

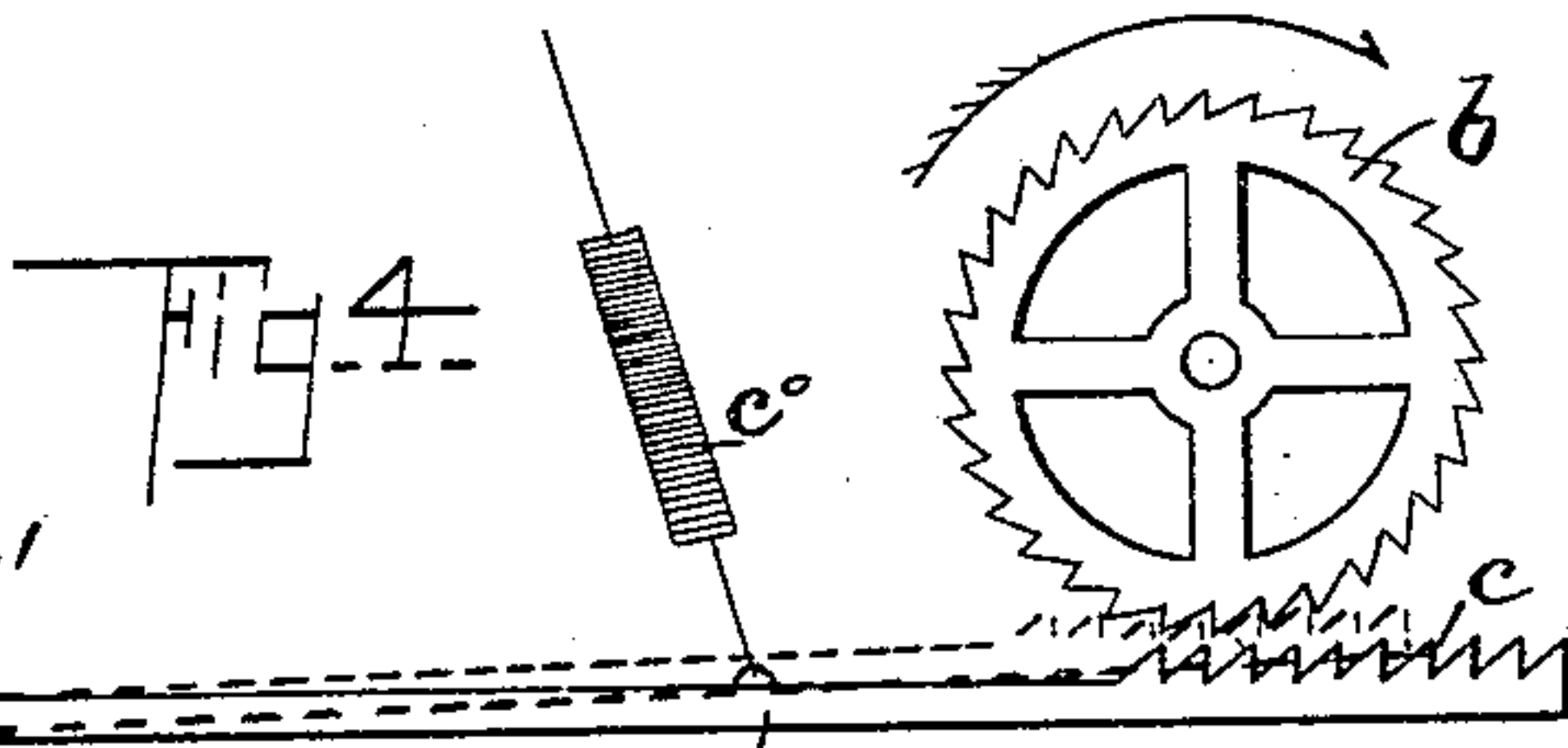
