

(No Model.)

J. C. CASSIDY.  
ELECTRIC SWITCH OR CUT-OUT.

No. 529,363.

Patented Nov. 20, 1894.

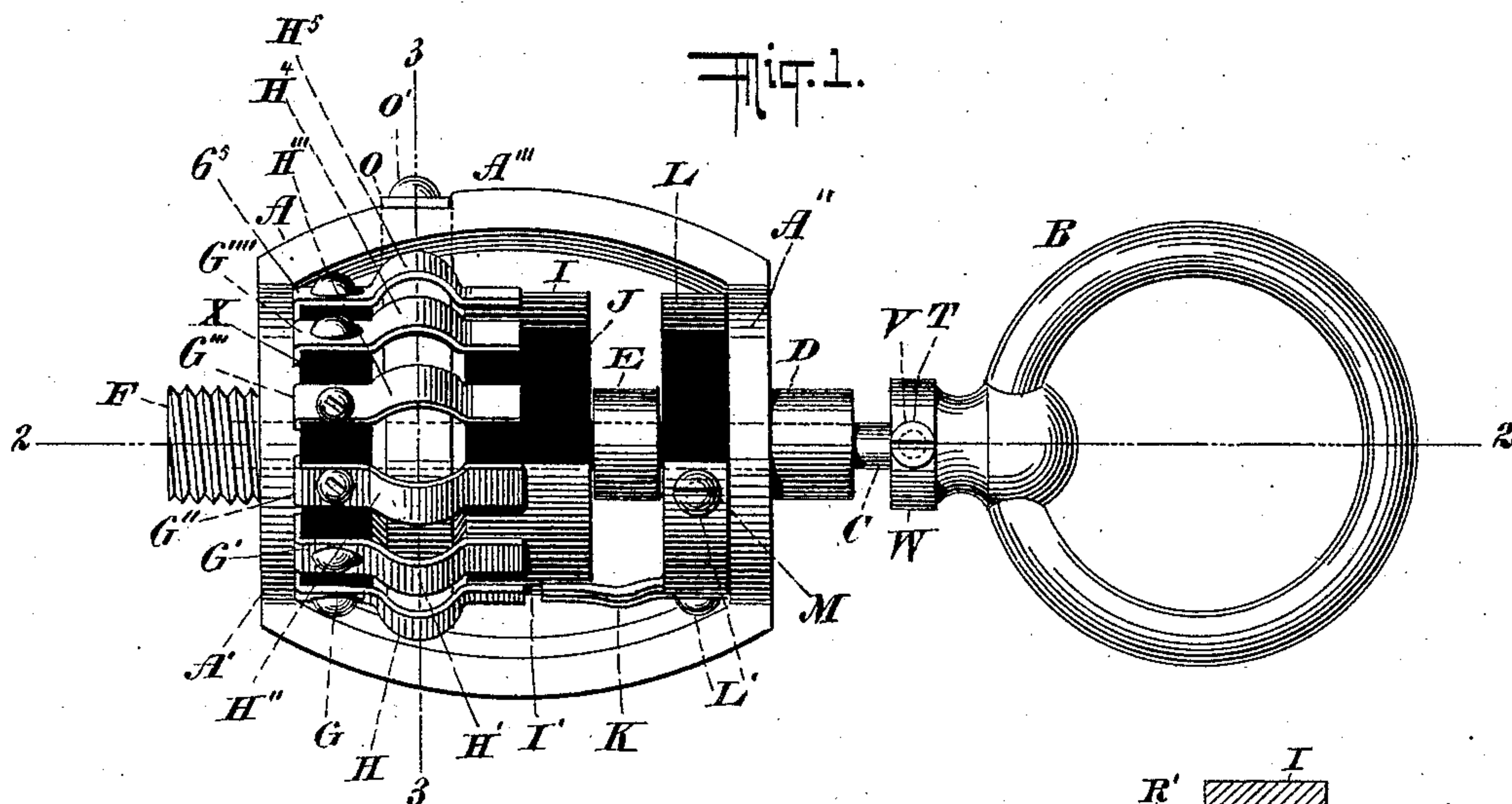


Fig. 2.

