

(No Model.)

D. DAVIS, Jr.

ELECTRICAL CONTACT CHANGER.

No. 365,585.

Patented June 28, 1887.

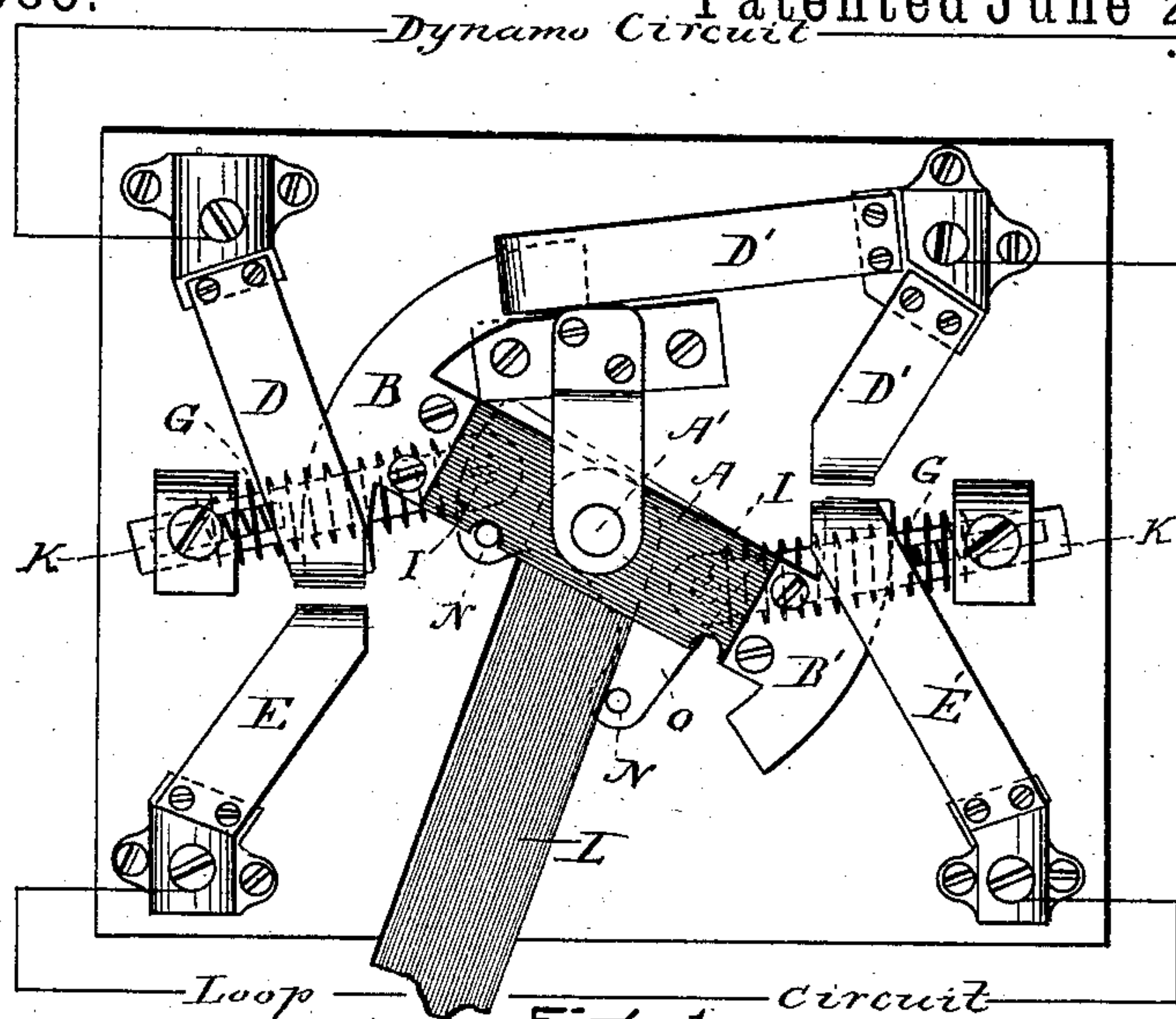


Fig. 1.

