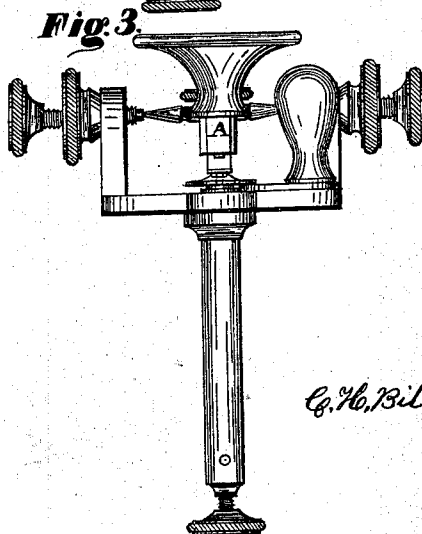
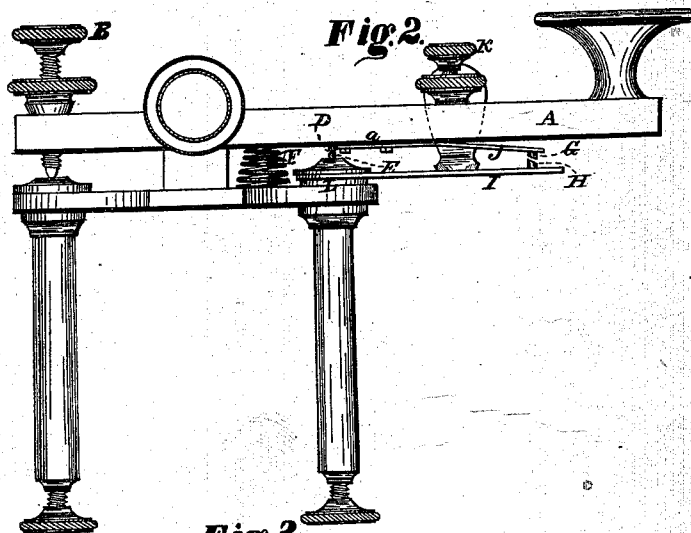
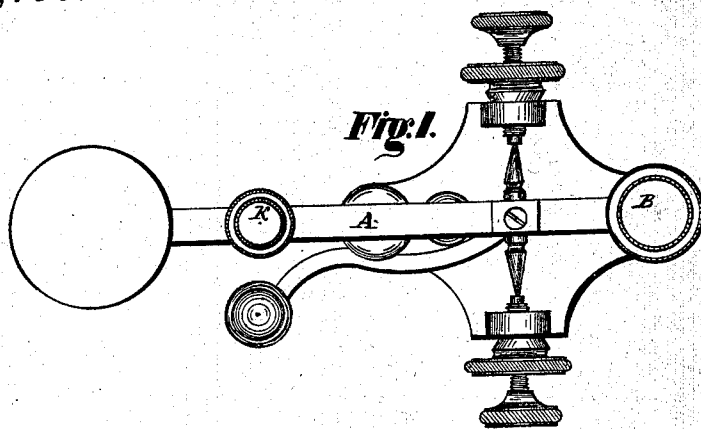


C. H. BILLINGS & G. W. STOCKLY.

Telegraph-Keys.

No. 144,730.

Patented Nov. 18, 1873.



Witnesses.

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UNITED STATES PATENT OFFICE.

CHARLES H. BILLINGS AND GEORGE W. STOCKLY, OF CLEVELAND, OHIO.

IMPROVEMENT IN TELEGRAPH-KEYS.

Specification forming part of Letters Patent No. **144,730**, dated November 18, 1873; application filed July 3, 1873.

To all whom it may concern:

Be it known that we, CHARLES H. BILLINGS and GEORGE W. STOCKLY, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and Improved Telegraph-Key; and we do hereby declare that the following is a full, clear, and complete description thereof, reference being had to the accompanying drawings making part of the same.

Figure 1 is a plan view of the key. Fig. 2 is a side view. Fig. 3 is an end view.

Like letters of reference refer to like parts in the several views.

This invention relates to an improved telegraph-key, and the object thereof is to obtain by the use of said key a more distinct and certain closing of the circuit, and thus insure "firm" writing on the part of operators using the key, without unusual care or exertion.

The invention consists, first, in the use of two additional contact-points, one of which points is placed on a spring, and so adjusted, by means of an ordinary adjusting-screw, that it will make contact with the other point (which is or may be placed on an unyielding arm) a fraction of a second before the old points, called the "hammer and anvil," come together.

Both of the additional contact-points may be placed on springs, and the shape and construction of the springs may be changed without changing the operation of the key; or the old contact-points may one or both be placed upon springs, and so arranged as to operate in a precisely similar manner, which we prefer to use as embodying our improvements.

By this arrangement the contact-points have a slight sliding movement upon each other. Thus these faces are kept bright and free from oxide scale or dust, which, in the old key, is a considerable annoyance. If rounded, instead of beveled, the operation will be the same.

The second part of this invention relates to the use of beveled or sloping "faces" to the

contact-points of a key; the additional contact-points only are so arranged.

In the drawing, A represents the lever of the key; B is the usual adjusting-screw; D E, the usual contact-points; F, the spring for raising the lever, all of which are or may be constructed in the usual way. G and H are the additional contact-points, the upper one, G, being placed upon and projecting from the lower side of a straight spring, J, and the lower one, H, being placed upon and projecting from the upper side of the unyielding arm or finger I. The spring J is fastened to the under side of the lever at A, and the arm I fastened to the anvil at L. The faces of the contact-points G and H are beveled, as shown in Fig. 2. K is the adjusting-screw for the spring J.

The practical operation of this key is as follows: The operator adjusts the hammer and anvil D E to suit his hand by the usual adjusting-screw B. He then depresses the spring J, by means of the adjusting-screw K, until the points G and H will make contact, when the lever A is depressed a fraction of a second before the points D and E make contact.

By this arrangement contact is made certain, and the writing of the operator is uniform and firm, and will carry distinctly over long circuits and through a heavy "escape."

The advantage of beveling the faces of the points G H is, as stated above, to secure a slight sliding motion of the points on each other, and thus prevent the accumulation of oxide, dust, or other non-conductor, which is of so frequent occurrence in using the old key.

These additional points may be attached to an old key without disturbing its points; or the old points may be dispensed with and a hammer and anvil of any hard material substituted.

In the drawing, the old points are represented as usual, and are retained so that they may be used in case of accident or injury to the additional points.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. The additional contact-points G H, arranged in relation to each other, to co-operate with the hammer and anvil D E of an ordinary telegraph-key, substantially as and for the purpose specified.

2. In a telegraph-key, the contact-points provided with the beveled or rounded faces, substantially as and for the purpose set forth.

3. The combination, with the anvil and le-

ver of a key, of the spring or springs I J, carrying the additional contact-points, substantially as and for the purpose described.

CHARLES H. BILLINGS.
GEORGE W. STOCKLY.

Witnesses:

W. H. BURRIDGE,
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