

(No Model.)

T. F. NEVINS.
ELECTRIC CIRCUIT CONNECTOR.

No. 553,014.

Patented Jan. 14, 1896.

Fig: 1.

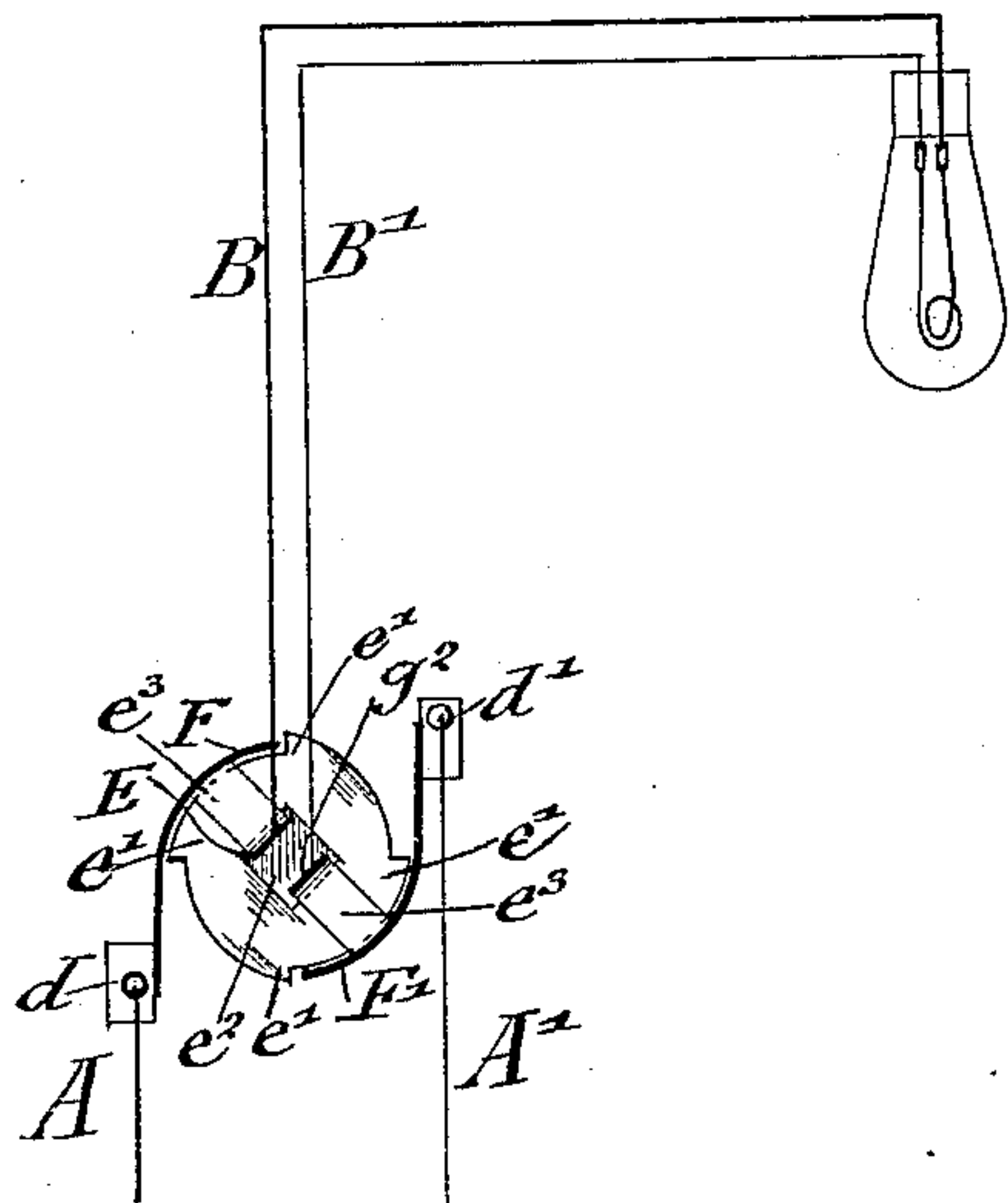


Fig: 2.

