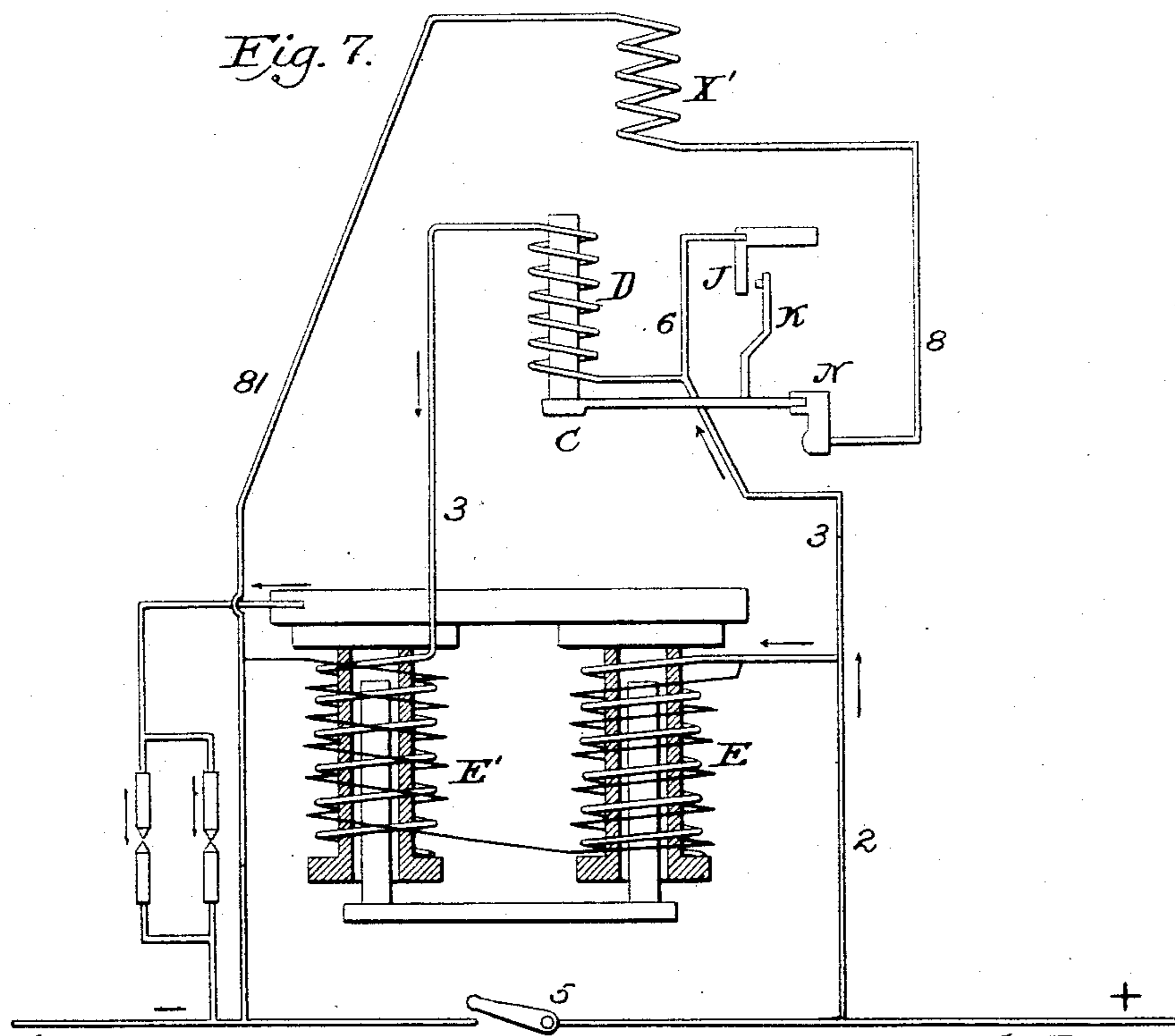
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# UNITED STATES PATENT OFFICE.

AUGUSTE WAGNIERE, OF LOS ANGELES, CALIFORNIA.

## ELECTRIC-ARC LAMP.

SPECIFICATION forming part of Letters Patent No. 436,814, dated September 23, 1890.

Application filed January 28, 1890. Serial No. 338,427. (No model.)

*To all whom it may concern:*

Be it known that I, AUGUSTE WAGNIERE, a citizen of Switzerland, residing at Los Angeles, in the county of Los Angeles and State of California, have invented certain new and useful Improvements in Electric Lamps, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to electric-arc lamps; and it consists in various features and details hereinafter set forth and claimed.

In the drawings, Figure 1 is a perspective view of my improved lamp, a part of the casing and the two main helices being removed to show more clearly the remaining parts; Fig. 2, a face view of the same; Fig. 3, a sectional view of the same on the line 3 3 of Fig. 2; Figs. 4, 5, and 6, views illustrating certain details of construction, and Fig. 7 a diagrammatic view illustrating the course of the currents.