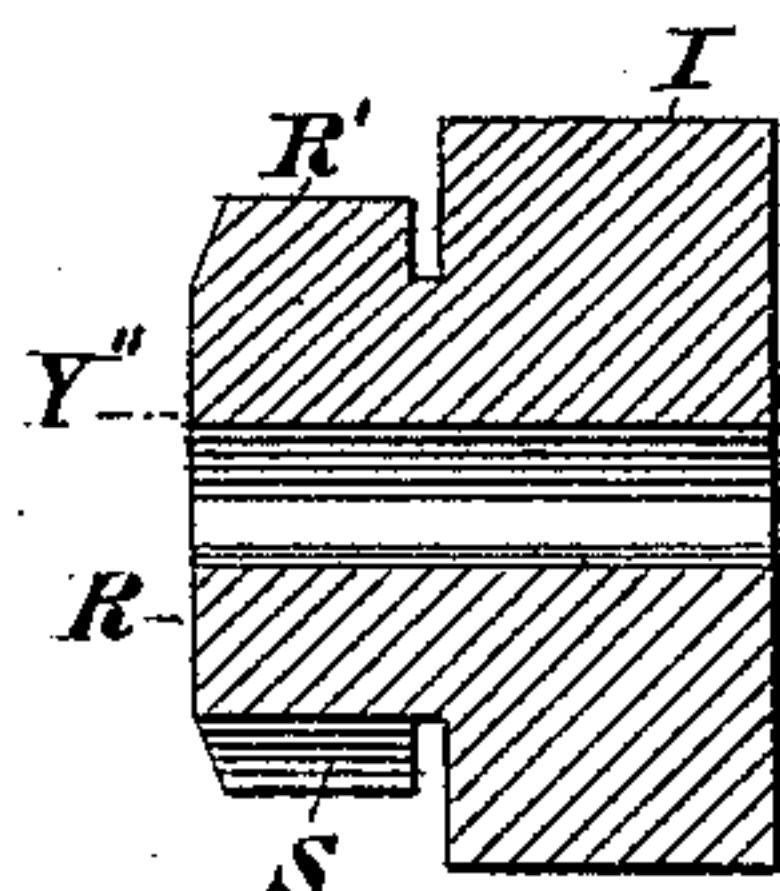
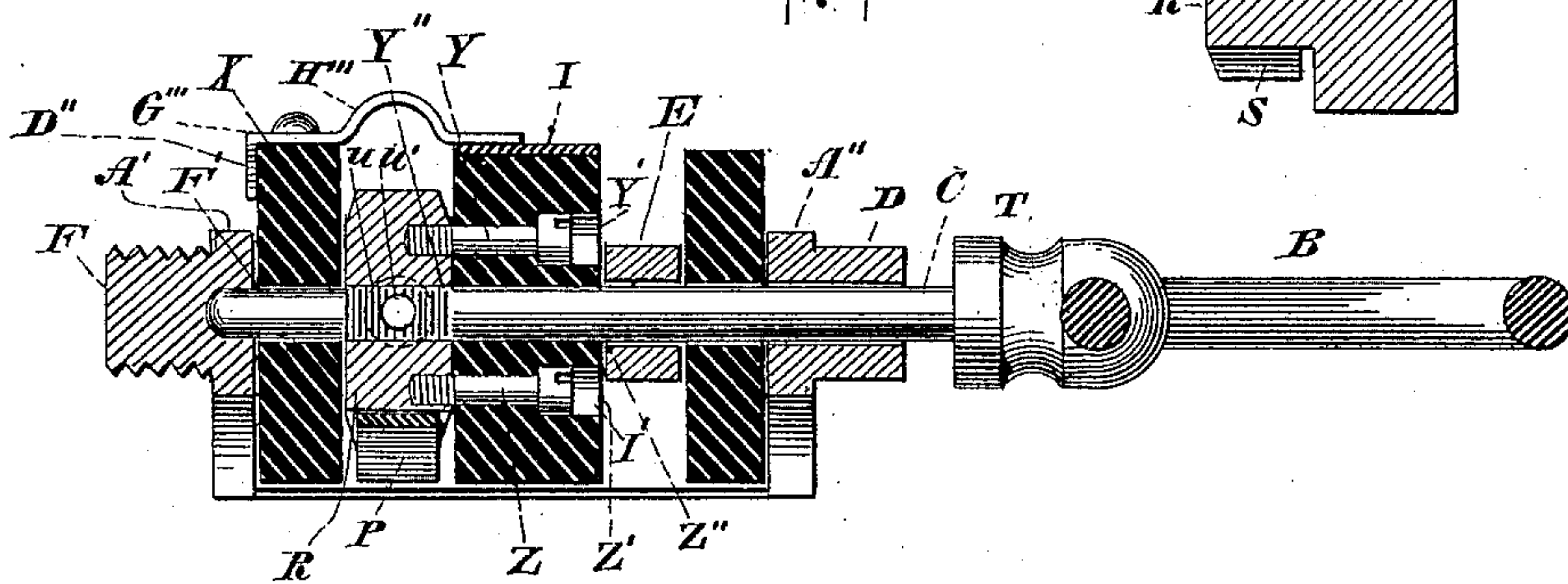