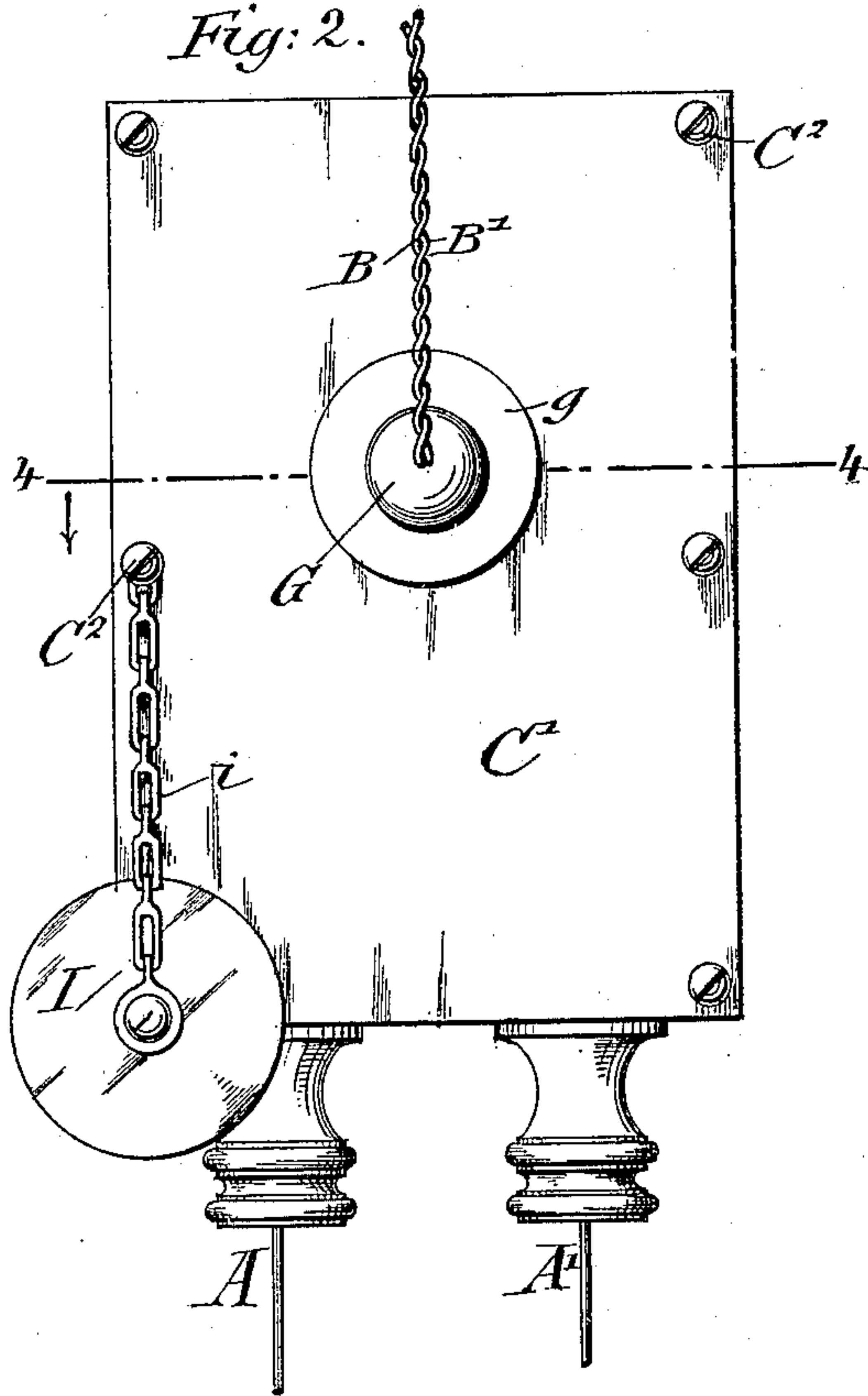


Fig: 3.

