

(No Model.)

E. T. BARBERIE & J. DES BRISAY.
ELECTRIC SWITCH.

No. 440,614.

Patented Nov. 18, 1890.

Fig. 1.

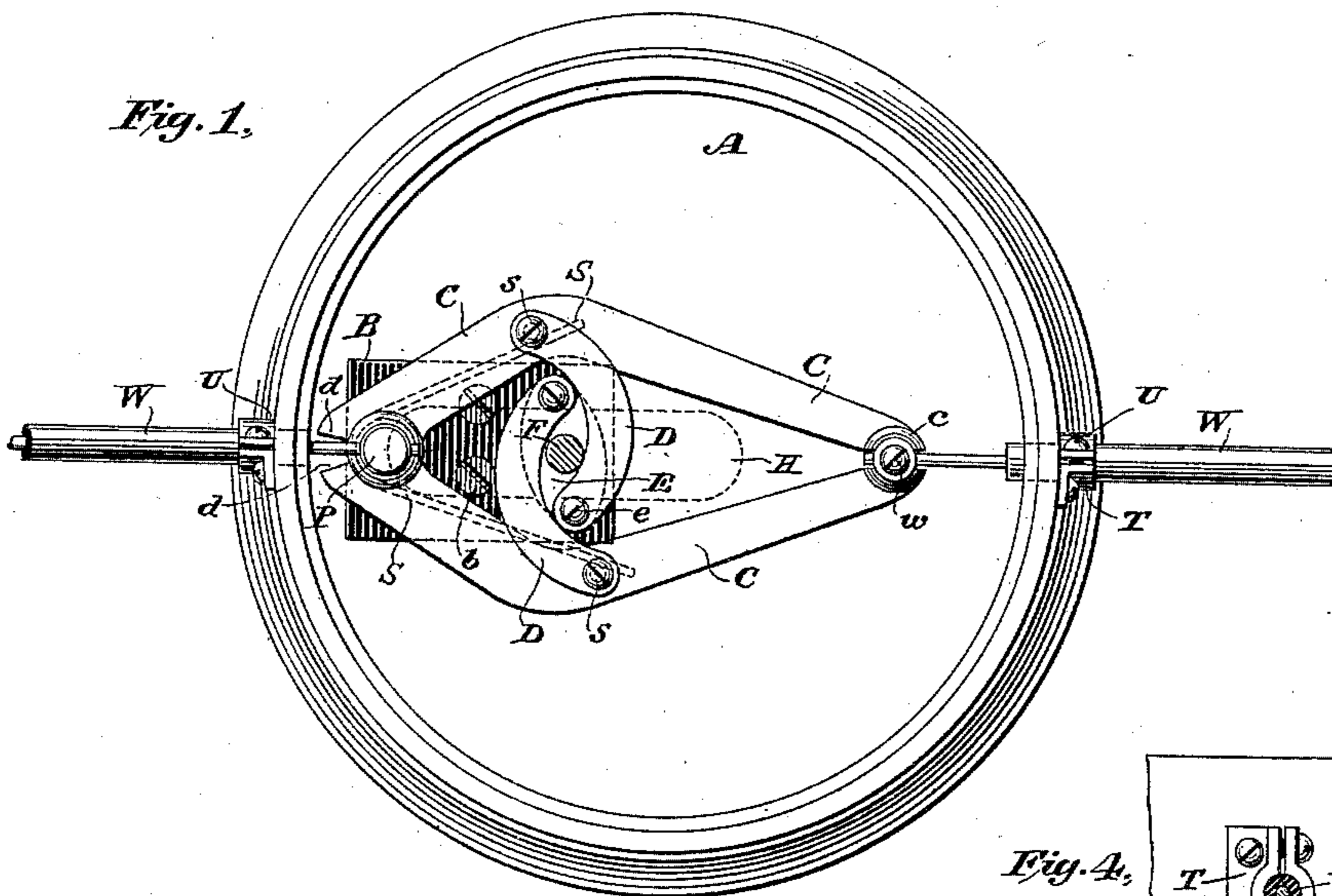


Fig. 3.

