

(No Model.)

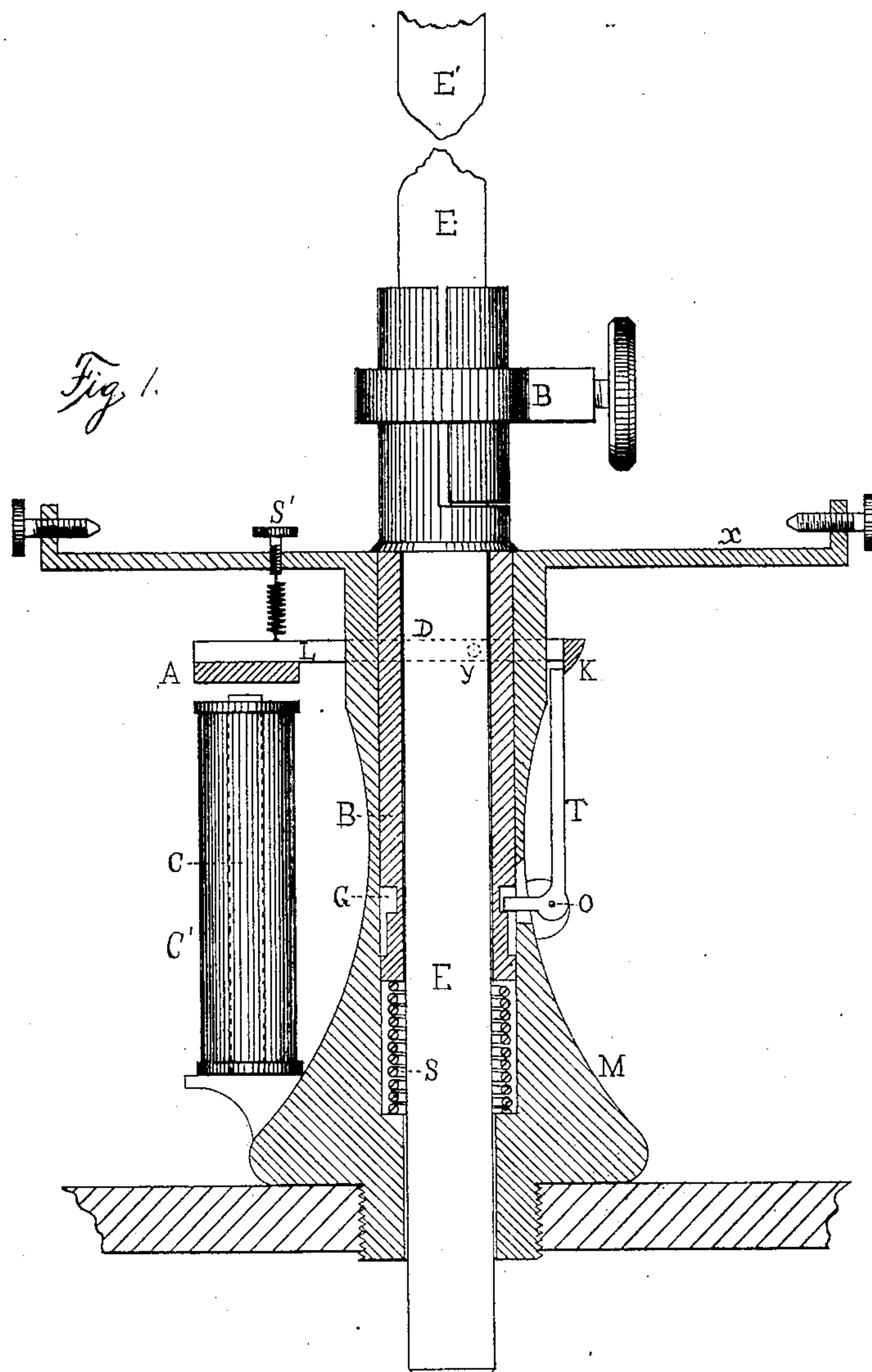
2 Sheets—Sheet 1.

J. J. WRIGHT.

SAFETY DEVICE FOR ELECTRIC LAMPS.

No. 258,521.

Patented May 23, 1882.



Witnesses.

Edwin Thomson.
Geo. S. Ganitt.

Inventor.

John Joseph Wright

(No Model.)

2 Sheets—Sheet 2.

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Fig. 2.

