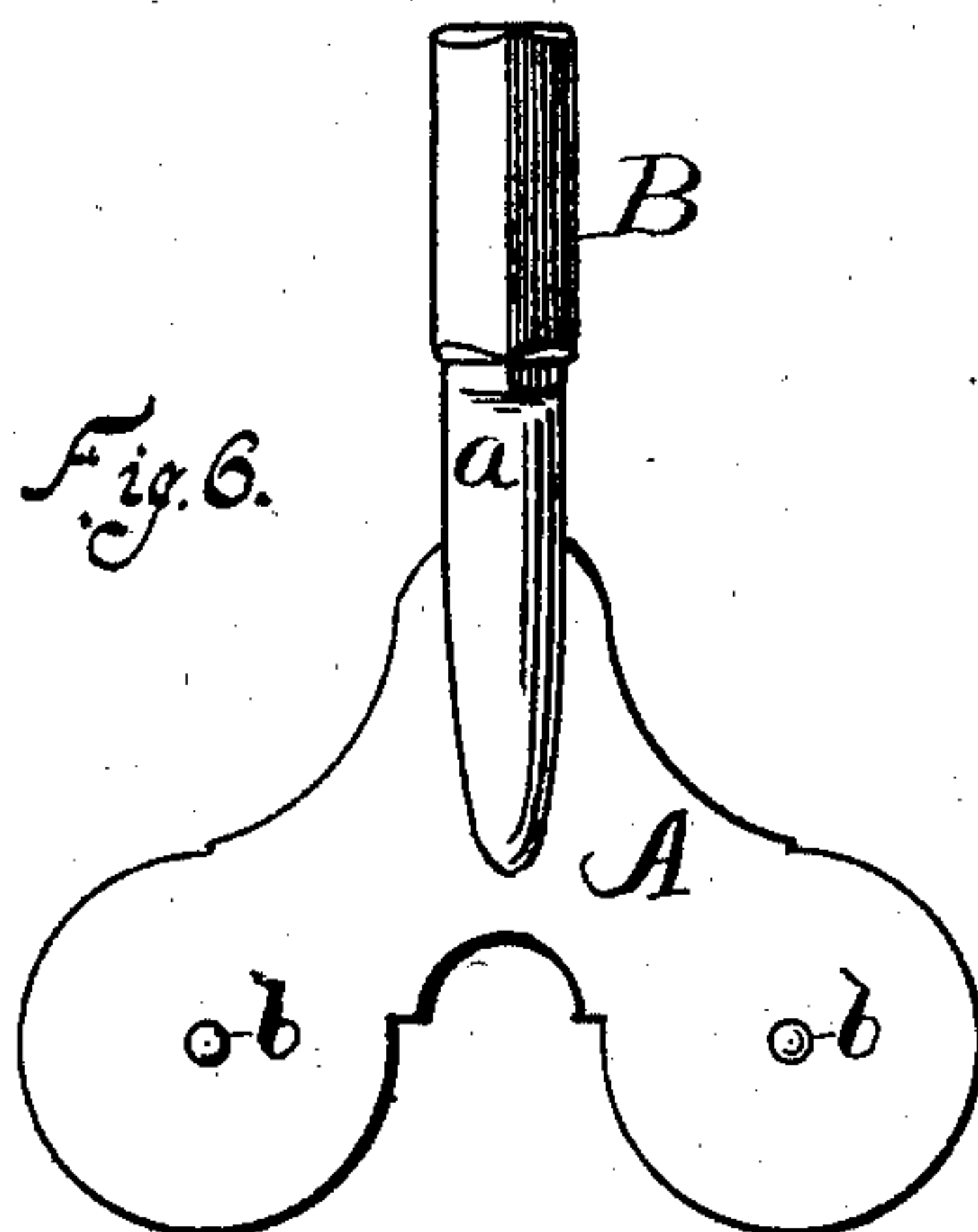