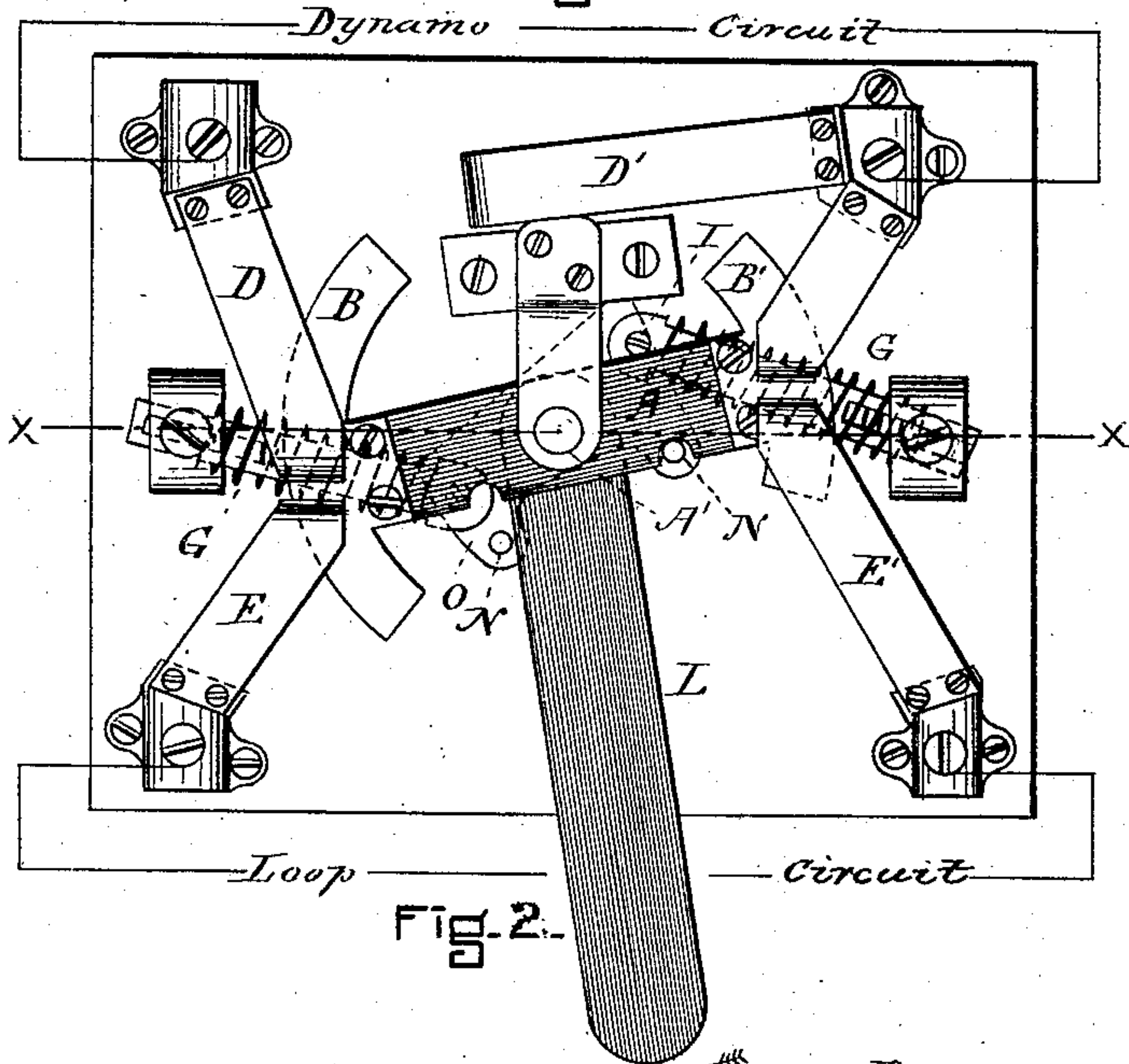


Fig. 2.