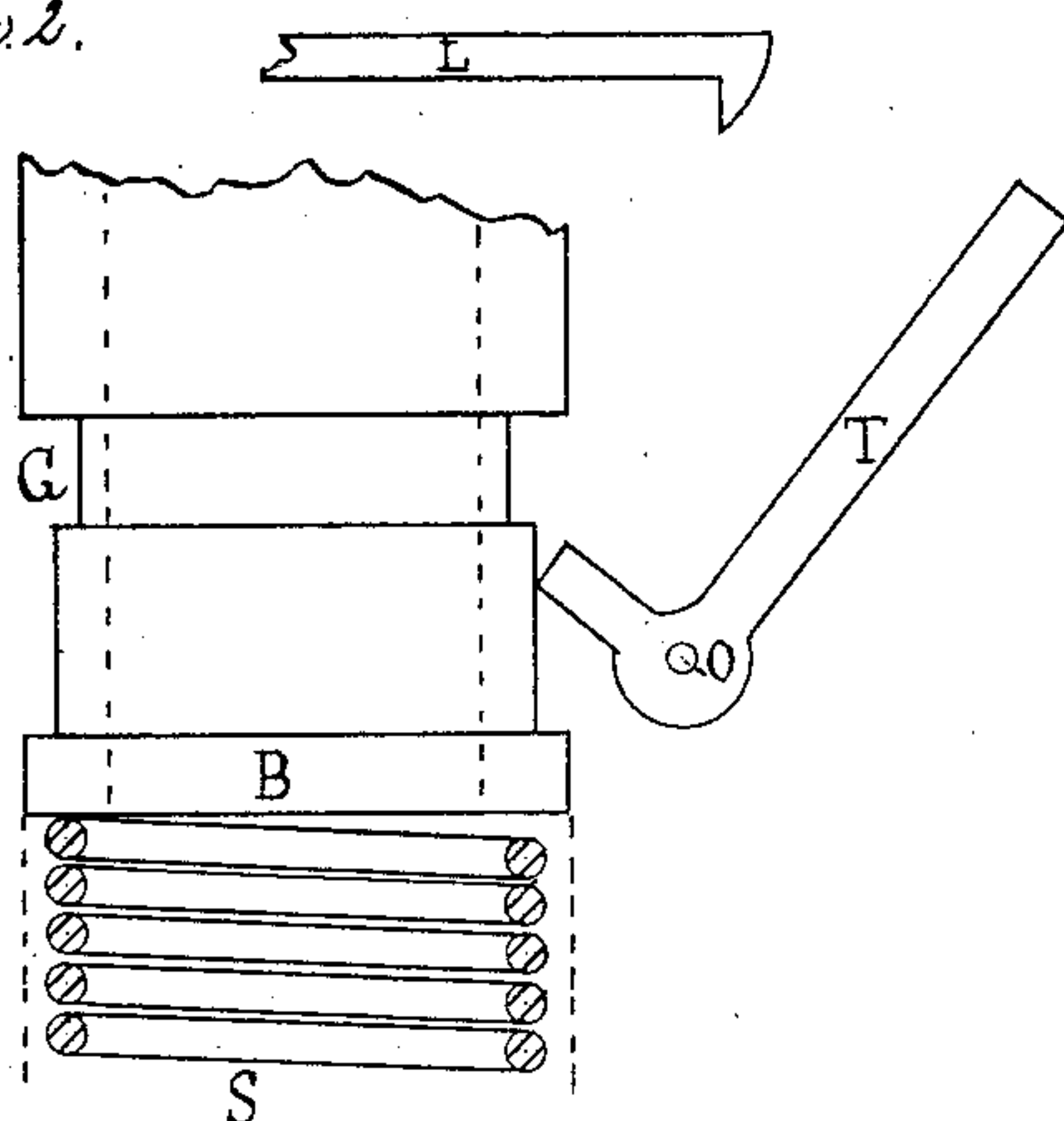


Fig. 3.