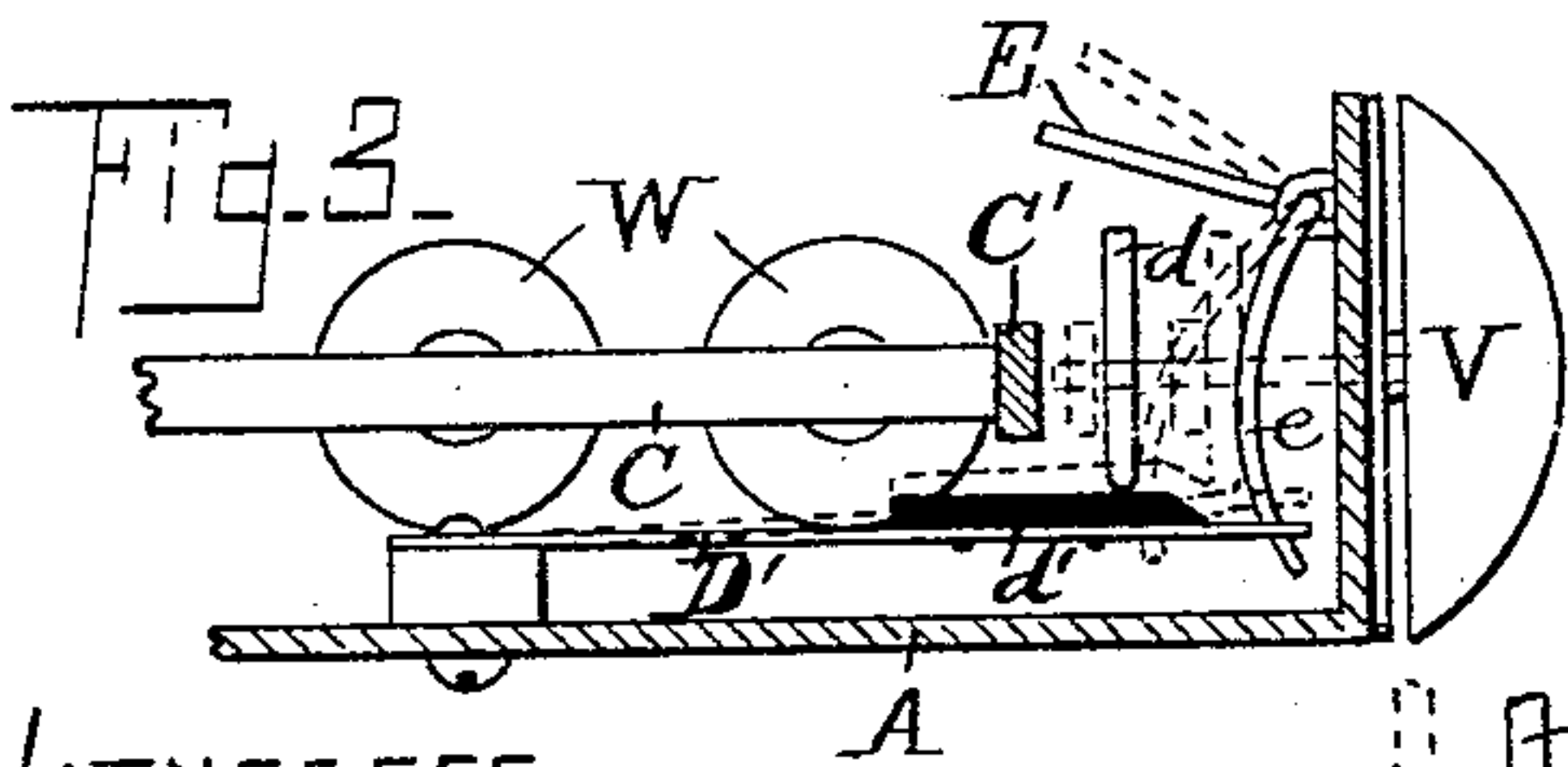
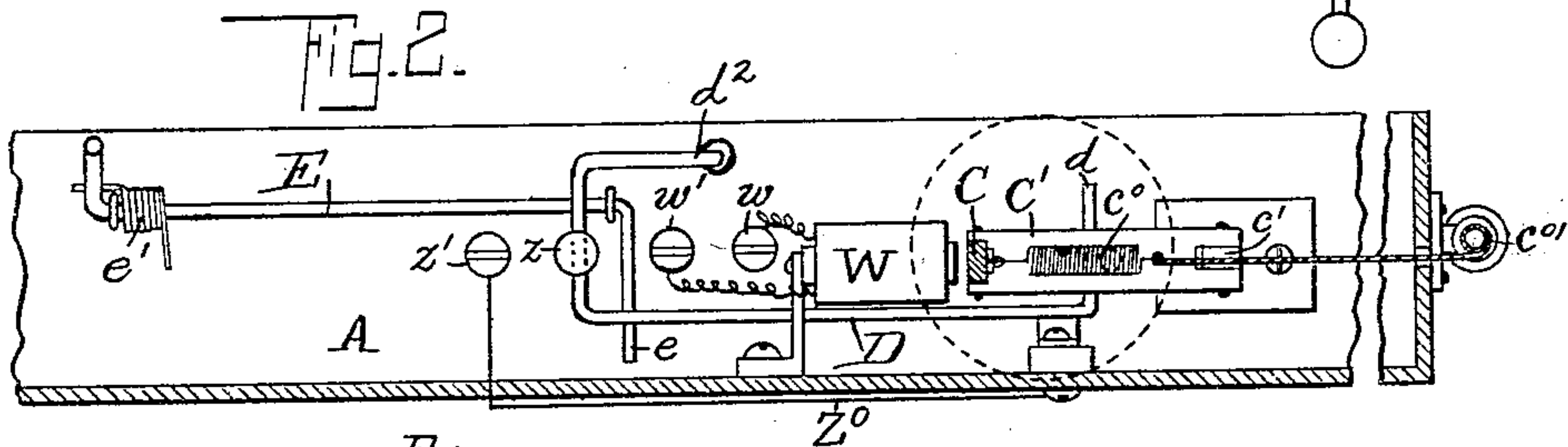