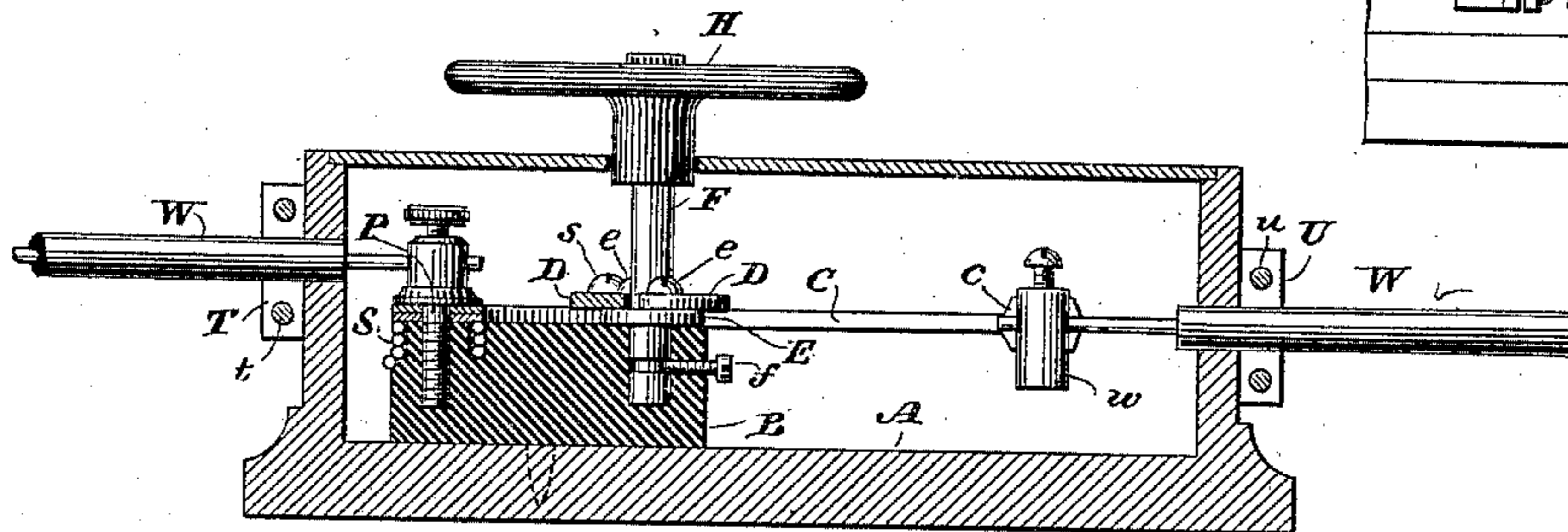


Fig. 4.