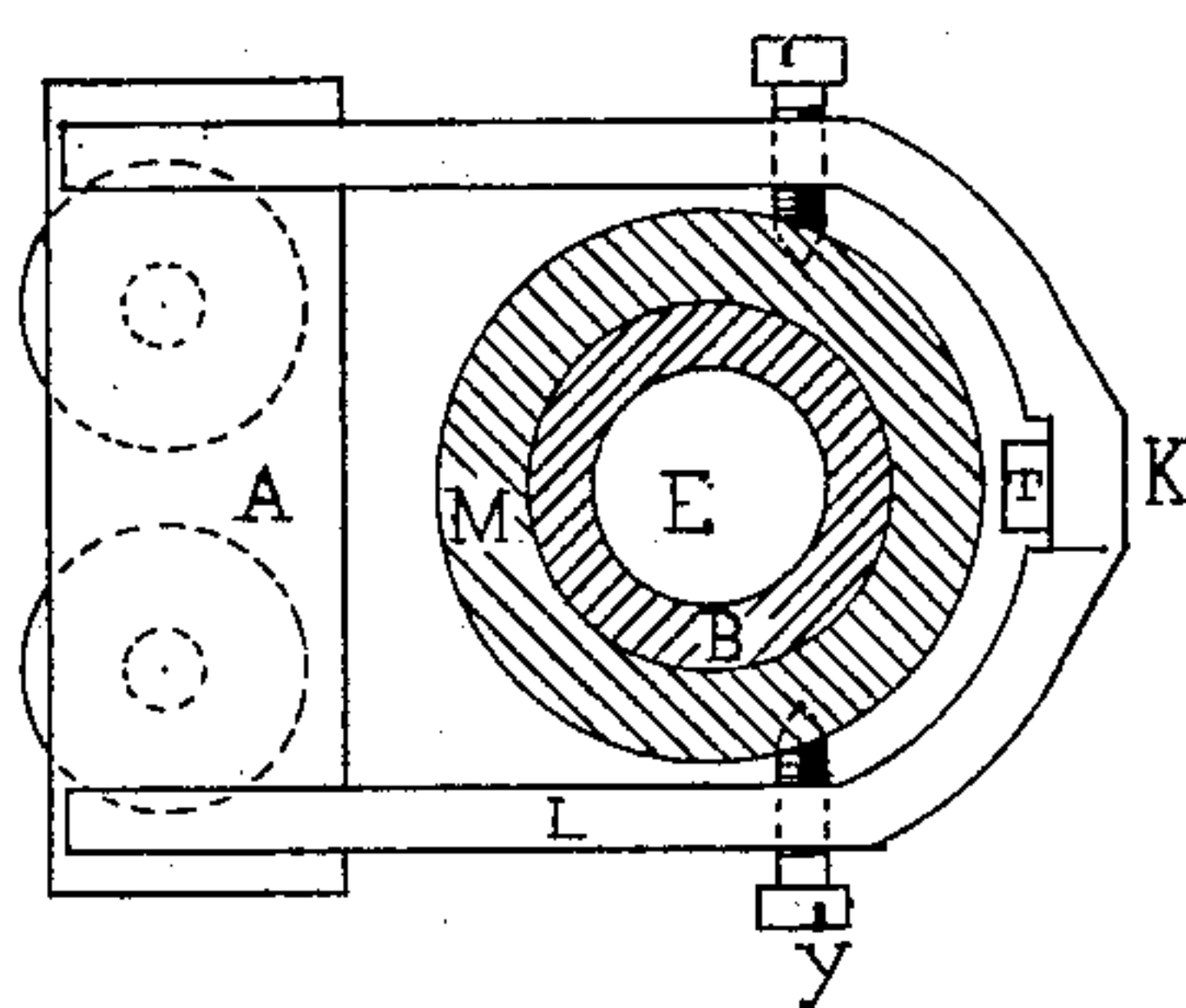


Fig. 4.