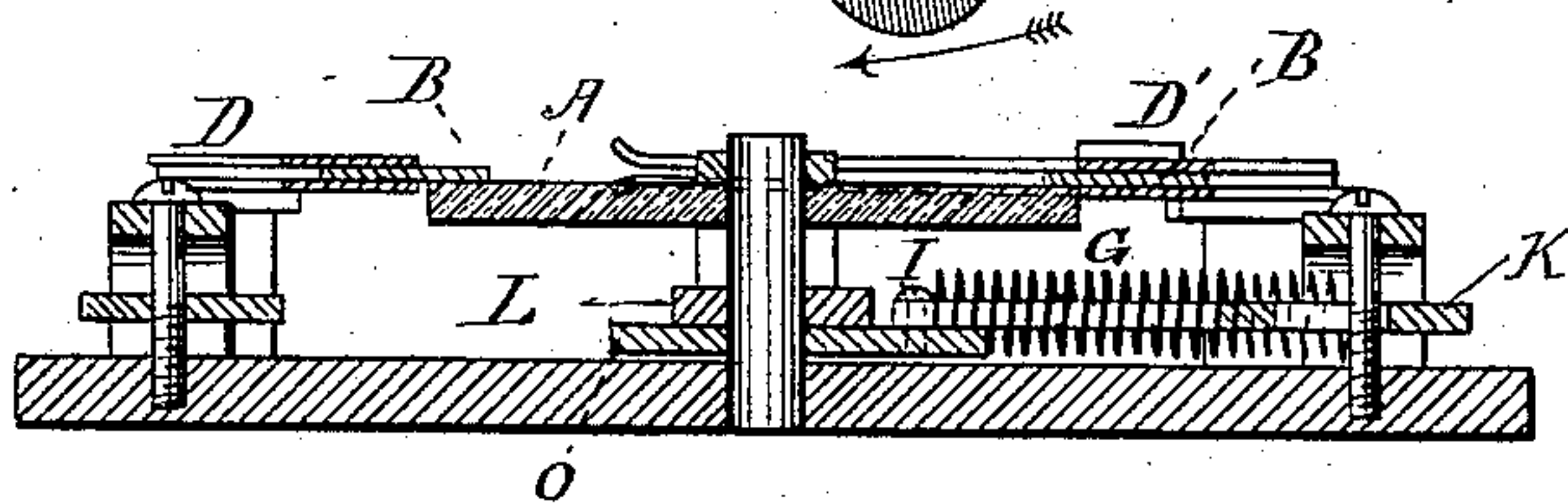


Fig. 3.

WITNESSES.

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# UNITED STATES PATENT OFFICE.

DANIEL DAVIS, JR., OF BOSTON, MASSACHUSETTS.

## ELECTRICAL CONTACT-CHANGER.

SPECIFICATION forming part of Letters Patent No. 365,535, dated June 28, 1887.

Application filed November 22, 1884. Serial No. 148,549. (No model.)

*To all whom it may concern:*

Be it known that I, DANIEL DAVIS, Jr., of Boston, in the county of Suffolk and State of Massachusetts, a citizen of the United States, have invented certain new and useful Improvements in Electrical Contact-Changers, of which the following is a specification.

My invention relates to that class of appliances used in connection with electrical circuits or loops for the transmission of electricity, especially those for use in furnishing light or power, to place such circuits or loops in or out of connection with the source of electricity or with each other. These appliances are known as "electric cut-outs" or "electric contact-changers," which latter designation I shall employ herein.

In Figures 1 and 2 I have shown in top plan view my improved contact-changer in the form now best known to me, the same being represented as arranged for cutting in and out a loop from a main circuit. In Fig. 3 I have shown the parts in vertical section upon the line *xx* of Fig. 2.