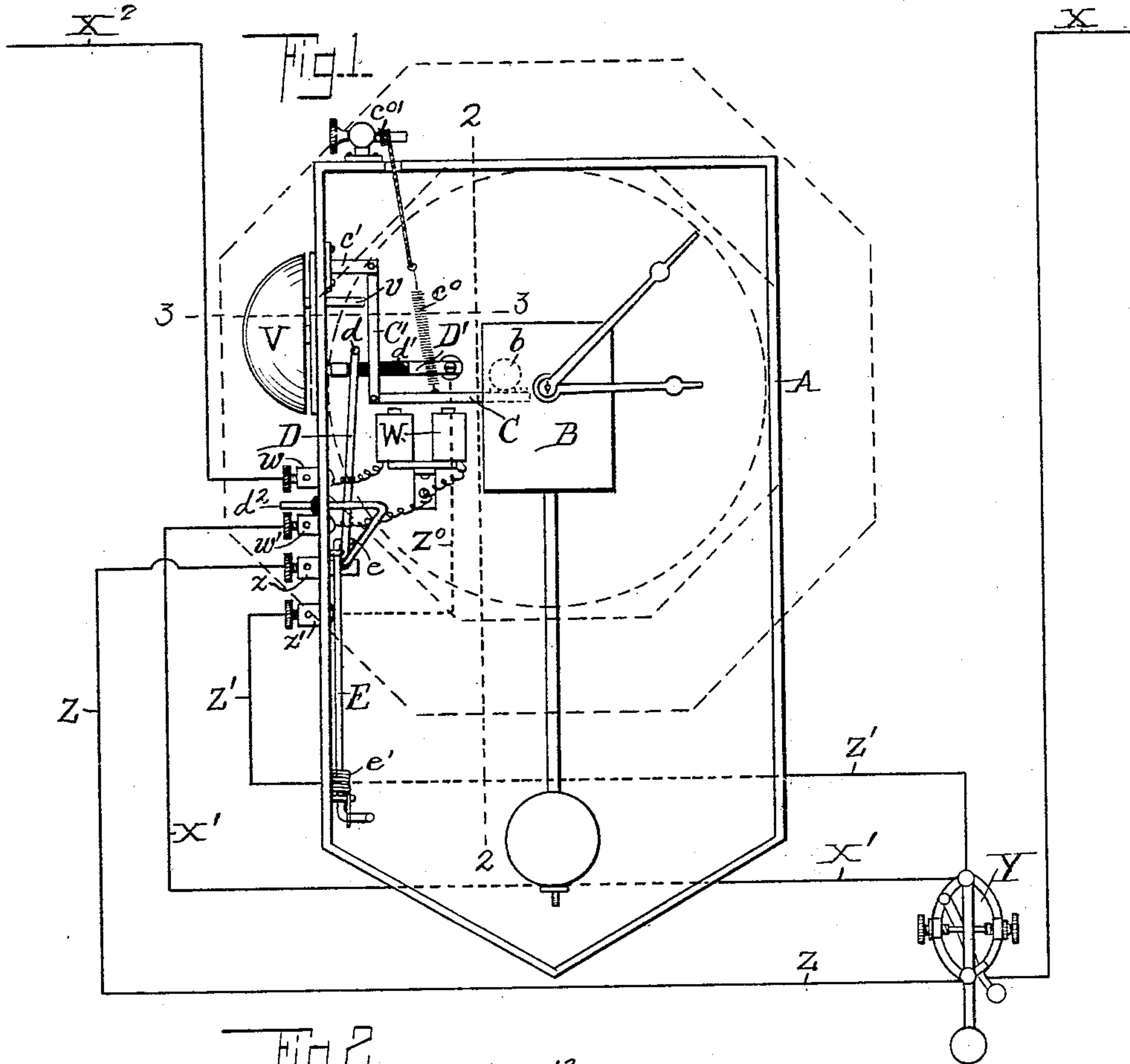
No. 704,165.