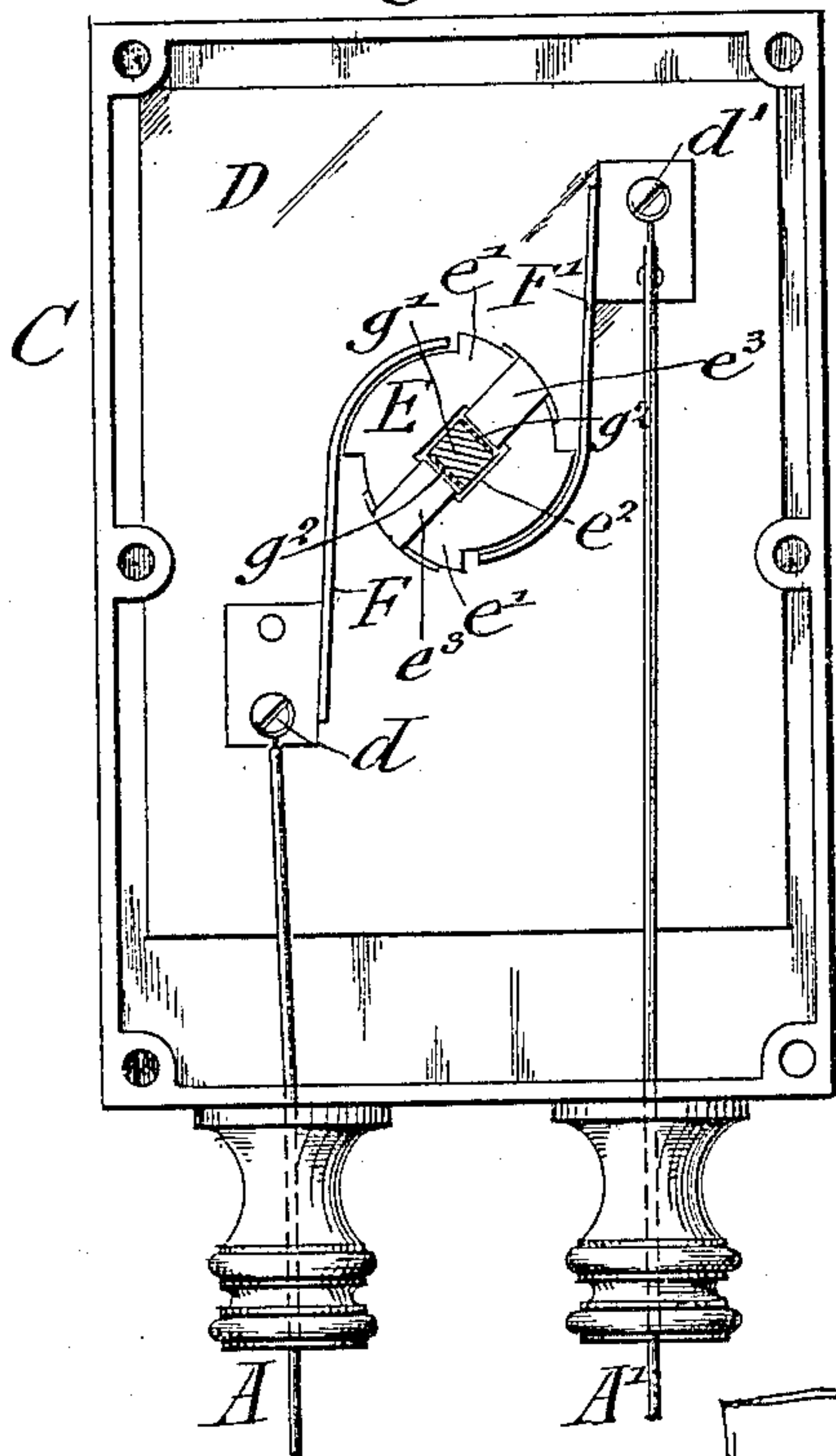


Fig: 4.