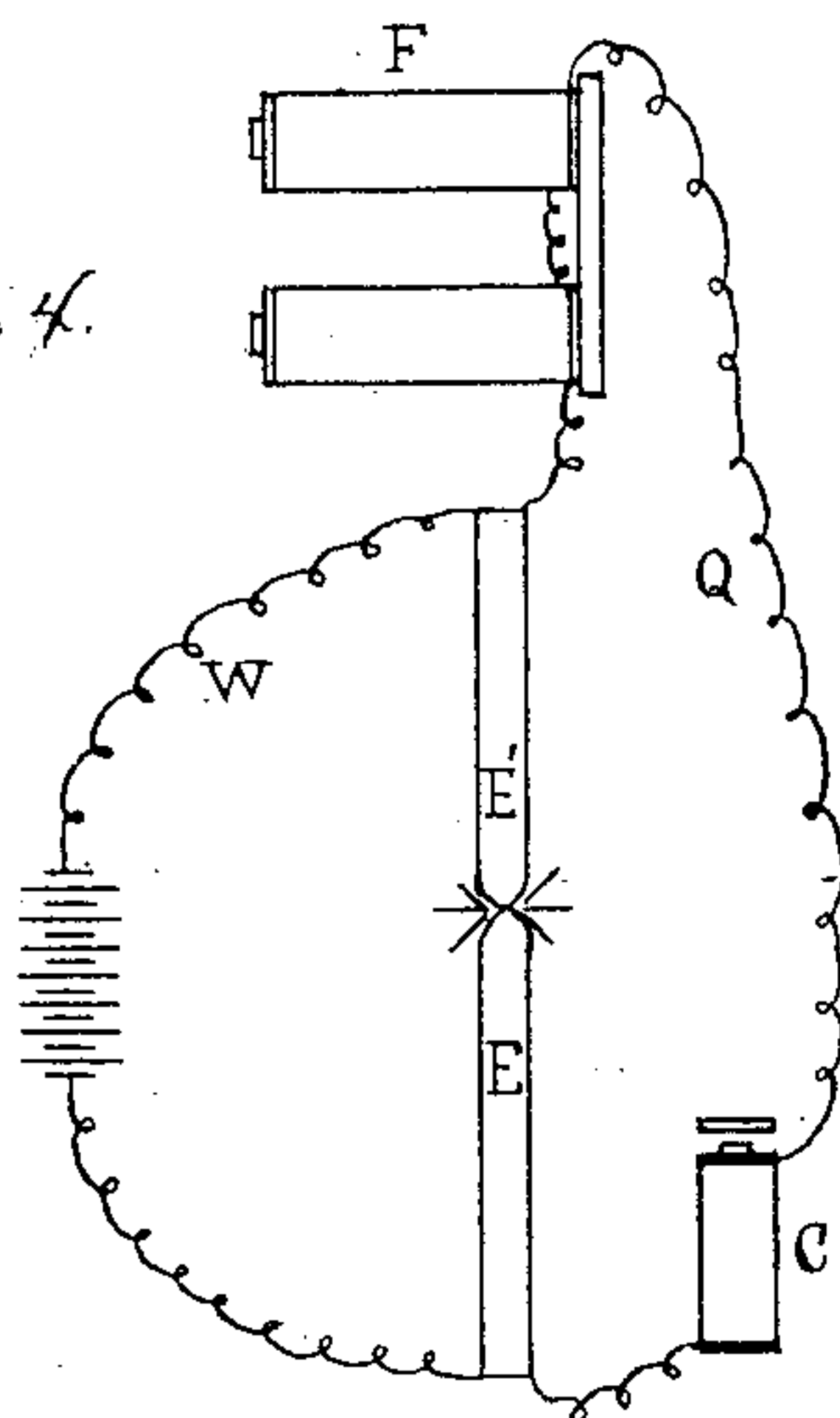
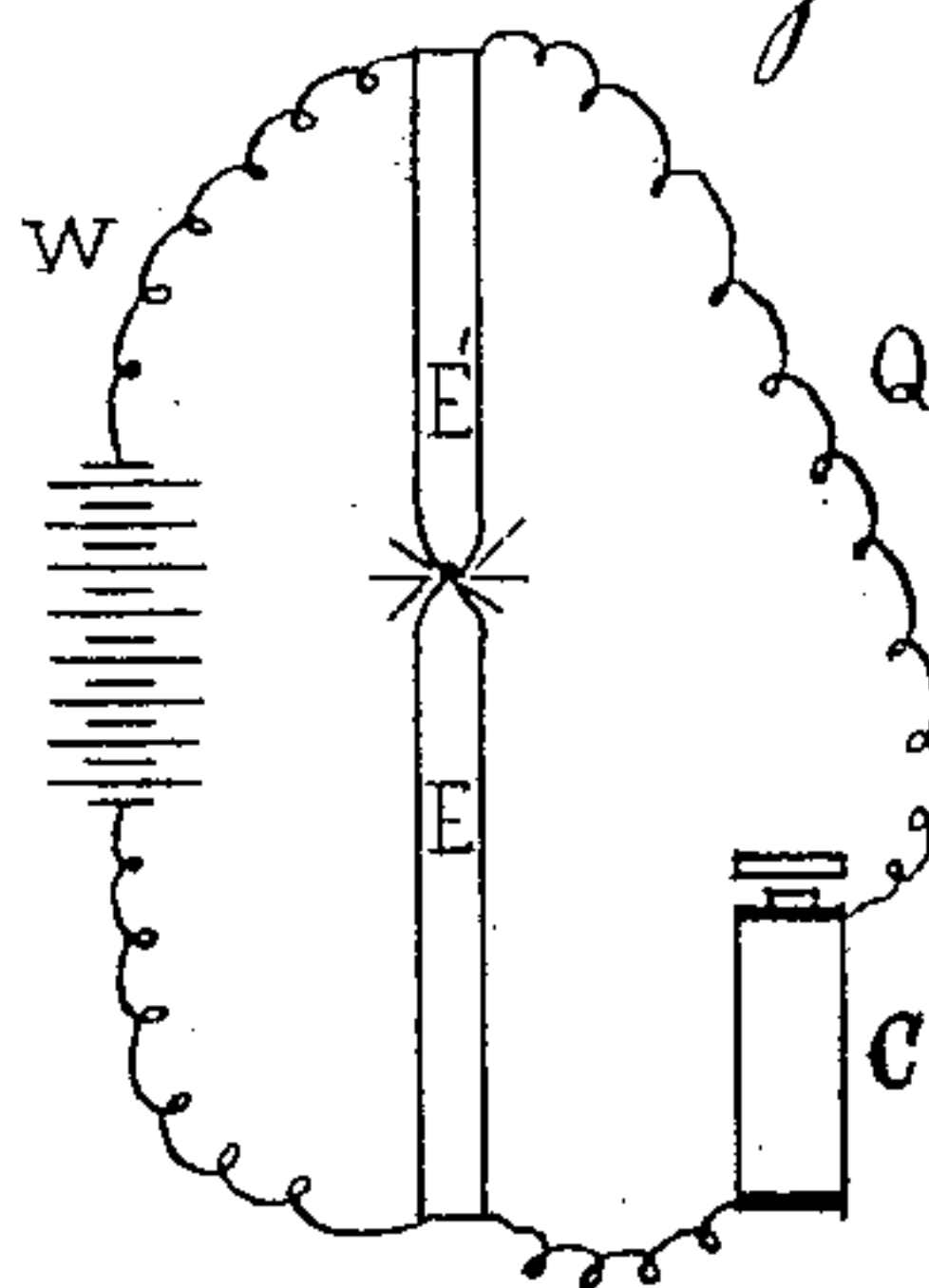