Patented July 8, 1902.

S. R. WRIGHT.
TELEGRAPHIC SAFETY DEVICE.

(Application filed Dec. 13, 1901.)

(No Model.)



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UNITED STATES PATENT OFFICE.

SELDEN R. WRIGHT, OF MORTON, NEW YORK.

TELEGRAPHIC SAFETY DEVICE.

SPECIFICATION forming part of Letters Patent No. 704,165, dated July 8, 1902.

Application filed December 13, 1901. Serial No. 85,775. (No model.)

To all whom it may concern:

Be it known that I, SELDEN R. WRIGHT, a citizen of the United States, and a resident of Morton, in the county of Orleans and State of New York, have invented certain new and useful Improvements in Telegraphic Safety Devices, of which the following is a specification.

This invention relates to telegraphic safety devices; and the object thereof is to give an alarm to a telegraph operator when the telegraph-line is left open by a break in the line or by the operator having left his key open or by some other cause.

The invention embodies also means whereby when the telegraph operator leaves his key open or a break occurs in a portion of the line in the office the line is automatically closed and the circuit is reestablished after a predetermined length of time.

The invention consists in the devices hereinafter described and claimed.

In the drawings, Figure 1 is a front elevation of a device embodying this invention, showing in dotted lines portions of a casing and showing the line-wires of the circuit diagrammatically. Fig. 2 is a cross-section on the line 2 2 of Fig. 1. Fig. 3 is a cross-section on the line 3 3 of Fig. 1, and Fig. 4 is an elevation of a detail of the device.

In the drawings, $X X^2$ are the wires of the main-line circuit, connected through the key Y and passing also through an electromagnet W by binding-posts $w w'$ in a usual manner. The line-circuit when the device is operating normally passes through the key and through the electromagnetic device, as stated, and the opening and closing of the key operates a sounder or such other usual device as may be desired. Therefore during the normal operation of the mechanism the electromagnet W is energized and deenergized each time the key is closed and opened.

In the present example of this invention A is a casing supporting parts of the apparatus.

B is a box containing a time mechanism, such as a clock-movement, which movement has upon one of the wheel-axes a toothed or ratchet wheel b . (See Figs. 1 and 4.) This toothed or ratchet wheel being geared with the clock-movement rotates, of course, at a

particular rate of speed, which may be fixed to produce any desired circumferential speed of the wheel by suitably adjusting the gearing of the clock-movement and the diameter of the wheel. This wheel b controls a circuit-closer in a shunt-circuit around the key and composed in part of the wires $Z Z'$, connected to the binding-posts $z z'$. This shunt-circuit is normally open, but is closed automatically after the circuit has been broken for a predetermined period of time. This period in the present example of the invention is determined by the rate of the wheel b and embodies means whereby after such predetermined period of time the shunt-circuit connects the line-wires $X X'$ notwithstanding the key Y is open. This connection is made through the wires $X X'$ and the wires $Z Z'$ and a circuit-closing mechanism hereinafter described in the shunt-circuit, because the wires $X X'$ and $Z Z'$ are connected with each other independently of the key.

When the line-circuit is closed and operative, the shunt-circuit $Z Z'$ is normally open and the electromagnet W is energized. This electromagnet has an armature C, whereby when the magnet is deenergized a connection is made with the time mechanism of the clock-movement B through the wheel b and the circuit-closer mechanism. This connection in the present example is as follows: On the end of the armature is a series of teeth c . (Shown in Fig. 4.) The armature has a double movement—longitudinal and vertical—and for this purpose may be pivoted to one end of a link C' , the other end of which has a stationary support. The supporting arrangement that is preferred in the present case is a standard c' , attached to the interior of the casing A, from which by a suitable pivot depends said link C' , to the lower end of which is pivoted the armature C. A spring c^0 tends to lift the armature C away from the electromagnet W and is provided with an adjusting device c'' .