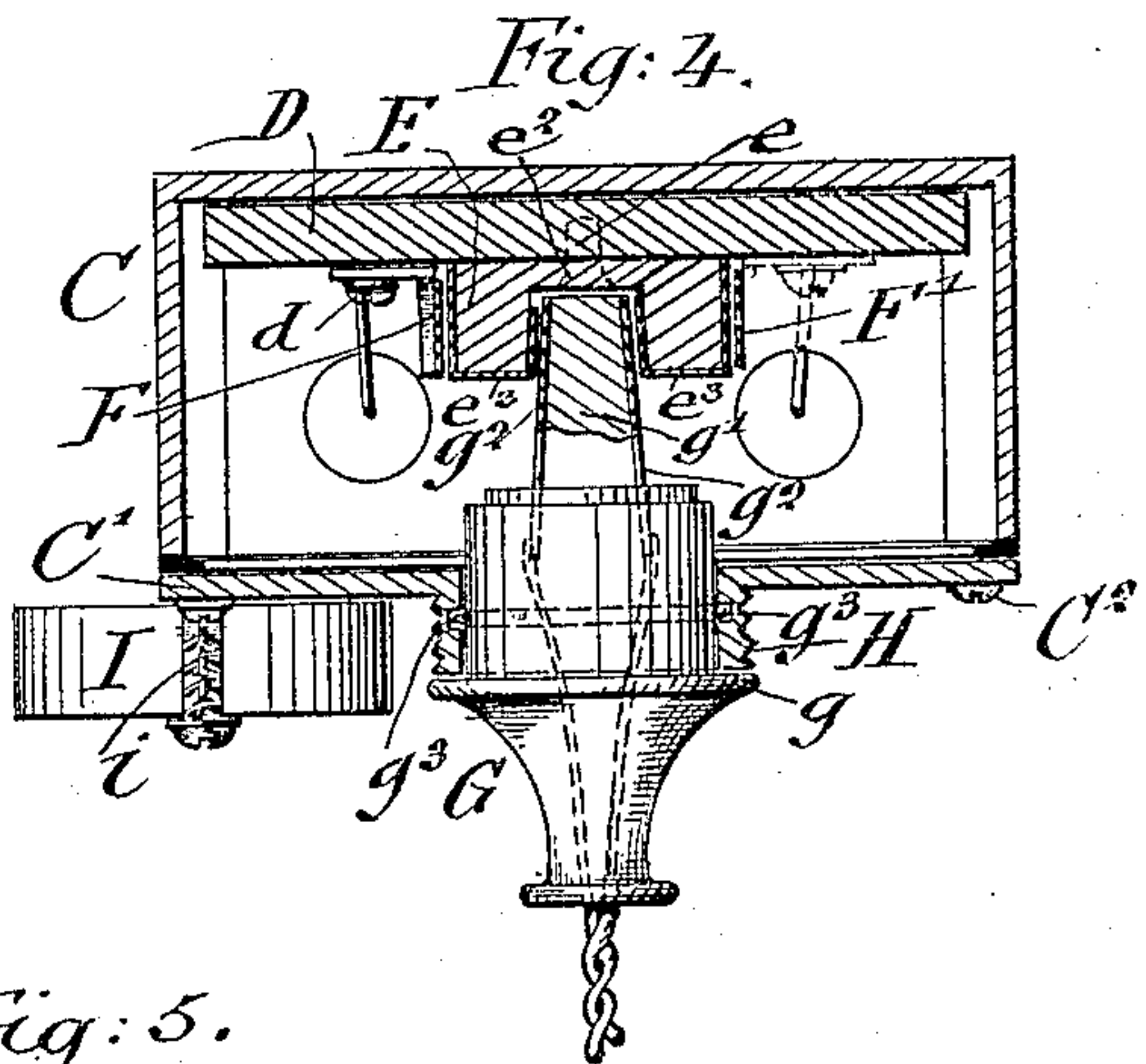
