J. S. BIRCH.

Watch-Keys.

No. 156,124. Patented Oct. 20, 1874.

fig. 1

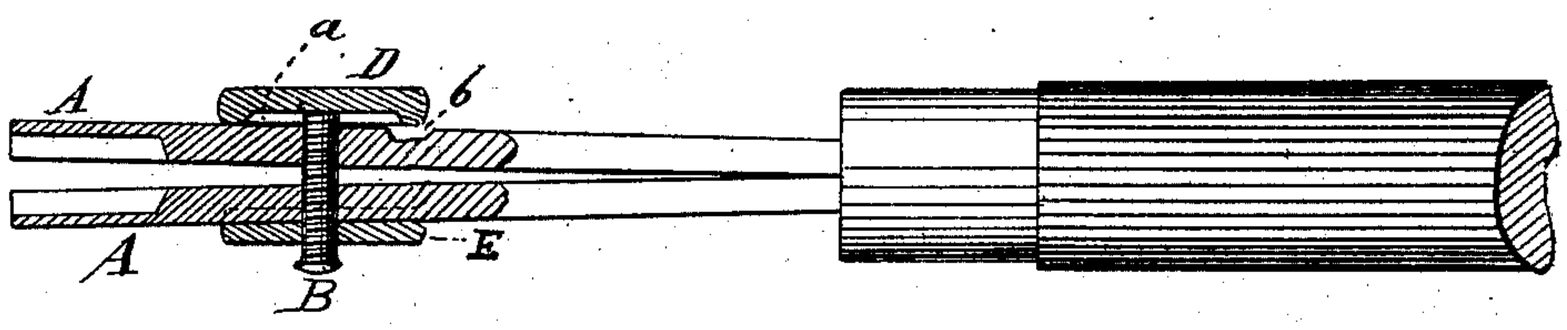


fig. 2

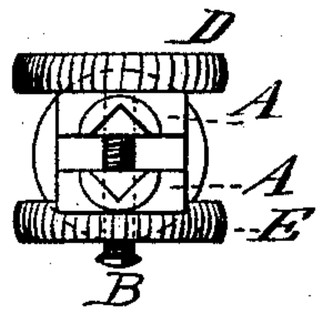


fig. 3

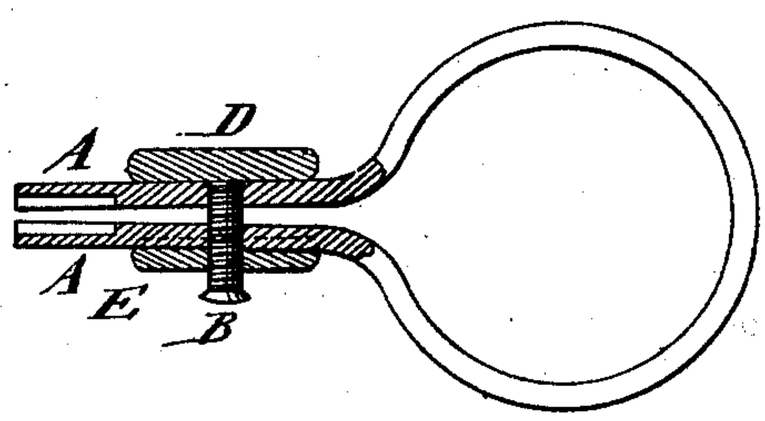
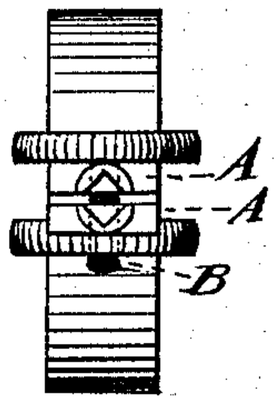


fig. 4



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JOHN S. BIRCH, OF NEW YORK, N. Y.

IMPROVEMENT IN WATCH-KEYS.

Specification forming part of Letters Patent No. **156,124**, dated October 20, 1874; application filed August 29, 1874.

To all whom it may concern:

Be it known that I, JOHN S. BIRCH, of the city, county, and State of New York, have invented a new and Improved Watch-Key, of which the following is a specification:

The object of my invention is to provide a more simple and cheap, and at the same time more efficient, divided and adjustable watch-key than those at present in use.