In the circuit $Z Z'$ is a movable arm D, which is pivoted, as shown, in a support, which may be, as shown, a binding-post z . Adjacent to the free end of said arm D is a spring D' , supported in the casing A and having upon it an insulated portion d' and connected in the circuit $Z Z'$ —as, for instance, by the bind-

ing-posts $z z'$. The arm D is so arranged and supported that it may rest upon the insulated portion d' of the spring D' and retain this position by light pressure on said insulated portion; but if moved off from said insulated portion said arm D connects with the uninsulated portion of said spring D' and closes the electric circuit in the circuit Z Z'. The arm D may be made in any suitable form and has a portion d set in the path of movement of the armature C or of the link C', so that when the wheel b revolves in the direction shown by the arrow in Fig. 4 and the magnet W has been deenergized the spring c^0 lifts the teeth c into engagement with the teeth on the wheel b , and thereupon the armature C and the link C' will be shifted, (toward the left, as shown in dotted lines in Fig. 4,) and the link C will after a predetermined period of time make contact with the arm D, force it (toward the left) off the insulated section d' of the spring D', and make contact with said spring, thus establishing a circuit around the key through the wires X X' Z Z'. The complete shunt-circuit is composed of the wire Z, post z , arm D, spring D', wire Z', post z' , and wire Z'. This movement of the armature C and link C' may also cause the ringing of an alarm.

V is a mechanical or electric bell, and v is a contact-piece operated by the movement of the armature C and link C' for causing said bell to ring. As soon as the said armature and link have been moved a selected distance toward the left, as shown in the figures, contact is made between the armature and link and the contact-piece for this purpose, and the bell rings as long as the power for operating the same continues or until stopped by the operator.

The opening and closing of the key does not connect the teeth c with the wheel b for a sufficient length of time to affect the circuit-closer of the shunt-circuit.

The operator having been warned by the alarm that he has left his key open, for instance, returns and closes the key; but the closing of the key does not reset the parts nor break the shunt-circuit Z Z'.

The resetting of the parts is accomplished as follows: The arm D may be set by hand toward the right, conveniently by a portion d^2 thereof extending out of the casing A, thus pushing back the link C' and the armature C to the full-line position shown in the figures, or a separate lever E is supported in the casing, having a portion e , (see particularly Fig. 2,) adapted to be moved against the arm D and to force it toward the right in Fig. 1. A spring e' acting upon said lever E tends to keep it from contact with said arm D. Thus the arm D is pressed toward the right in Fig. 1 and is removed from contact with the contact portion of the spring D' and is reset upon the insulated portion thereof, d' , and this is done after the normal circuit is reestablished through the key and the electromagnet W, and the wheel b is disconnected from that

part of the circuit-closer mechanism consisting in the present case of the armature C and link C', arm D, and spring D'.

What I claim is—

1. The combination of a main-line circuit, an electromagnet and a key in said circuit, a normally open shunt-circuit around said key, a time mechanism, and a circuit-closer mechanism for said shunt-circuit comprising a movable part adapted when the main-line circuit is broken to connect with and be moved by said time mechanism, and a contact-piece in said shunt-circuit having an insulated portion and an uninsulated portion, and a movable arm adapted to be moved from said insulated portion to said uninsulated portion when said movable part is operated by said time mechanism, substantially as described.

2. The combination of a main-line circuit, an electromagnet and a key in said circuit, a normally open shunt-circuit around said key, a time mechanism, and a circuit-closer mechanism for said shunt-circuit comprising an armature for said electromagnet having a movement to and from said electromagnet and another movement, means for making connection between said armature and said time mechanism for moving the former when the main-line circuit is broken, and a circuit-closer in said shunt-circuit adapted to close the shunt-circuit by the second-mentioned movement of said armature, substantially as described.

3. The combination of a main-line circuit, an electromagnet and a key in said circuit, a normally open shunt-circuit around said key, a time mechanism, and a circuit-closer mechanism for said shunt-circuit comprising an armature for said electromagnet having a movement to and from the same and another movement, means for making connection between said armature and said time device for moving the former, and a circuit-closer in said shunt-circuit consisting of an insulated section and an uninsulated section, and a movable arm normally making contact with said insulated section but when moved by the second movement of the armature to close the shunt-circuit by contact with said uninsulated section, substantially as described.

