

No. 652,599.

Patented June 26, 1900.

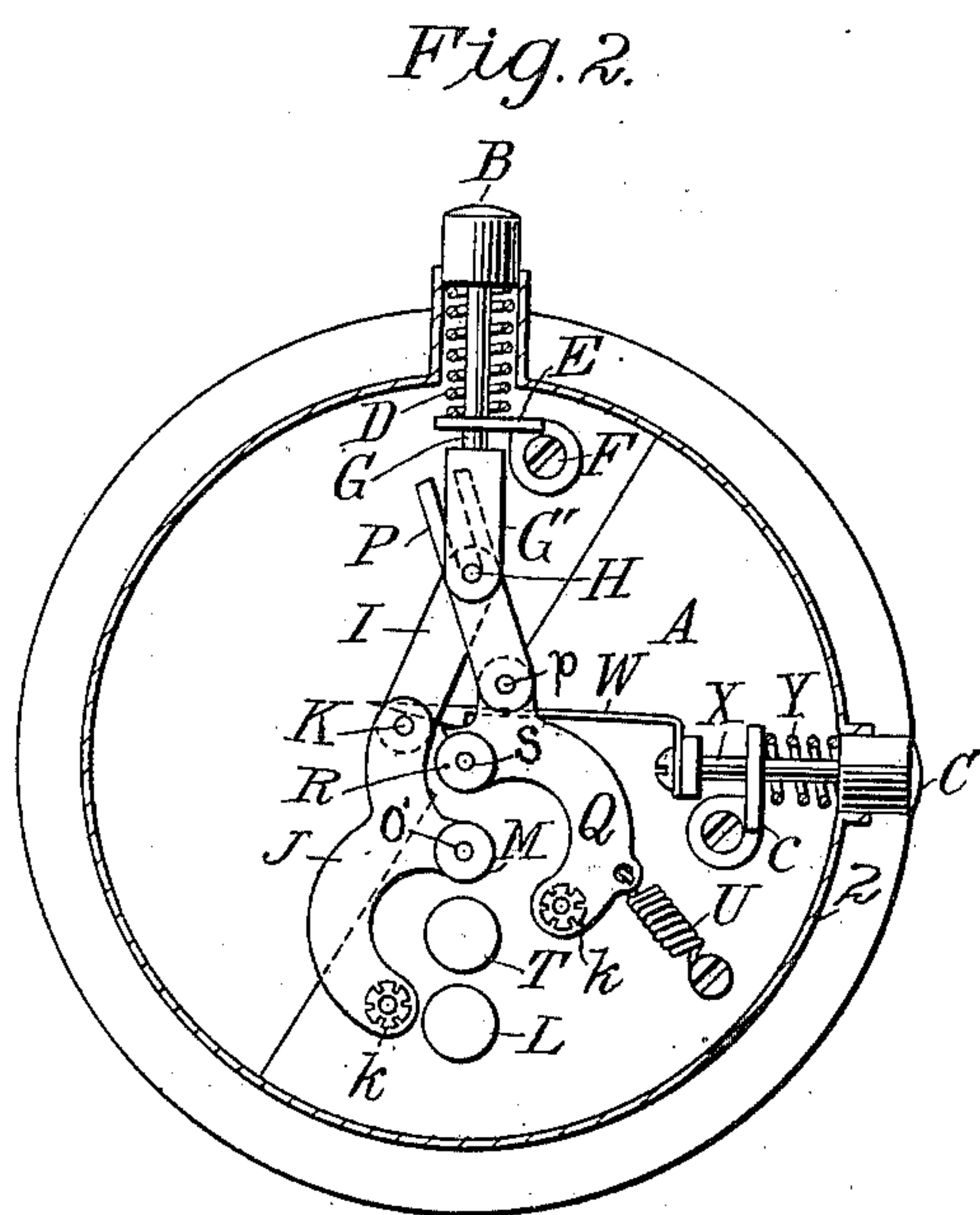
