(No Model.)

J. H. BUNNELL.

Telegraphic Key.

No. 241,293. Patented May 10, 1881.

Fig. 1.

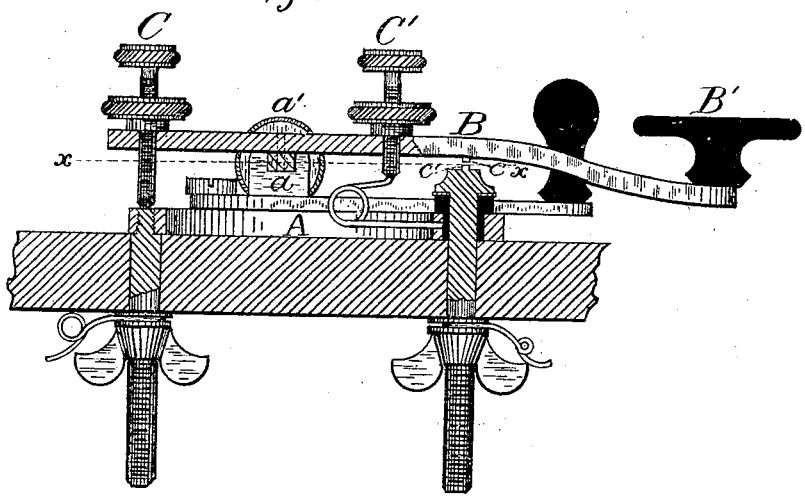


Fig. 2.

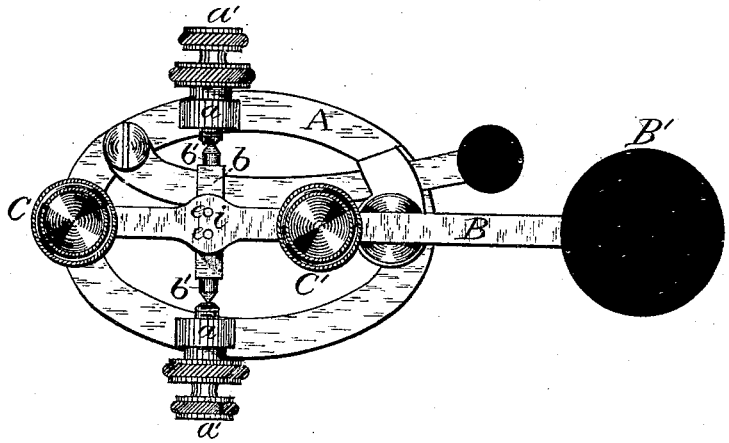


Fig. 3.

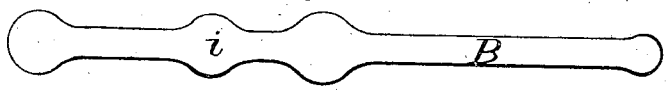
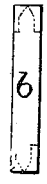


Fig. 4.



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UNITED STATES PATENT OFFICE.

JESSE H. BUNNELL, OF NEW YORK, N. Y.

TELEGRAPHIC KEY.

SPECIFICATION forming part of Letters Patent No. 241,293, dated May 10, 1881.

Application filed March 29, 1881. (No model.)

To all whom it may concern:

Be it known that I, JESSE H. BUNNELL, a citizen of the United States, of the city, county, and State of New York, have invented certain new and useful Improvements in Telegraphic Keys, of which the following is a specification.

My invention relates to telegraphic keys which are employed for the purpose of closing and breaking of an electric circuit with rapidity and convenience for the transmission of telegraphic signals.

In Letters Patent of the United States No. 237,808, granted to me February 15, 1881, I have shown and described a key the distinguishing characteristic of which consists in the construction of the key-lever, which is stamped or formed entire from a single piece of wrought metal of greater breadth than vertical thickness, in the general form of a cross, and having trunnions formed upon the ends of its transverse arms, being thereby well adapted to resist lateral flexure, although having but little weight.