The essential feature of my improved key consists of two short spring-jaws, of uniform size and shape from near the point to the handle, with an adjusting-screw having a large disk-shaped head, and a correspondingly-shaped nut for adjusting them, the screw going through the jaws as near the ends as will allow of engaging the winding-post, and the head bearing at the edge next to the ends on the jaws, in order to bring the pressure for counteracting the resistance of the winding-post, as near to the place where it is encountered by the jaws as possible, in order to use jaws of the smallest practicable size that may be, and yet have certainty of not springing open and slipping round the post.

It is important that a watch-key should be a light and delicate instrument, in order that the operator may handle it and operate the watch by it with the necessary delicacy to avoid injuring it, which cannot be done with a heavy and clumsy tool. At the same time the great force required to turn the watch, and the mode of its application—*i. e.*, by torsion—demand great strength, which it is difficult to obtain in an adjustable key within the range of size most desirable. It is also very important that the key be so constructed that it will revolve exactly in the axis of the post; otherwise the operator is very liable to bend or strain the post unduly in a lateral direction. Hence it is necessary that in an adjustable key both jaws be made to open and close alike, which can best be done by making them to spring; but spring-jaws are most liable to yield and slip around the post, particularly if arranged in the manner of calipers or dividers; therefore I arrange the adjusting-screw and its head and nut as above mentioned, and thereby obtain a light delicate tool having all the strength necessary, which it would not have if constructed in any other way. It is also preferable to other adjusting-keys now in use, in that the adjusting devices always remain in the same relation to the jaws, and thus hold with the same force, whether they be adjusted for large or small posts, whereas in all others the adjusting devices either slide or screw toward and from the ends, and do not hold with the same force when shifted back to open the jaws wide for a large post as when shifted forward for a small one.

My invention is alike applicable to jaws fitted in a cylindrical or other handle, or formed on or in prolongation of a bow-spring.

Figure 1 is a longitudinal sectional elevation of my improved key when provided with a long cylindrical handle, suitable for watchmakers, the handle being shown in side elevation. Fig. 2 is an end elevation of Fig. 1. Fig. 3 is partly a sectional elevation and partly a side elevation of the key when the jaws are formed on a flat bow-spring for a handle, a form more particularly adapted for carrying in the pocket; and Fig. 4 is an end elevation of Fig. 3.

Similar letters of reference indicate corresponding parts.

A represents the jaws, which, like other adjusting-keys, are contrived similar to a bar having a square socket in the end, and slitted diagonally of the socket. For about the length of the socket the jaws are slightly rounded and tapered, so as to allow them to enter the space around the post of a watch-key, and for the rest of their length they are in the form of a flat rectangular bar, about twice as wide or a little more than the thickness, being together about equivalent to a square bar, making a form better adapted to resist the tendency of the force to twist it than a round bar would be slit in halves, and they are of uniform size to the handle. B is the adjusting-screw; D, the head; and E, the nut. Both the head and the nut are made wide, to support the jaws as near to the point as possible, and the head of the nut is a little concave on the under side *a*, and the jaw against which it bears is notched a little above the screw, to insure the application of the pressure nearest the end or the point where the resistance applies, thus affording the greatest strength with the least material; but this contrivance

of the concave head and the notch in the jaw may be dispensed with, the arrangement being so that they screw flat against the jaws, as in Figs. 3 and 4.

It will be noted that the breaking strain on the jaws will be far less by this contrivance of the wide head and nut than with a small head and nut bearing near the hole for the screw. This arrangement is more favorable for cleaning out the dirt between the jaws than others, because as the opening is not obstructed by the adjusting device, the dirt can be readily brushed out.

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

1. An adjusting watch-key with movable jaws having an adjusting-screw, B, with a wide head, D, and nut E, arranged in close proximity to the ends of the jaws, and said jaws constructed and arranged substantially as and for the purpose specified.

2. The head D of the adjusting-screw, having a concave form on its under side, in combination with its jaw of the key, substantially as specified.

JOHN S. BIRCH.

Witnesses:
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