In the apparatus shown in the drawings a block, A, of insulating material is arranged to move radially around a central post, A', and contacts B B' are placed upon the ends of the block. The radial motion of the block A carries the contacts B B' from the terminals D D' (which may be regarded as those of a dynamo-circuit) to the terminals E E', (which may be regarded as those of a loop-circuit,) and vice versa. Springs G G are employed for operating the block A, each of these springs being provided with a fulcrum-arm, K, and a pin, I, mounted upon a plate, O, adapted to move radially around the central post, A'. Upon this plate O are also mounted two projections, N N, extending above the plate O high enough to strike against the block A. An operating-lever, L, is also loosely fulcrumed around the post A', and lies between the projections N N. The width of the lever and the distance between the projections N N are made relatively such as to permit of considerable lost motion between them, for a purpose which will be hereinafter explained.

The operation of the device is as follows: In the drawings, Fig. 1 represents the loop-circuit as cut out, the dynamo-current passing

from one terminal, D, and through one contact, B, to the other terminal, D', of the dynamo-circuit. If it is now desired to put the loop-circuit into connection with the dynamo, the lever L is moved in the direction of the arrow, and by means of its bearing upon one of the projections N N the free ends of the springs are moved until they are compressed and stand in equilibrium bearing upon the oscillating plate O, which in turn is carried by the post A'. So far, however, the block A and contacts B B' have not moved. If, now, the lever L be carried a little farther, the ends of the springs will pass beyond their equilibrium and throw the plate O, and one of the projections N N being thereby brought smartly against the block A, will throw it around the post A', carrying the contact B into position to connect one terminal, D, of the dynamo with one terminal, E, of the loop. The contact B', on the other hand, will by the same motion be carried into connection with the other terminal, D', of the dynamo-circuit, and also into connection with the other terminal, E, of the loop. At the same time and by the same motion of the block the contact B' is disconnected from the terminal D of the dynamo-circuit. The apparatus will now stand in the position shown in Fig. 2.

It will be observed that by making the lever L less in width than the distance between the projections N N, and thereby obtaining lost motion between them and the lever, it is impracticable for the person operating the device, through carelessness or otherwise, to reverse the lever, and thereby bring it against the reverse projection, and so interfere with the normal and proper working of the device.

All the working parts of each instrument should in practice be inclosed within a proper case, from which the lever projects, to enable the cut-out or contact changer to be worked from the outside.

The apparatus may be used with especial convenience for cutting off the current from a loop located within a particular building or room, so that if, in case of fire or for other reason, it becomes desirable to quickly and certainly shut off the current from the loop within said room or building this may be readily done by the fireman or other person throwing



over the lever, the apparatus being placed at any convenient point near the entrance of the room or building in question.

I disclaim, first, the combination, with a suitable circuit-breaking or circuit-changing block movable in opposite directions, of a spring or pair of springs having a shifting bearing against the movable block, and a handle or lever loosely connected with the block, whereby the spring may be made taut, and its bearing may be shifted to throw the block in either direction automatically, and solely by the power of the spring; second, in an electrical contact-changer, the combination of a movable insulating-block provided with suitable electrical contacts, a spring or pair of springs having a shifting bearing against the movable block, and a handle or lever in loose connection with the block, whereby the bearing of said spring or springs may be shifted upon said block to throw it in either direction automatically, and solely by the power of the spring or springs, as set forth; third, in a contact-changer of the character herein described, the combination of an insulating-block carrying suitable electrical contacts and movable in two directions, a spring or springs arranged in

slotted or loose connection with the said block, and adapted to be made taut by being moved from either side without thereby moving said block, and a handle or lever arranged in slotted or loose connection with said spring, whereby the said spring may be made taut and its bearing upon said block carried beyond the point of equilibrium, the said handle, by reason of the loose connection, having no control over the further motion of the spring or block after it has passed the point of equilibrium, all substantially as herein described.

I claim—

In a contact-changer of the character described, the combination of the block A and its contacts B B', the springs G G, with their fulcrum-arms K K, plate O, with its pins I I and projections N N, and the lever L, all substantially as set forth.

In testimony whereof I have hereunto subscribed my name this 19th day of November, A. D. 1884.

DANIEL DAVIS, JR.

Witnesses:

J. HENRY TAYLOR,  
JAMES F. BLIGH.