Fig. 5.



Witnesses.

Chas. Thomson
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Inventor.

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UNITED STATES PATENT OFFICE.

JOHN JOSEPH WRIGHT, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO
GEORGE S. GARRETT, OF SAME PLACE.

SAFETY DEVICE FOR ELECTRIC LAMPS.

SPECIFICATION forming part of Letters Patent No. 258,521, dated May 23, 1882.

Application filed July 9, 1881. (No model.)

To all whom it may concern:

Be it known that I, JOHN JOSEPH WRIGHT, of the city and county of Philadelphia, State of Pennsylvania, have invented certain new and useful improvements in an automatic safety device for preventing a break in a circuit when a number of electric lamps are employed in series; and I do hereby give such a description of the same as will enable those skilled in the art to make and practice my invention.

It is well known to those skilled in electrical science that when a number of electric lamps are connected in series in the same circuit an interruption of the current in any one of the lamps or devices used will extinguish all the others in the same circuit. The object of my invention is to anticipate and prevent such a break or interruption of the continuity of the circuit. I accomplish this substantially as follows: When through any cause the mechanism of any lamp fails to operate to approach or bring together the carbon points or electrodes of that lamp the length of arc between the electrodes gradually increases by reason of their consumption. When the length of arc has reached a certain limit, which I can vary at pleasure, I cause the electrodes to be forcibly driven into contact by the action of a spring or its mechanical equivalent. The mechanism by which the carbons are thus driven together is thrown into action by a movement of the armature of an electro-magnet placed in a derived circuit around the electrodes. By this means, as is well known in the art, the increase in the resistance of the arc causes a proportionately greater portion of the current to traverse the coils of the electro-magnet, controlling the mechanism for driving the carbons together.

Figure 1 shows a sectional view of the means employed to bring the carbon points or electrodes into contact. Fig. 2 shows an enlargement of the part comprising the groove and lever.