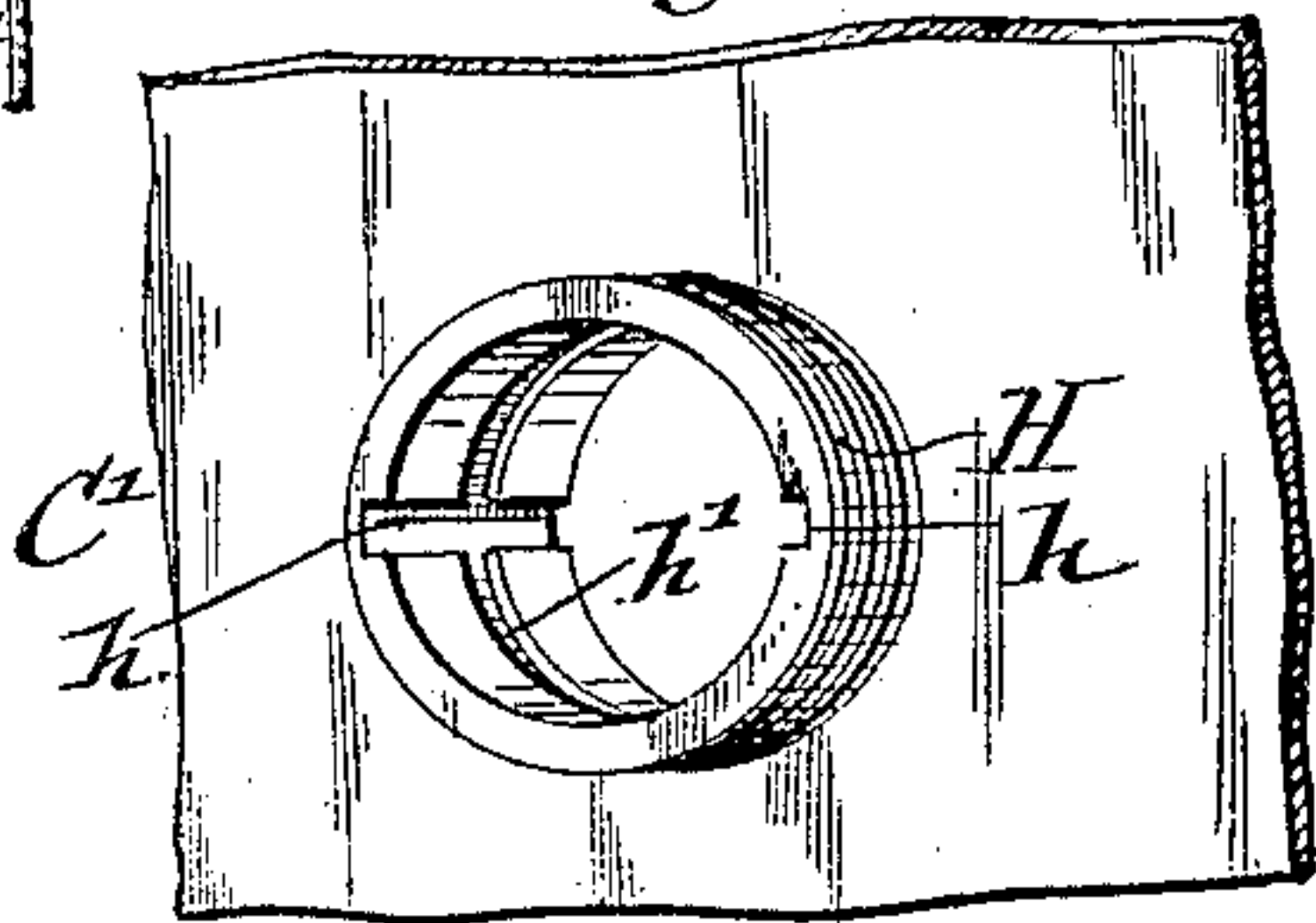