My present invention relates to a peculiar construction of the key-lever, differing from that shown in my former Letters Patent, whereby certain additional advantages are gained without sacrificing any of those which result from the mode of construction therein set forth.

My present invention consists of a telegraphic-key lever constructed of two separate pieces of wrought metal, each piece being formed of a greater breadth than depth or vertical thickness, which are then rigidly joined together in the general form of a cross, the transverse portion having trunnions formed at its extremities.

In the accompanying drawings, Figure 1 is a side elevation, partly in section, of a key embodying my improvements, and Fig. 2 is a plan view of the same. Figs. 3 and 4 show the longitudinal and transverse portions of the lever, respectively, in an unfinished state, as punched or formed from a solid piece of metal.

In the drawings, A represents the base or frame of the key, which may be of brass or other suitable metal, having upright standards *a a* formed upon it, which support adjustable set-screws *a' a'*. These set-screws constitute bearings upon which the key-lever B oscillates vertically, its downward motion being limited by the contact-point *c* on the key-lever striking upon a similar point, *c'*, supported upon the base A, but insulated therefrom, while its upward motion is limited by an adjustable stop, C, by means of which the vertical play of the key-lever B may also be made greater or less, at pleasure. B' is a knob or button by which the operator grasps the key in order to manipulate it. All these several parts in themselves are old and well known and form no part of my present invention, which relates solely to the particular construction of the key-lever B and its axis.

The longitudinal portion of the lever B is, preferably, constructed by first punching a blank, substantially of the form shown in Fig. 3, by means of suitable dies, from a piece of metal of sufficient thickness to afford the requisite vertical stiffness, although it may be wrought in any other convenient manner, if desired. The blank, prepared in the manner described, has a breadth considerably greater than its depth, as will be seen upon reference to Figs. 1 and 3. I prefer to form this portion of the lever with lateral enlargements, as shown in Fig. 3, in order to form seats for the knob B' and the check-nuts of the adjusting-screws C and C', which respectively regulate the vertical play of the key-lever and the tension of the retracting-spring, both of which are the same as in keys of the usual construction.

The transverse bar *b*, like the longitudinal portion of the lever B, has a breadth greater than its vertical thickness, and is formed of wrought metal, in the same manner as the longitudinal portion B. It is rigidly attached to the under side of the lateral enlargement *i* of the longitudinal portion B by strong rivets *e e*, extending entirely through both the transverse and longitudinal portions, or it may be secured thereto in any other equivalent manner. Suitable trunnions *b' b'* are formed upon the extremities of the transverse axis by means of a lathe or otherwise; or, if preferred, the trunnions may be formed upon the points of the set-screws *a' a'*, extending into bearings formed upon the extremities of the transverse bar *b*.

Suitable vertical screw-holes are made in the centers of the lateral enlargements of the lever B for holding the knob B' and set-screws C' and C. The lever, with its attachments, is mounted between the adjustable set-screws *a' a'* upon the base A, in the usual manner.

It will be understood from the foregoing de-

scription that the construction of my improved key-lever is such as to give it the lateral rigidity, lightness, and ease of manipulation of a key-lever formed of a single piece of metal. At the same time I am enabled to secure certain advantages of form which are not conveniently attainable when the lever is formed in the manner referred to. It has been found by experience that the key-lever may be manipulated with increased ease and rapidity when the parts are so constructed that the upper surface of the stationary contact-point, which arrests the downward movement of the lever, is situated in the same horizontal plane as the center of gyration or axis of the lever. This desideratum is attained in the present invention in a convenient manner as the axis is brought below the lever. The dotted line *x x* represents a horizontal plane, parallel to the base of the key, passing through its axis and coincident with the upper surface of the lower contact-point.

I claim as my invention—

A telegraphic-key lever constructed, substantially as hereinbefore set forth, of two pieces of wrought metal, each having a breadth greater than its depth or vertical thickness, and rigidly joined together in the form of a cross.

In testimony whereof I have hereunto subscribed my name this 28th day of March, A. D. 1881.

JESSE H. BUNNELL.

Witnesses:

MILLER C. EARLY,

FRANK L. POPE.