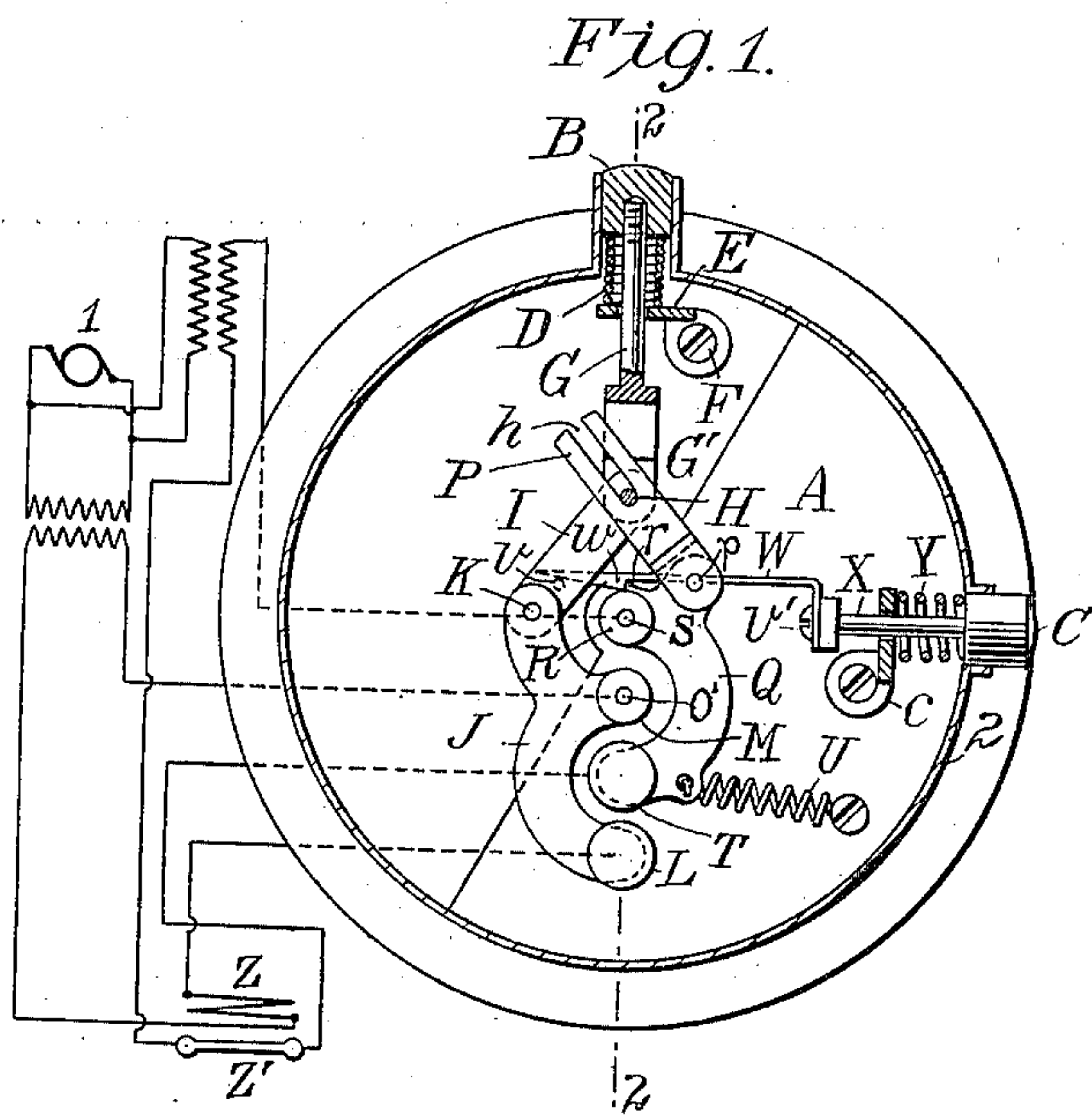
E. I. DODDS.