Fig. 4.

Fig. 3.

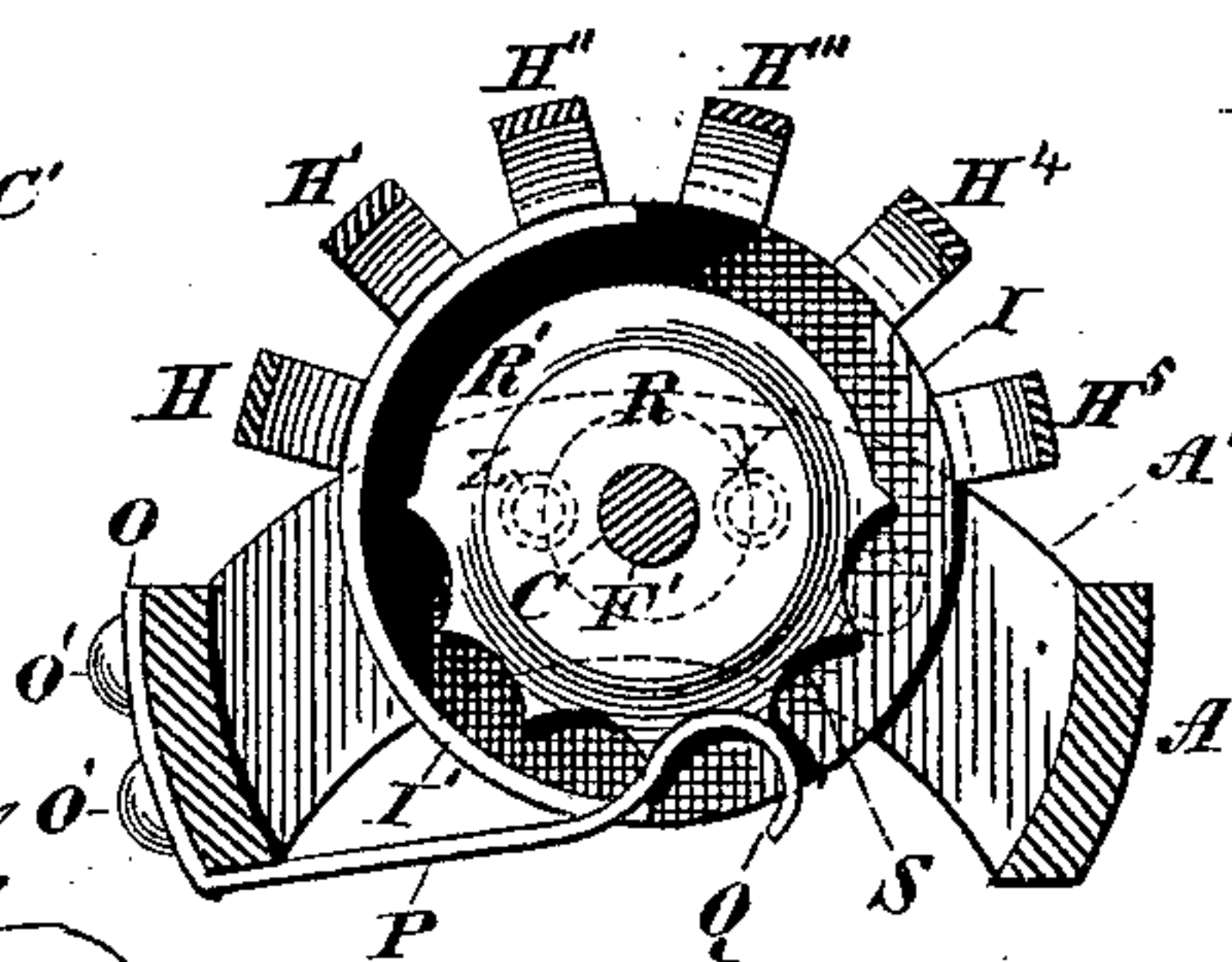


Fig. 5.