The frame or body of the lamp comprises an upper disk F, a lower disk G, an inclosing shell or casing H, connecting the disks, an elongated plate Z', upon which the parts F G H rest, and rods Z and Z<sup>3</sup> connected to the ends of the plate Z', and serving the twofold purpose of suspending the lamp and conveying the current into and out of the same. Rods A B, connected at their upper ends with the plate Z', carry at their lower ends a base frame or plate W<sup>4</sup>, upon which latter is mounted the negative carbons 11 and the globe, which latter is not shown. The rods A B and Z Z<sup>3</sup>, where they connect with the plate or frame Z' and W<sup>4</sup>, are insulated therefrom, and it will also be noticed that the rod A is made hollow to receive the wire W<sup>5</sup>, which extends from the base-plate W<sup>4</sup> to the suspending-rod Z<sup>3</sup>. The rod Z is electrically connected with a suitably-insulated binding-post a by means of a plate Y', while the rod Z<sup>3</sup> is similarly connected to a post o by a plate Y<sup>2</sup>.

5 indicates a key or switch suitably insulated from the disk G, in which it is journaled, and adapted to be thrown into and out of contact with a spring-arm b electrically connected with the post o, it being understood of course that the key or switch is in electrical connection

with post a through a wire b'. (Shown in Figs. 1 and 6.) This switch or key 5 is used for the purpose of cutting out the operative mechanism of the lamp, for it is clear that if the switch be turned so as to make contact with the spring-arm b the current will pass from the arm Z through plate Y', post a, wire b', switch 5, spring-arm b, post o, plate Y<sup>2</sup>, and out through arm Z<sup>3</sup>.

E E' designate a pair of electro-magnets or helices, whose frames are electrically connected to the disk F, and A' is the armature for the magnets carried by a lever 15, which in turn carries the yoke L L', supporting the arms W' W<sup>2</sup>, Figs. 1 and 4.

The arms W' W<sup>2</sup> are perforated to receive the carbon-rods R' R<sup>2</sup>, carrying the carbons X X, and are connected to the yoke by means of screws T' T<sup>2</sup> and F' F<sup>2</sup>, as clearly shown in Fig. 4. The holes in the outer ends of the arms W' W<sup>2</sup> are made larger than the carbon-rods, so that when the arms rise the edges of the hole or opening will bite upon the rods and raise them, as is customary. It will also be observed that the holes or openings at the inner ends of the arms W' W<sup>2</sup> are slightly larger than the screw-rods T' T<sup>2</sup> which pass through them, the object of which is to permit the adjustment of the arms relatively to the armature-lever 15, and thereby regulate or vary the distance between the carbons to extinguish the light, or for other purposes.

D designates what I term the "cut-out coil or electro-magnet," and C the armature-lever therefor, pivoted to a bracket N, insulated from the frame-work, the armature-lever being provided with an arm K, adapted to make contact with a plate or bracket J, connected with a suitably-insulated post or screw V in the top disk F. The plate J or its screw V is connected with the wire 2 by a wire 6.

X' indicates a resistance-coil of any desired construction, which is connected by means of a wire 8 with the bracket N, and by means of a wire 81 with the binding-post o, the coil X' being supported by rods E'' on the top of the disk F.

A wire 2 extends from the binding-post a to the helix E, and is connected to the frame of the helix, which latter, as before stated, is electrically connected with the frame-work of

the lamp. A part of the current that enters by wire 2 is carried by a wire 3 through the cut-out coil D and to the helix E', to the frame of which the wire is electrically connected, the current being thereby conveyed through the coils E E' D to the frame-work of the lamp.

In order to insure the ready passage of the current from the frame-work to the carbon-holders R' R<sup>2</sup>, I employ flat copper strips 4, which, as shown in Fig. 1, bear against the carbon-holding rods.

The energization of the coil D causes the armature-lever C to rock, and so long as the lamp burns regularly the armature will be held in such position as to keep the arm K out of contact with the plate or bracket J, and prevent the current from passing through the resistance-coil.

When the helices E E' are energized, their armature-levers 15 are rocked, and, acting through the yoke L L' and arms W' W<sup>2</sup>, causes the carbons to be brought to proper position. After the carbons have thus been separated, the current will pass through them and down into the plate W<sup>4</sup>, and thence out of the lamp through wire W<sup>5</sup> and rod Z<sup>3</sup>.

When for any reason the course of the current, as just described, is interfered with, the coil D will no longer remain magnetized, and its armature C will fall and bring the arm K into contact with the plate J. As soon as the parts J K come into contact, the current will pass through the wires 2 3 6, plate J, arm K,

bracket N, wire 8, coil X', wire 81, to the binding-post o and thence out of the lamp.

Having thus described my invention, what I claim is—

1. In combination with the main circuit 2 and the helix E, included in the said circuit, the cut-out coil D and helix E', included in the branch 3 of the main circuit, a normally-open circuit 6 8 81, a resistance-coil X', included in the said circuit, a circuit-closer J K, included in the normally-open circuit, and an armature C for the cut-out coil D, carrying the part K of the circuit-closer, all substantially as shown.

2. In an electric-arc lamp, the cut-out coil D, connected with the helices, substantially as shown and described, in combination with the armature-lever C, a wire K, extending at right angles from the lever, a plate J, with which the wire K is adapted to make contact, and a wire connecting the plate with a resistance-coil.

3. In combination with the armature A', provided with a lever 15, the yoke L L', screw-rods T' T<sup>2</sup> carried thereby, arms W' W<sup>2</sup>, encircling the rods T' T<sup>2</sup>, adjusting-screws F' F<sup>2</sup>, and carbon-rods R' R<sup>2</sup>, passing through the outer ends of the arms W' W<sup>2</sup>.

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Witnesses:

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