AUTOMATIC PUSH BUTTON SWITCH FOR ELECTRIC LAMPS.

(Application filed Sept. 9, 1899.)

(No Model.)

2. Sheets—Sheet 1.



Witnesses:

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2 Sheets—Sheet 2.

Fig. 3.

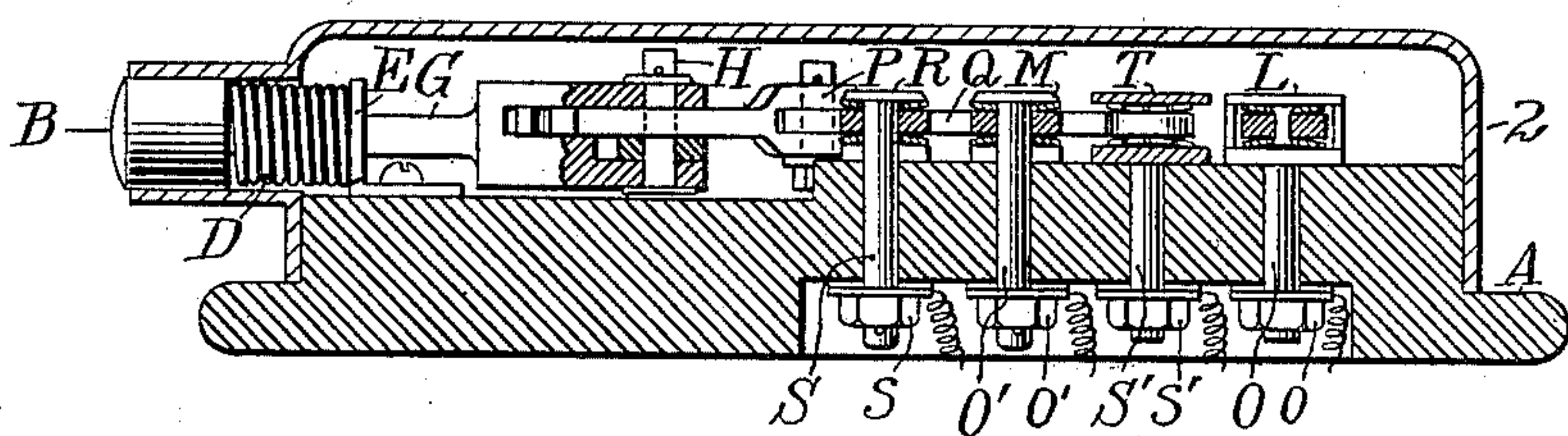
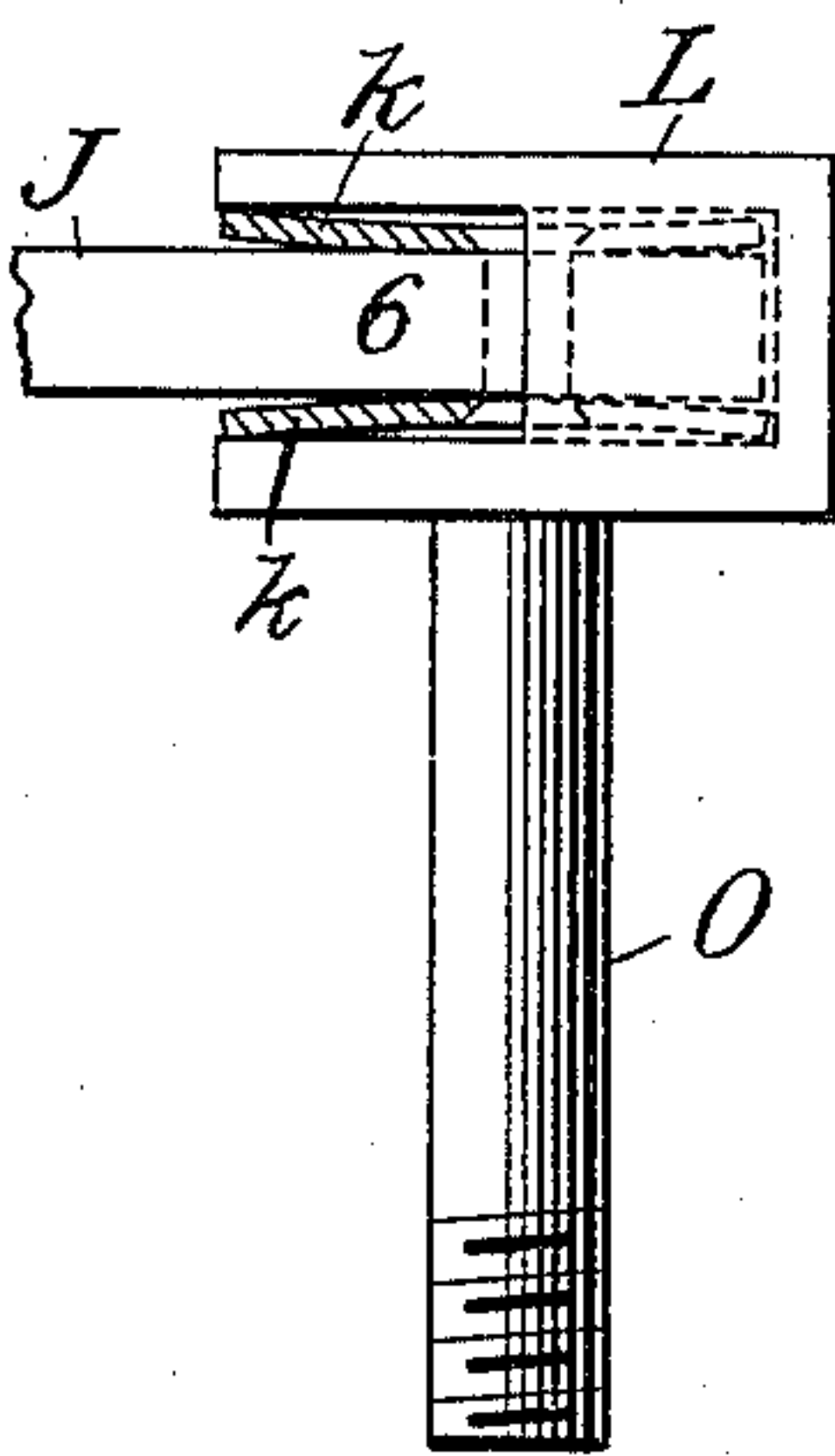