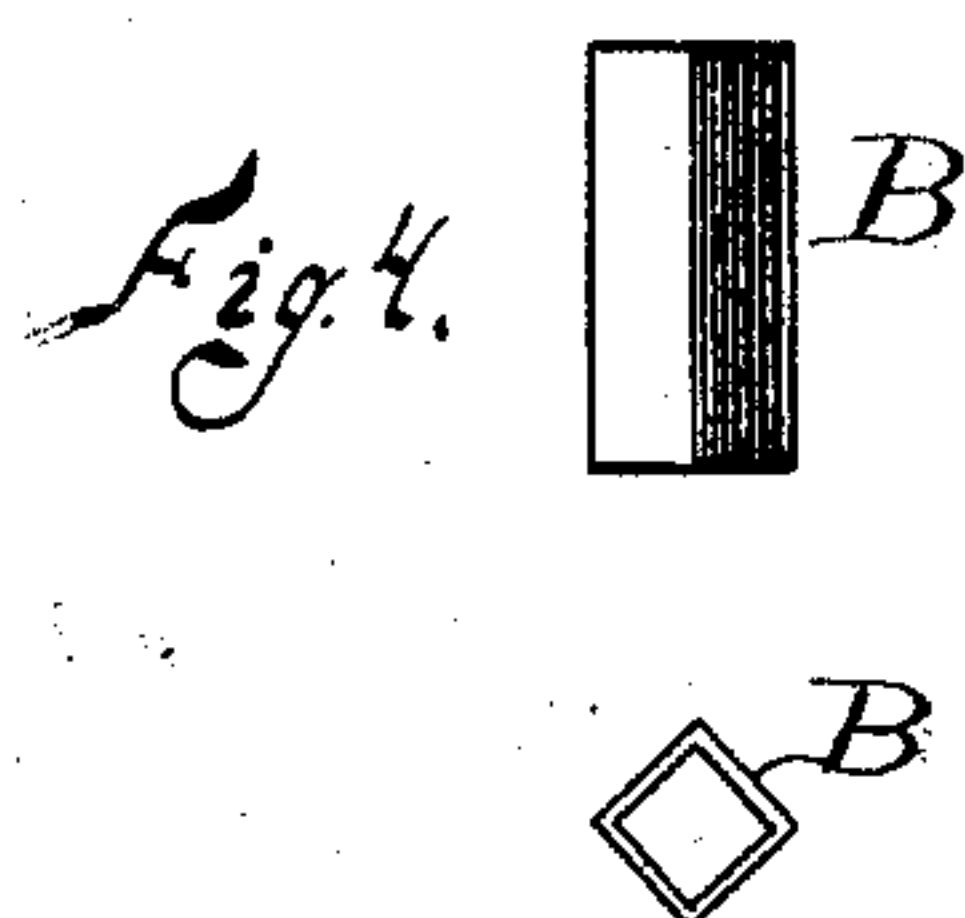
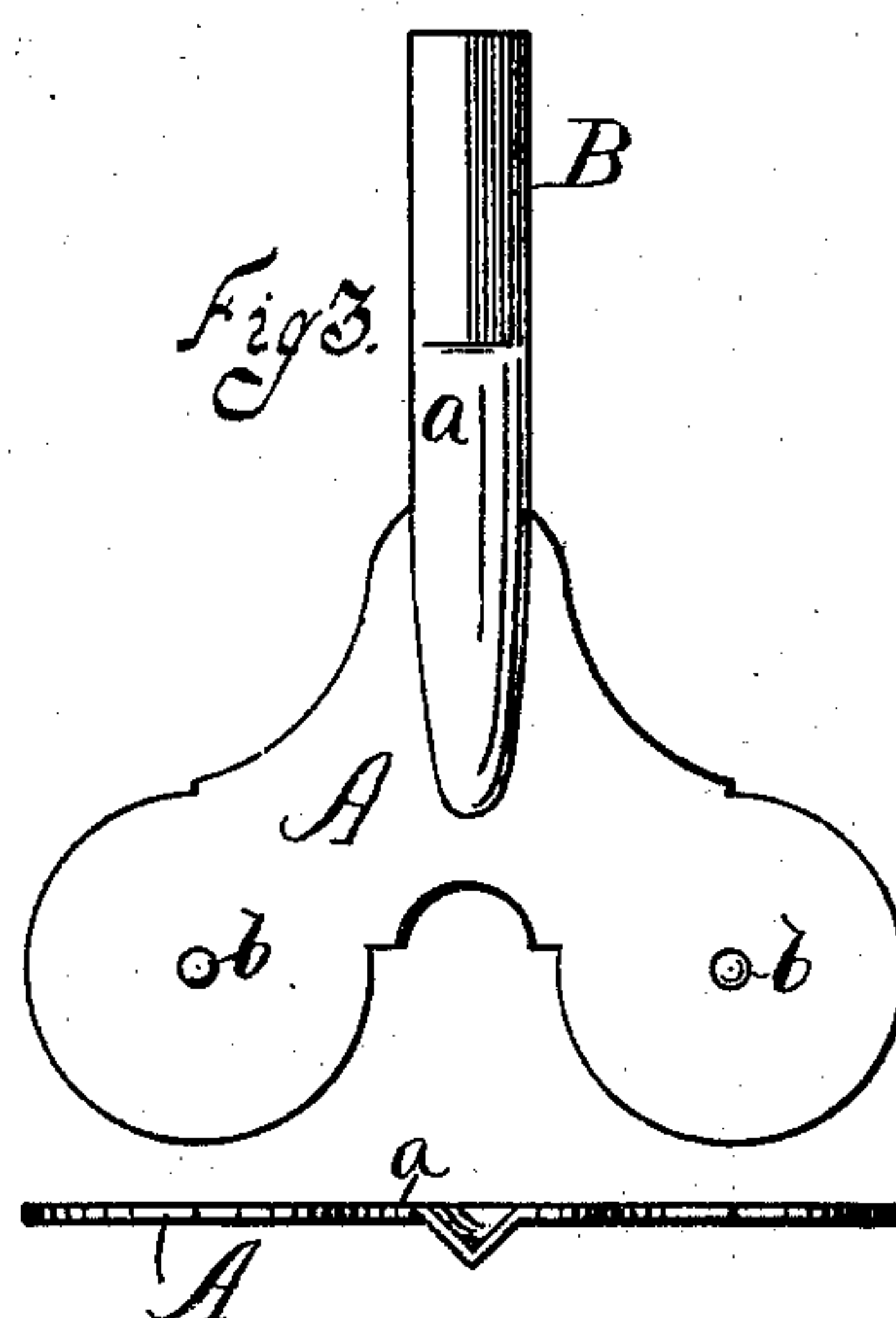