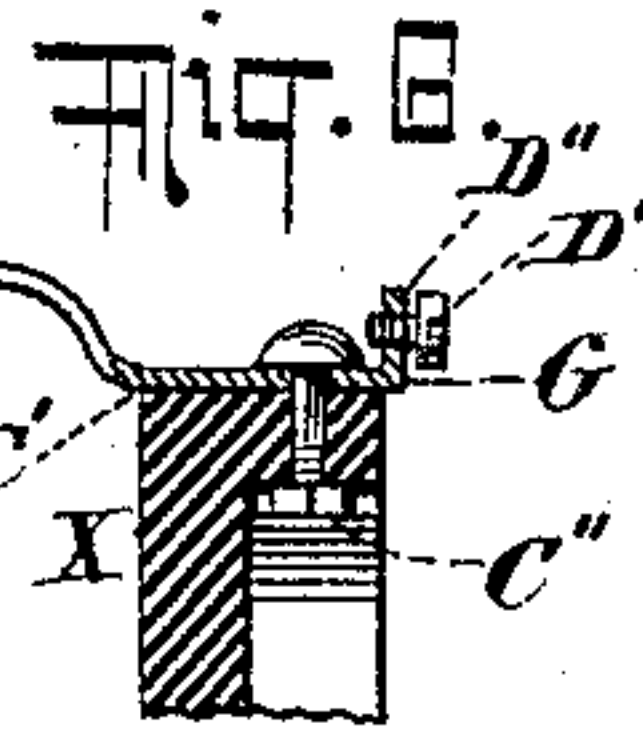
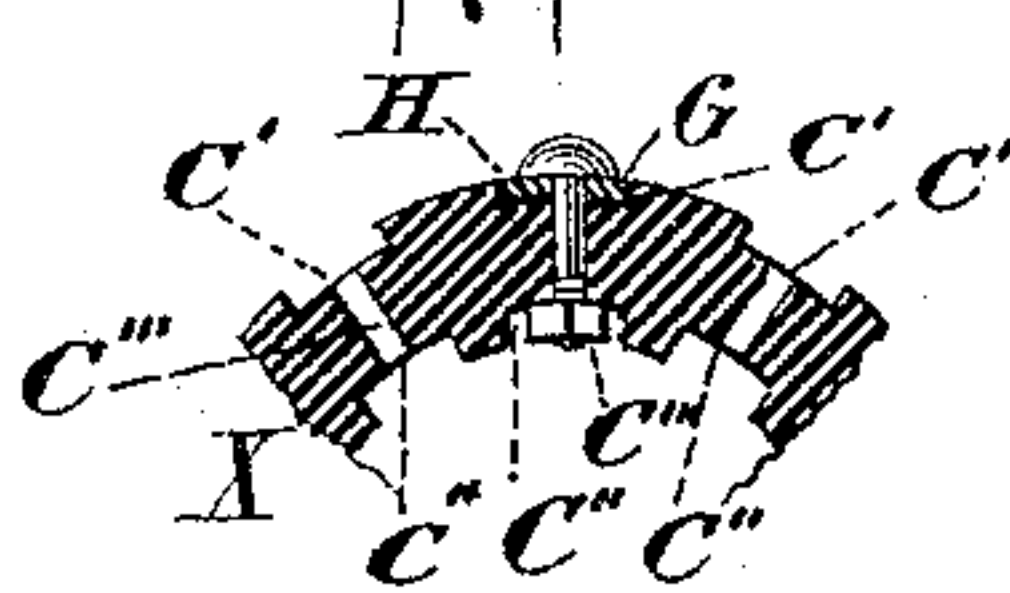