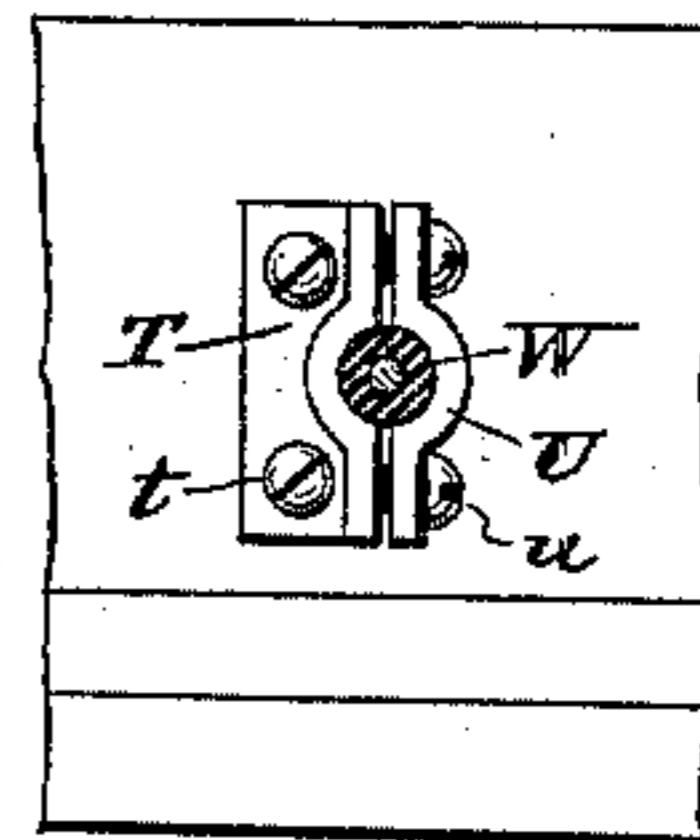
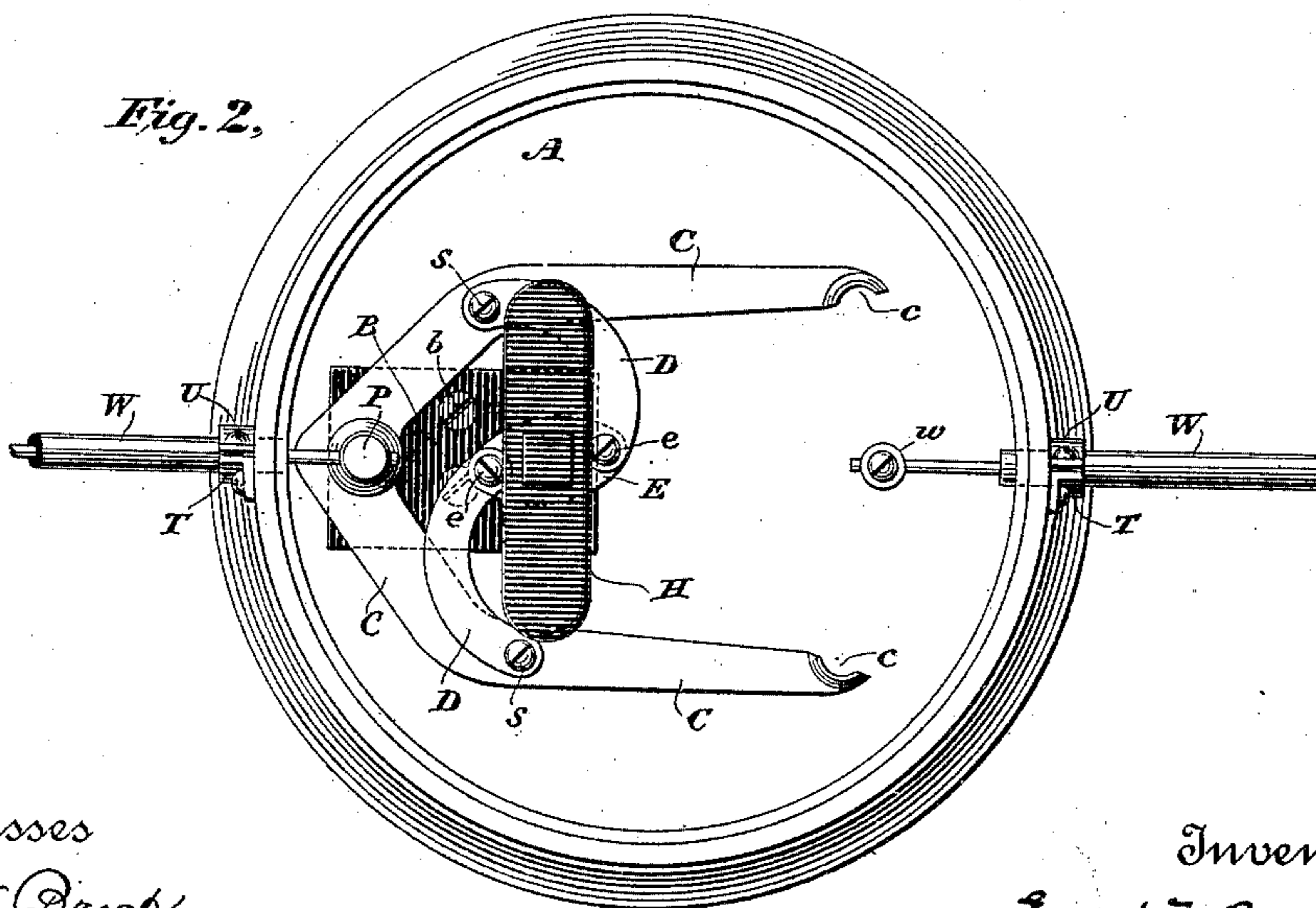


Fig. 2.



Witnesses
Geo. W. Dyer.
Edward Thorpe.

Inventor
Ernest J. Barberie
James Des Brisay
By their Attorneys
Paget & Kirtner.

UNITED STATES PATENT OFFICE.

ERNEST T. BARBERIE AND JAMES DES BRISAY, OF NEW YORK, N. Y.

ELECTRIC SWITCH.

SPECIFICATION forming part of Letters Patent No. 440,614, dated November 18, 1890.

Application filed April 8, 1890. Serial No. 347,086. (No model.)

To all whom it may concern:

Be it known that we, ERNEST T. BARBERIE and JAMES DES BRISAY, both subjects of the Queen of Great Britain, and residents of New York, county and State of New York, have made a new and useful Invention in Electrical Switches or Cut-Out Mechanism, of which the following is a specification.

Our invention relates particularly to electrical switches or cut-outs for use in electric-lighting and analogous systems where electrical currents of high tension and great quantity, or either or both, are used, and is of the type known as a "snap-switch," or such as act instantaneously to rupture the circuit.

The invention has for its objects, first, to cheapen and simplify switches of this type; second, to provide a switch of the type named in which electrical contact between the operative parts shall be firm and secure when the electrodes are operatively connected together, and, third, to reduce the arc produced at the electrodes to a minimum on breaking the circuit. These objects are accomplished by the use of the apparatus we shall now describe, and shall particularly claim at the end of this specification.