Fig: 5.



WITNESSES:

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THOMAS F. NEVINS, OF BROOKLYN, NEW YORK.

ELECTRIC-CIRCUIT CONNECTOR.

SPECIFICATION forming part of Letters Patent No. 553,014, dated January 14, 1896.

Application filed May 16, 1895. Serial No. 549,497. (No model.)

To all whom it may concern:

Be it known that I, THOMAS F. NEVINS, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Electric-Circuit Connections, of which the following is a specification.

My invention relates to an improved electric-circuit connection in which a removable connector is inserted into a rotatable cut-out block; and the object of the same is to furnish a device of novel and simple construction, which can be adapted for use with portable electric lamps, small-sized motors in houses, on shipboard, and with similar devices and in like places.

My invention consists in a casing in which the leading-in wires are connected to binding-posts of spring-contacts, which act on and form contact with a ratchet-toothed cut-out block journaled in the casing and prevent retrograde movement of the block, the cover of the casing being provided with an opening inclosed by an annular neck having an internal annular groove as well as diametrically-opposite guide-grooves that open into the annular groove from the edge of the neck, while the lamp, motor or the like has at the ends of its flexible conducting cords or wires a connector provided with diametrically-opposite studs which can be entered into the said guide-grooves so as to permit the plug portion of the connector, which has diametrically-opposite conducting-strips connected with the wires of the lamp, to engage in a central socket in the rotatable cut-out block, which is provided with diametrically-opposite metallic contacts that extend from the circumference of the block to the inside of the socket.

The main feature in a construction as just stated is that the connector can be rotated by its studs engaging in the annular groove in the neck on the casing in one direction, causing the contact-pieces on the cut-out block to establish by a quarter-rotation of the block electrical connection with the spring-contacts, so that the connector cannot be withdrawn either by design or accident, by reason of the studs being engaged in the groove, until a further forward quarter-rotation is given to the block and connector and the

studs caused to again register with the opposite guide-grooves of the neck. When the connector is removed from the casing, the opening is closed by screwing a cap, which is attached by a chain to the casing, onto the neck.

In the accompanying drawings, Figure 1 is a diagrammatic view showing the main wires electrically connected with the lamp or auxiliary wires. Fig. 2 is a plan view of my improved device. Fig. 3 is a plan view of the device with the covering detached, the plug of the connector, however, being shown in section. Fig. 4 is a transverse section on line 4 4, Fig. 2, looking in the direction of the arrow; and Fig. 5 is a broken detail perspective view of the screw-neck.

Similar letters of reference indicate corresponding parts.

The leading-in wires of the main circuit are lettered A A', and those of the lamp, motor, &c., B B'.

C is the casing or box, of rectangular or other suitable shape, and provided with a removable cover C' affixed to the same by screws C². The leading-in wires A A' are led into the box through suitable stuffing-boxes and are attached at their inner ends to binding-posts *d d'*, respectively, which are mounted in an insulator-block D fastened to the bottom of the casing. The binding-posts *d d'* are arranged at opposite sides of a cut-out block E, which is rotatable on a post *e* projecting from the insulator-block D, and they pass through foot-flanges of the spring-contacts F F', which are provided with curved ends that engage opposite sides of the cut-out block. The cut-out block is provided with four ratchet-teeth *e'* that extend in the same general direction, so that the ends of the spring-contacts may take against the radial faces of any two of the teeth and prevent retrograde rotation of the cut-out block, while they ride over the curved surfaces of the teeth when the block is turned in forward direction. The cut-out block is made of insulating material and is provided with a central rectangular socket *e*² for receiving the end of the connector hereinafter described.

Metallic contact-pieces *e*³ *e*³ are disposed at diametrically-opposite sides of the cut-out block, their inner ends terminating in the

socket e^2 and their outer ends extending over onto the curved faces of opposite ratchet-teeth e' , so that two of the latter bear an electrical contact-surface, while the other two do not.