Fig. 6.

WITNESSES:

*Gustave Dietrich*  
*M. Guldner*

*John C. Cassidy*  
INVENTOR

BY *Chas. Swabner*

ATTORNEY.



# UNITED STATES PATENT OFFICE.

JOHN C. CASSIDY, OF EAST ORANGE, NEW JERSEY.

## ELECTRIC SWITCH OR CUT-OUT.

SPECIFICATION forming part of Letters Patent No. 529,363, dated November 20, 1894.

Application filed August 11, 1894. Serial No. 520,007. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN C. CASSIDY, of the town of East Orange, State of New Jersey, have invented a new and useful Improvement in Electric Switches or Cut-Outs, of which the following is a specification and description.

The object of this invention is to secure a switch and cut-out, by means of which all lamps or any one of them, or a series of lamps, forming part of a chandelier or electrolier, may be turned on or off with one turn of the improved switch and cut-out herein described.

In the accompanying drawings, Figure 1 represents a front view of my improved electric switch and cut-out. Fig. 2 shows a section thereof on the line 2—2 of Fig. 1. Fig. 3 shows a section on a line 3—3 of Fig. 1. Fig. 4 shows the block I and wheel R cast in one piece. Figs. 5 and 6 show methods of attaching the springs H, H', H'', H''', H<sup>4</sup>, and H<sup>5</sup> to the block X.

Similar letters refer to corresponding parts in the various figures.

A represents a frame made of any material, to hold the various parts making up my improved electric switch or cut-out, said frame carrying at one end the screw F, by means of which the switch is attached to the chandelier or electrolier. At its other end is a collar D, threaded on the inside so as to receive the rotary shaft C, said frame A, screw F and collar D forming one piece. Attached to said rotary shaft C is a finger piece B, having a neck W, which is threaded so as to allow it to be screwed on to the rotary shaft C at V, and which finger piece B is held in place and fastened to said rotary shaft C by means of the screw T, which is screwed through the opening V on to the shaft C.

X is a block of insulating material, rigidly attached to the top bar A' of frame A, by screws or other well known devices. Through the center of said block X, and penetrating through said block X into the screw F, is an opening F'. The rotary shaft C has a bearing, by means of this opening F' through the block X, its end bearing in the screw F.

R is a wheel having a plain surface R', and a corrugated surface S, said corrugated surface covering a trifle more than one-half of the circumference of said wheel R. Said wheel R is fastened to a block of insulating

material I, by the screws Y and Z, through the openings Z' and Y' of the block I. Said block I carries a contact piece J, covering one-half of the circumference of the block I. Said block I has an opening through its center Z'', as has also the block R at Y'', through which opening the shaft C passes.