Fig. 4.



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UNITED STATES PATENT OFFICE.

ETHAN I. DODDS, OF AVALON, PENNSYLVANIA, ASSIGNOR TO GEORGE WESTINGHOUSE, OF PITTSBURG, PENNSYLVANIA.

AUTOMATIC PUSH-BUTTON SWITCH FOR ELECTRIC LAMPS.

SPECIFICATION forming part of Letters Patent No. 652,599, dated June 26, 1900.

Application filed September 9, 1899. Serial No. 729,890. (No model.)

To all whom it may concern:

Be it known that I, ETHAN I. DODDS, a citizen of the United States, and a resident of Avalon, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Automatic Push-Button Switches for Electric Lamps, of which the following is a specification.

I have devised various forms of switches for closing the circuits of Nernst lamps through the glower which forms the incandescing body thereof and the heater which is designed to bring the said body to electrical conductivity and for rupturing successively the heater and the glower circuits of such lamps each by a quick sudden movement.

The present invention relates to the construction of such a switch so that it can be operated by means of one or more push-buttons for accomplishing the operations of the switch.

I have illustrated my invention in the accompanying drawings, in which—

Figure 1 is a plan of such a switch, with the cover and some of the other parts shown in section, a diagram of the circuits being added. Fig. 2 is a similar view omitting the diagram of the circuits and showing the position of the switch elements when the circuits are not in operation. Fig. 3 is an enlarged section along the line 2 2 in Fig. 1, and Fig. 4 is a detail view illustrating the construction of one of the contact elements of the switch.

In the drawings, A is a base, of porcelain or other good insulating material, on which the operative parts of my switch are mounted.