Fig. 1 shows a sectional view of the lower-carbon holder of an electric lamp furnished with my automatic safety device for preventing a break in the circuit. This device consists, as shown, of a contrivance by which the

lower electrode, E, is forced by the action of the spring S into electrical contact with the upper electrode, E'. The lower clamp or carbon-holder, B, slides easily in a vertical direction within the outer support or column, M. The holder B has near its lower end a groove, G, in its outer circumference. When the carbon-holder is forced down into its normal position it compresses the spiral spring S and brings its groove G into position to be engaged by the bent lever T. The length of the lever T is so proportioned that when engaged in the groove G its upper end is held by the hook K of the armature-lever L, pivoted at Y. An armature, A, connected, as shown, with the lever L, is placed over the poles and within the influence of an electro-magnet, C C', whose coils form the whole or a part of a derived circuit of high resistance around the electrodes.

Fig. 3 is a sectional view of the apparatus on the line D.

Fig. 4 is a diagram of the manner in which the connections with a lamp may be made; E' E, upper and lower electrodes; F, shunt or feeding mechanism of the lamp; W, main wire of circuit; Q, wire of derived circuit or shunt; C, magnet of safety device herein described.

Fig. 5 is a diagram showing the connections in the event of the entire wire of the derived circuit being utilized to operate my safety device, as described; E' E, upper and lower electrodes; W, main wire of circuit; Q, wire of derived circuit or shunt; C, magnet of safety device herein described.

The method of operation is substantially as follows: If from any cause the resistance of the arc between the electrodes E E' is increased beyond an amount previously determined on, the proportion of current traversing the coils C' of the shunt-magnet C, being thereby increased, causes a movement of the armature A and its lever L, whereby the hook K is raised sufficiently high to release the lever T. At this moment the spring S, acting on the short arm of the lever T, disengages it from the groove and forces the electrode E into close and good electrical contact with the upper electrode, E'. To bring the electrode E into its normal working position, it is only necessary to force it downward until the groove G is in position to

be again engaged by the bent lever T, as here-
inbefore described. Since the attraction of the
electro-magnet C on its armature A is depend-
ent on the distance apart of the electrodes E
E' during action, it is evident that the moment
the releasing mechanism is thrown into action
may be determined by the tension of the
spring S'.

The lever T is pivoted at O, as shown, in
order that the strong upward pressure of the
spring S may be diminished on the hook K in
the ratio of the leverage of the arms of the le-
ver T, allowing a comparatively feeble current
in the coils of the magnet C to operate with
promptness and certainty in releasing the mech-
anism connected therewith.

I do not restrict myself to the exact arrange-
ment of parts described in connection with Figs.
1, 2, 3, 4, 5, since the shunt-magnet may be
utilized to throw into action any mechanical
equivalent by which a spring or the force of
gravity may be employed to bring the electrodes
into contact.

I claim as my invention and desire to secure
by Letters Patent—

1. In combination with an electric-lamp car-
bon-holder, an automatic safety device consist-
ing substantially of an electro-magnet in a de-
rived circuit around the electrodes, an arma-
ture therefor, a catch or detent in operative com-
bination with said armature, as described, and
a spring held compressed by said detent until
released by a movement of said armature on
an increase in the power of said derived-circuit
magnet.

2. In an electric lamp, the combination of a
carbon-holder, a spring to elevate the same, a

detent to engage the carbon-holder when the
same is depressed against the face of the spring,
a lever provided with an armature, and a de-
vice to hold the detent in engagement with
the carbon-holder and a magnet in a shunt-
circuit, whereby the carbon-holder may be held
in position while the lamp is burning, but will
be released and forced against the opposing
carbon on an abnormal increase of current in
the shunt-circuit, as described.

3. In a safety circuit-preserver, a setting and
releasing device consisting of the part B and
its groove G, or their equivalents, and of the
lever T and lever L, with projection K, or their
mechanical equivalents, substantially as de-
scribed.

4. In an electric lamp, the combination, with
a shunt or derived circuit magnet around the
arc of said lamp, of its armature, a lever, L,
hook or catch K, and detent-lever T, a carbon-
holder, B, and grooved sleeves G, substantially
as specified.

5. In combination with a carbon-holder of
an electric lamp, a derived-circuit magnet
around the arc and armature thereof, and
mechanism, constructed substantially as set
forth, whereby movement is imparted to said
carbon-holder by a spring released by said de-
rived-circuit magnet on an abnormal increase
in its power.

In testimony whereof I have signed my name
to this specification in presence of two sub-
scribing witnesses.

JOHN JOSEPH WRIGHT.

Witnesses:

GEO. S. GARRETT,
I. E. ARNOLD.