5 The connector G is attached to the ends of the lamp or motor wires B B', the same being provided with an annular shoulder g and a plug portion g' , which is of rectangular tapering form. The connector is made wholly or
10 partly of insulating material, so that there will be no direct electrical connection or short-circuiting between the metallic contact-strips $g^2 g^2$ connected with the wires B B' and affixed to diametrically-opposite faces of the plug
15 portion g' . When the connector is inserted in the opening in the neck H extending outwardly from the cover C' and its shoulder g abuts against the edge of the neck, its tapering plug portion g' will be engaged in the
20 socket of the cut-out block E. In order, however, to guide the plug portion g' into the socket so that an electrical contact will take place between the contact-strips $g^2 g^2$ of the connector G and the contact-pieces $e^3 e^3$ on the
25 cut-out block, the connector is provided with diametrically-opposite radial studs $g^3 g^3$, which are guided by means of opposite guide-grooves h in the neck G into an internal annular groove h' in the neck, said studs taking
30 into the groove when the connector is rotated. By a forward quarter-rotation of the connector G a like rotation is imparted to the cut-out block E, so that the latter is moved from the position shown in Fig. 3, in which the bare
35 teeth of the block are engaged by the spring-contacts F F', to that shown in Fig. 1, in which a contact is established between the outer ends of the contact-pieces $e^3 e^3$ and the spring-contacts. The current from the main wires A A'
40 can now pass into the wires B B', so that the lamp will be lighted or the motor started, as the case may be. In this position of the cut-out block and the connector the latter cannot be removed from the casing until an additional
45 forward quarter-rotation is imparted thereto, so as to bring the studs $g^3 g^3$ again into register with the guide-grooves h in the neck H. This arrangement insures a safe and positive mechanical and electrical connection of the
50 connector with the cut-out block, for the connection cannot be accidentally broken, as the connector cannot be rotated backward, and the pressure of the spring-contacts against the cut-out block must be overcome in order
55 to move the same forward.

When the connector is removed from the casing a screw-threaded cap I is screwed onto the screw-threaded neck H, so as to exclude dust and dirt. The cap is attached to the
60 casing by means of a short chain i , so as to be always at hand.

The combined advantages of the construc-

tion described above are that to make a connection by the insertion of the plug a compound movement consisting of an inward and
65 a rotary movement is necessary, and hence it would be a very difficult matter for persons of meddlesome mind to make a connection by any other means than by the proper plug,
70 that after the connection has been made the plug cannot be drawn out by any direct pull on the wires liable to take place in some cases, that the contacts of the plug are arranged in the casing so that they are not exposed nor liable to be damaged by rain or
75 water, especially when the cap is screwed on, and that when provided with a properly-constructed plug any unskilled person can easily make the connection.

Having thus described my invention, I
80 claim as new and desire to secure by Letters Patent—

1. The combination, with a casing containing a rotatable ratchet-toothed cut-out block, provided with a central socket and having
85 contact-pieces extending from opposite points in the socket to opposite points on the teeth, and spring-contacts connected with the leading-in wires, of a connector having a plug provided with diametrically-opposite contact-
90 strips, and adapted to be inserted into said socket, means for preventing the direct removal of the connector from the casing when an electrical connection is made, and conducting-wires secured to the connector and
95 connected to the contact-strips, substantially as set forth.

2. The combination, with a casing provided with a cover having a neck projecting outwardly therefrom, said neck having an internal annular groove and opposite guide-
100 grooves leading from the end of the neck to the annular groove, a rotatable ratchet-toothed cut-out block journaled in the casing and provided with a central socket, diametrical contact-pieces applied to the cut-out block and extending from the socket to the outer faces of
105 teeth, and spring-contacts connected with the leading-in wires, of a connector having a plug provided with diametrically-opposite contact-strips, and adapted to be inserted into said socket, radial studs projecting from the connector and adapted to take into the grooves for the purpose described, and conducting-
110 wires secured to the connector and connected to the contact-strips, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

THOS. F. NEVINS.

Witnesses:

G. M. VAN SAUN,
A. W. SPROULE.