B and C are push-buttons controlling the lamp-circuits. Under the push-button B is a spring D, one end of which is pressed against the said button and the other end of which presses against a bracket E, secured to the base A by a screw F. The button B is screwed to the end of a rod G, the other end of which is formed into a yoke G', the arms of which are connected by a pivot H. To the said pivot is connected a link I, which extends to an angular piece J, the said parts I and J being pivoted to each other at K. The lever J is a contact-lever having a fixed pivot on the rod O' and adapted to make contact at its opposite end with springs L L, forming one ter-

minial of the heater-circuit of a Nernst lamp. The opposite terminal of the heater-circuit of the said lamp is constituted by similar springs M M, connected with the pivot O'. The springs L L and M M form the upper ends of rods O O', which are secured to the base A by nuts o o'. The pivot H likewise passes through a slot h in a link P, pivoted at p to a contact-arm Q. Said arm Q has a fixed pivot located between springs R R, which form the upper end of a rod S, which is held to the base A by a nut s. The opposite end of the lever Q is adapted to pass between springs T T, forming the upper end of a rod S', held to the base A by a nut s'. The arm Q is normally retracted by a spring U away from the position illustrated in Fig. 1. When in the said position, however, the said arm is held from being retracted by means of a tooth r on the said arm, which engages with the catch w on a rod W, as shown. The said rod W is provided with a beveled or slanting edge beyond the catch w, which edge rests upon a pin v, fixed to the base A. The rod W is secured, by means of a screw v', to the inner end of a push-rod X, to which the push-button C is secured. The rod X and the push-button C are normally pushed outward by a spring Y, one end of which rests against the button C and the other against a bracket c, secured to the base A.

The terminals of the heater-circuit are the springs M M and L L. The terminals of the glower-circuit are the springs R R and T T. When the parts are in the position illustrated in Fig. 1, the heater-circuit and glower-circuit are both closed. The heater is shown at Z and the glower at Z', the said parts being included in branch circuit from any suitable generator, as l.

It should be understood that the parts have been brought to the position illustrated in Fig. 1 by pushing in upon the button B, the original position of the switch elements being that shown in Fig. 2 of the drawings. The button is held pressed down until the heater Z has brought the glower Z' to a conductive temperature, when the button B is released, breaking the circuit controlled by the arm J through the medium of the spring D. This breaks the heater-circuit, but leaves the

glower-circuit in operation. The glower-circuit is broken by pushing in on the button C and forcing the slanting edge of the rod W along the pin *v* until the catch *w* is pushed off the tooth *r*. Then the lever Q, under the action of the spring U, is drawn out from between the springs T T, whereby the glower-circuit is also broken.

The switch is usually provided with a cover 2 to protect the parts from dust.

The details of the contact elements may be seen in Figs. 2, 3, and 4. In Fig. 4 I show the arm J carrying on its upper and lower sides bent strips or sheets *k k* of spring metal, and in Fig. 3 one of these sheets appears with slitted edges for making the parts resilient. In fact, all the contact-pieces upon the arms J and Q are formed in this way, and they are adapted to enter openings between spring-pieces L, T, M, and R, which are secured to the base A in the manner illustrated in Figs. 3 and 4. The contact-strips illustrated in Fig. 4 are secured to the arm J by a rivet 6, and the same mode of connection is employed for uniting the strips *k k* to the free end of the lever Q. On the other hand, the contact-strips which are attached at the pivots of the levers J Q are adapted, as shown in Fig. 3, to surround the shafts or rods S and O', and thus maintain their position.

The invention claimed is—

1. The combination with two circuits, one including a glower of the type described and the other including an electric heater therefor, of a pair of terminals for each circuit, and switch-arms adapted to bridge the said

terminals, a push-button connected to the said arms for closing both circuits simultaneously, and a spring joined to the arm which controls the glower-circuit, whereby a quick rupture of the said circuit is made possible.

2. The combination with two circuits one including a glower of the type described and the other including an electric heater therefor, of means for closing both circuits simultaneously, and means for breaking the said circuits successively, each by a quick sudden movement.

3. The combination with two circuits, one including a glower of the type described and the other including an electric heater therefor, of means for closing both circuits simultaneously, and means for successively releasing the heater-circuit-controlling devices and the glower-circuit-controlling devices into the power of a spring or springs, whereby a quick rupture of both circuits is secured.

4. The combination with two circuits, one including a glower of the type described and the other including an electric heater therefor, of means for closing both circuits simultaneously, means for breaking the heater-circuit in advance of the glower-circuit, and means for breaking the glower-circuit by quick sudden movement.

Signed at New York, in the county of New York and State of New York, this 11th day of August, A. D. 1899.

ETHAN I. DODDS.

Witnesses:

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