4. The combination of a main-line circuit, an electromagnet and a key in said circuit, a normally open shunt-circuit around said key, a time mechanism having a toothed wheel, and a circuit-closer mechanism for said shunt-circuit comprising a toothed armature for said electromagnet, a spring adapted to lift the teeth of the armature into contact with the teeth of the wheel when the circuit through the electromagnet is broken, a support for said armature permitting the movement of the same to and from the electromagnet and also another movement, a part in said shunt-circuit having an insulated section and an uninsulated section, and a movable arm in said shunt-circuit normally in contact with

said insulated section and adapted to be moved to make contact with the uninsulated section to close the shunt-circuit by said second-mentioned movement of said armature, substantially as described.

5. The combination of a main-line circuit, an electromagnet and a key in said circuit, a normally open shunt-circuit around said key, a time mechanism, and a circuit-closer mechanism for said shunt-circuit comprising a movable part adapted when the main-line circuit is broken to connect with and be moved by said time mechanism, and a contact-piece in said shunt-circuit having an insulated portion and an uninsulated portion, a movable arm adapted to be moved from said insulated portion to said uninsulated portion when said movable part is operated by said time mechanism, and an alarm device adapted to be operated upon the same movement of said movable part, substantially as described.

6. The combination of a main-line circuit, an electromagnet and a key in said circuit, a normally open shunt-circuit around said key, a time mechanism and a circuit-closer mechanism for said shunt-circuit comprising an armature for said electromagnet having a movement to and from said electromagnet and another movement, means for making connection between said armature and said time mechanism for moving the former, a circuit-closer in said shunt-circuit adapted to close the shunt-circuit by the second-mentioned movement of said armature, and an alarm device adapted to be operated upon the same movement of said movable part, substantially as described.

7. The combination of a main-line circuit, an electromagnet and a key in said circuit, a normally open shunt circuit around said key, a time mechanism, and a circuit-closer mechanism for said shunt-circuit comprising an armature for said electromagnet having a movement to and from the same and another movement, means for making connection between said armature and said time device for moving the former, a circuit-closer in said shunt-circuit consisting of an insulated section and an uninsulated section, a movable arm normally making contact with said insulated section but when moved by the second movement of the armature to close the shunt-circuit by contact with said uninsulated section, and an alarm device adapted to be operated upon said second-mentioned movement of said armature, substantially as described.

8. The combination of a main-line circuit, an electromagnet and a key in said circuit, a normally open shunt-circuit around said key, a time mechanism having a toothed wheel,

and a circuit-closer mechanism for said shunt-circuit comprising a toothed armature for said electromagnet, a spring adapted to lift the teeth of the armature into contact with the teeth of the wheel when the circuit through the electromagnet is broken, a support for said armature permitting the movement of the same to and from the electromagnet and also another movement, a part in said shunt-circuit having an insulated section and an uninsulated section, a movable arm in said shunt-circuit normally in contact with said insulated section and adapted to be moved to make contact with said uninsulated section to close the shunt-circuit by said second-mentioned movement of said armature, and an alarm device adapted to be operated upon said second-mentioned movement of said armature, substantially as described.

9. The combination of a main-line circuit, an electromagnet and a key in said circuit, a time mechanism, an alarm device, and means for causing the operation of said alarm device comprising a movable part adapted when the main-line circuit is broken to connect with and to be moved by said time mechanism, substantially as described.

10. The combination of a main-line circuit, an electromagnet and a key in said circuit, a time mechanism, an alarm device and a mechanism for causing operation of said alarm device comprising an armature for said electromagnet having a movement to and from said electromagnet and another movement, means for making connection between said armature and said time mechanism for moving the former when the main-line circuit is broken and thereby putting said alarm device in operation by the last-mentioned movement of said armature, substantially as described.

11. The combination of a main-line circuit, an electromagnet and a key in said circuit, a time mechanism having a toothed wheel, an alarm device and means for putting said alarm device in operation comprising a toothed armature for said electromagnet, a spring adapted to lift the teeth of the armature into contact with the teeth of the wheel when the circuit through the electromagnet is broken, a support for said armature permitting the movement of the same to and from the electromagnet and also another movement and connections between said armature and said alarm device for putting the same in operation by the last-mentioned movement of said armature, substantially as described.

SELDEN R. WRIGHT.

Witnesses:

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F. BISSELL.