For a full and exact understanding of our invention reference is had to the accompanying drawings, in which—

Figure 1 represents in plan view the apparatus entire, the switch being closed and the cover of the switch-box removed the better to show the operative parts. Fig. 2 is a similar view showing the switch open. Fig. 3 is a vertical sectional view of the switch-box, the switch and connections being shown in elevation. Fig. 4 is a detail sectional view showing the connecting-clutches for securing the leading-in or circuit wires to the exterior of the switch-box.

A is the switch-box, made of wood, hard rubber, or other suitable insulating material.

W W are the wires for conducting the current to box A, said wires being insulated, as shown, and having their insulated ends projecting through holes in opposite sides of the box. These wires are held in place by clutches T T and U U, secured to the sides of box A by screws *t* and *u*, the parts U being detachable from the fixed portions T T, as clearly indicated in Fig. 4.

B is a block of insulating material—such as hard rubber—and to it is attached the entire switch apparatus. This block B is secured to the inside of box A by screws *bb*, so that it may be removed at any time when it is desired to repair the switch. The conducting part of the switch consists of a pair of metallic arms C C, pivotally secured to the block B by a post P, said post also serving as a binder for the incoming wire W.

F is the switch-operating shaft journaled in block B and held in place by a screw *f*, as clearly shown.

H is the switch-operating handle, and E is a fixed disk secured to the shaft F, serving to steady said shaft by its bearing on block B and at the same time to act as a connecting-link between the shaft and the switch-arms C C, said connection being had through two curved links D D and screws *e e s s*.

S is a spring having its middle portion wound about the base-support of post P and its free ends in sliding contact with the screws *s s*, the normal tendency of said spring being to force the arms C C apart until the shoulders *d d* come together.

w is a detachable metallic contact-block of cylindrical form adapted to give good contact and clutching-surface to the curved ends *c c* of the switch-arms when in closed position, said contact-block being held in place on the end of wire W by a screw *i*.

The arrangement of the links D D with relation to disk E is such that when the switch is closed the inner ends of links D D are approximately in line with the center of shaft F, while the outer or free ends of said links have passed the centers of rotation, so that the switch is held closed, and the action of spring S tends to keep it so closed till relieved by forcing the links past the centers of rotation again through the agency of handle H.

The switch mechanism may be removed at will for repair and the wires joined by a simple piece of wire in a manner well understood. If preferred, the ends *c c* may be grooved in the direction of the length of the arms C C, and thus adapted to clasp directly the wire W, instead of through a clutch-block *w*.

By using two circuit-breaking arms C C which act simultaneously we reduce the possibility of arcing to a minimum. The gripping

nature of the two arms also assures a positive and certain electrical contact at all times with a minimum liability of an accidental rupture of the circuit through sudden jars or abnormal disturbances on the outside of the box. The side clutches on the switch-box hold the wires securely in place, and the absolute security of insulation in the non-metallic box and connections make the switch at once secure and reliable.

We do not limit ourselves to the specific construction herein shown, as we believe it is broadly new with us to construct a switch in which operative contact is made through the agency of a two-armed gripping device which grips and firmly holds the circuit closed through a fixed electrode, and we desire it understood that our claims are of such generic nature as to include all devices of this general positive gripping nature, in which the two arms of the gripping device are operatively connected together by a switch-handle, so that they may be caused to grip or release the fixed electrode at will through the agency of such handle.

Having thus described our invention, what we claim, and desire to secure by Letters Patent of the United States, is—

1. A switch consisting of a fixed electrode, in combination with two movable electrodes mechanically connected to each other and to a switch-handle, whereby said movable electrodes are adapted to grip the fixed electrode, substantially as described.

2. In a switch, a fixed electrode and a pair of movable electrodes adapted to grip or hold the fixed electrode, in combination with a switch-handle operatively connected to the movable electrodes for manipulating them, substantially as described.

3. In a switch, a fixed electrode, a pair of movable electrode-arms pivotally secured at one end to a common support, and a switch-handle operatively connected to the movable electrode-arms for bringing them into contact with the fixed electrode, substantially as described.

4. A switch consisting of a fixed electrode, a pair of movable electrode-arms adapted to grip the fixed electrode, and an operating-handle connected by a pair of links to the movable electrode-arms, substantially as described.

5. A switch consisting of a fixed electrode, a pair of movable electrode-arms adapted to grip the fixed electrode, a spring normally tending to hold said arms apart, a switch-operating handle, and a pair of links connecting said handle to said electrode-arms, substantially as described.

ERNEST T. BARBERIE.
JAMES DES BRISAY.

Witnesses:

A. V. HINEY,
C. J. KINTNER.