By means of the screws Y and Z, the wheel R and block I are firmly connected. It is not necessary that the wheel R and block I be made in separate pieces and connected by the screws Y and Z. As shown in Fig. 4, the wheel R and block I may be cast in one piece, so arranged that the corrugated surface S will be on that part of the circumference of the portion R opposite to the contact piece J of the surface I. In casting said wheel R and block I in one piece, care must of course, be taken to preserve the channel Y'' for the rotary shaft C. Through an opening u' in the wheel R, a screw u firmly connects the said wheel R, and thus the block I with the rotary shaft C, the wheel R and block I being designed to rotate with the shaft C.

E is a piece of metal tubing, placed between the block I and the insulating block L, which block L is fastened to the bar A'' of the frame A, in any well known manner, such as by screws or otherwise. The tubing E and block L may be cast in one piece, care being taken that the part L be of insulating material, and that a channel be preserved through them, for the purpose of forming a passage for the rotary shaft C. The block L carries upon its circumference and on one side of it, an L shaped contact spring M, fastened to the block L by the screws L', the said contact spring M having an arm K.

H, H', H'', H''', H<sup>4</sup> and H<sup>5</sup> are contact springs, fixed rigid to the insulated block X, by means of screws G, G', G'', G''', G<sup>4</sup> and G<sup>5</sup>; said contact springs H, H', H'', H''', H<sup>4</sup> and H<sup>5</sup> being made of any well known conducting material. Said contact springs may be rigidly fastened as shown in Fig. 1, or else may be embedded in recesses C' as shown in Figs. 5 and 6.

When the method of attaching the contact springs shown in Fig. 5 is adopted, the springs H, H', H'', H''', H<sup>4</sup> and H<sup>5</sup> are embedded in recesses C', and held in position by means of



the screws G, G', G'', G''', G<sup>4</sup>, G<sup>5</sup>. On the inner circumference of the block X are recesses C'', in which fit a nut C''', which by holding the screw G firmly retains the contact springs H, H', H'', H''', H<sup>4</sup> and H<sup>5</sup> in position.

When the method shown in Fig. 6 is adopted, the contact spring H is held in position as shown in Fig. 5, save that the top D'' of said spring is not bent over to the top surface of the block X, as shown in Fig. 2; but the same is continued upward, and the contact is made by means of a separate screw D' on the arm D'' of the contact spring H. Said arm D'' may either be bent outward as shown in Fig. 6, or may be extended straight up, and the contact made by the screws D'. Electric connections are made through the screws L' and G', G'', G''', G<sup>4</sup> and G<sup>5</sup>, shown in Figs. 1, 2, 3, and 5, or by L' and the screw D' of each of the springs H, H', H'', H''', H<sup>4</sup> and H<sup>5</sup>, as shown in Fig. 6. In this construction it will be observed that the circuit is completed, when the contact springs H, H', H'', H''', H<sup>4</sup> and H<sup>5</sup> are, or any one of them, is in engagement with the contact piece J of the block I, and said contact piece is engaged with the arm K of the spring M. The contact springs H, H', H'', H''', H<sup>4</sup> and H<sup>5</sup> may each of them be connected with a single lamp, or may be connected each with a series of lamps.

On the arm A''' of the frame A, and at O, a spring P is fastened by means of the screws O', said spring P being depressed at Q, so that said depression will engage the corrugation S of the wheel R, but move over the smooth surface R' of the wheel R.

The operation of my improved electric switch and cut-out, is as follows: The rotary shaft C, being firmly connected at its one end to the finger piece B, and bearing through the neck D, bar A'', blocks L, E, I, wheel R, block X, bar A' and screw F, will, when it is turned, cause the wheel R and block I to revolve, while the other parts will remain rigid; so that if the rod C is moved in either direction, by means of the finger piece B or other well known means, it will carry with it the block I and wheel R. The result of this will be, that when the rod C is turned in any direction, either to the right or left, a circuit may be made or broken, according as the contact piece J or the insulated surface I' of said block I is brought in contact with the springs H, H', H'', H''', H<sup>4</sup> and H<sup>5</sup>, and the arm K of the spring M. The said contact piece J covering one-half of the periphery of the block I, when said block I is caused to revolve one-half of its periphery, will make a complete connection between all of the springs H, H', H'', H''', H<sup>4</sup> and H<sup>5</sup>, and the arm K of the spring M; so that all the lamps of the chandelier or electrolier will be lighted. In order to turn out all of the lamps, it will simply be necessary to turn the finger piece B farther in the same direction, carrying the block I with it, so that said insulated surface I' will

be between the springs H, H', H'', H''', H<sup>4</sup> and H<sup>5</sup> and the arm K of the spring M. This will break the circuit, and consequently the lamps will be extinguished. The springs H, H', H'', H''', H<sup>4</sup> and H<sup>5</sup> and arm K of the spring M should be made of such width, that when the contact surface J of the block I is not turned so as to break contact with all of the springs H, H', H'', H''', H<sup>4</sup> and H<sup>5</sup>, "arcing" will be prevented. The manner in which any one or a series of these lamps may be lighted, is simple and is as follows: Let us suppose that the block I has been so turned that the full insulated surface I' is below all of the springs H, H', H'', H''', H<sup>4</sup> and H<sup>5</sup>. Contact will then be broken. Inasmuch as the contact piece J covers one-half of the periphery, it will only be necessary to turn the finger piece B to the right, and it will readily be seen, that by turning the finger piece B, so that a portion only of the surface J will come between one spring H and the arm K, a circuit will be made, and the lamp or series of lamps connected with the spring H only, will be lighted. If it is desired to extinguish a lamp or series of lamps connected with the spring H, it will simply be necessary to reverse this motion.

When it is desired to light two lamps or two series of lamps, the finger piece B may be turned, so that the contact piece J on wheel R will come underneath the springs H and H', and through K make a circuit; and the lamps or series of lamps connecting with the springs H and H', will be illuminated, and in the manner heretofore described, can be extinguished; and this principle can be carried forward, until four, five or six lamps can be illuminated, and any one or smaller number, or all of them, extinguished by reversing the motion; or if all the lamps be lighted, and it be desired to extinguish the lamp or lamps connected with H only, or with H and H' only, it will but be necessary to further turn the finger piece to the right, so that the contact piece J will be removed from under H and H', and thus contact broken, and the lamps extinguished; or when all are lighted, and it is desired to extinguish the lamp or lamps connected with H<sup>4</sup> and H<sup>5</sup>, or either of them, and allow the others to burn, the motion may be reversed, so as to bring the contact piece J away from under the piece H<sup>4</sup> or H<sup>5</sup> or all of them, and be extinguished in the same manner, by reversing the direction, or continuing the same.

I do not limit myself to the precise method herein shown, but I desire to cover by my invention, the mechanical equivalents of any of the parts or methods herein described.

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

An electric switch or cut-out, consisting of a frame A, having a bar A', to which is rigidly fixed an insulated block X; said block X carrying contact springs H, H', H'', H''',



H<sup>4</sup> and H<sup>5</sup> fastened thereto, by means of the screws G, G', G'', G''', G<sup>4</sup> and G<sup>5</sup>; said contact springs H, H', H'', H''', H<sup>4</sup> and H<sup>5</sup> being conducting material, in combination with a  
5 wheel R, having a smooth surface R' and corrugated surface S, upon which bears a spring P, depressed at Q, and connected with the frame A on its arm A''', all in combination  
10 with an insulated block I, one-half the periphery of said insulated block I carrying a contact piece J, all in combination with a collar E and insulated block L, carrying a spring M, said spring M having an arm K, and being attached to said block L by means of

screws L'; said block L being fastened to the 15 arm A'' of frame A, said frame A carrying a neck D, in combination with a rotary shaft C, carrying a finger piece B, so arranged that the said rotary shaft C will cause the wheel R and block I to revolve, so as to present the 20 insulated surface I' of the block I, or the contact piece J of said block I to the connecting springs H, H', H'', H''', H<sup>4</sup> and H<sup>5</sup>, substantially as herein set forth and described.

JOHN C. CASSIDY.

Witnesses:

C. E. HOLMES,  
JOHN PHILLIPS.