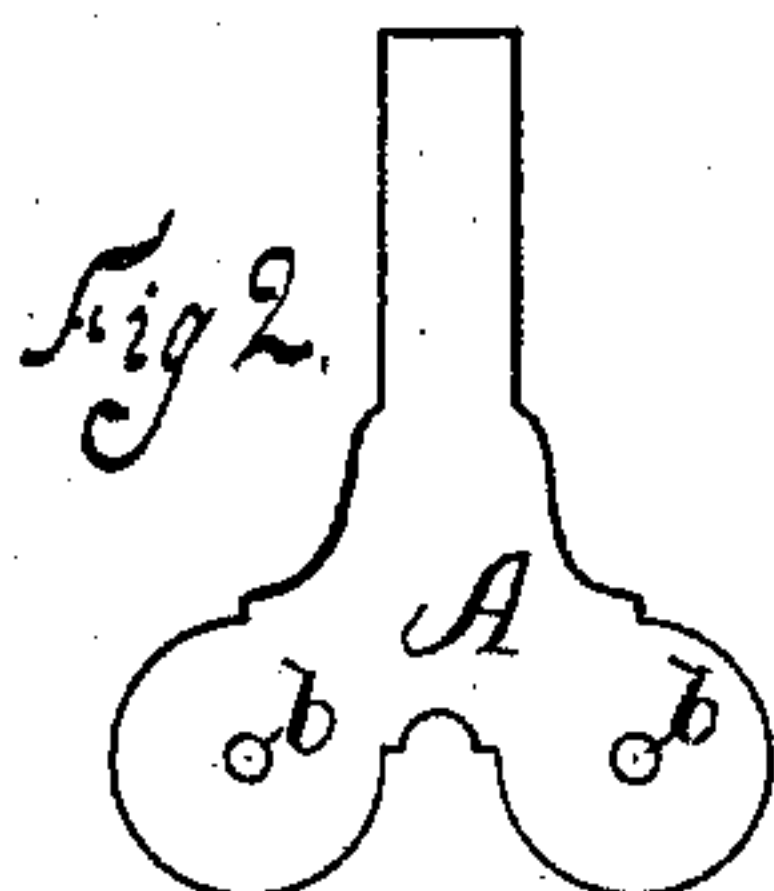
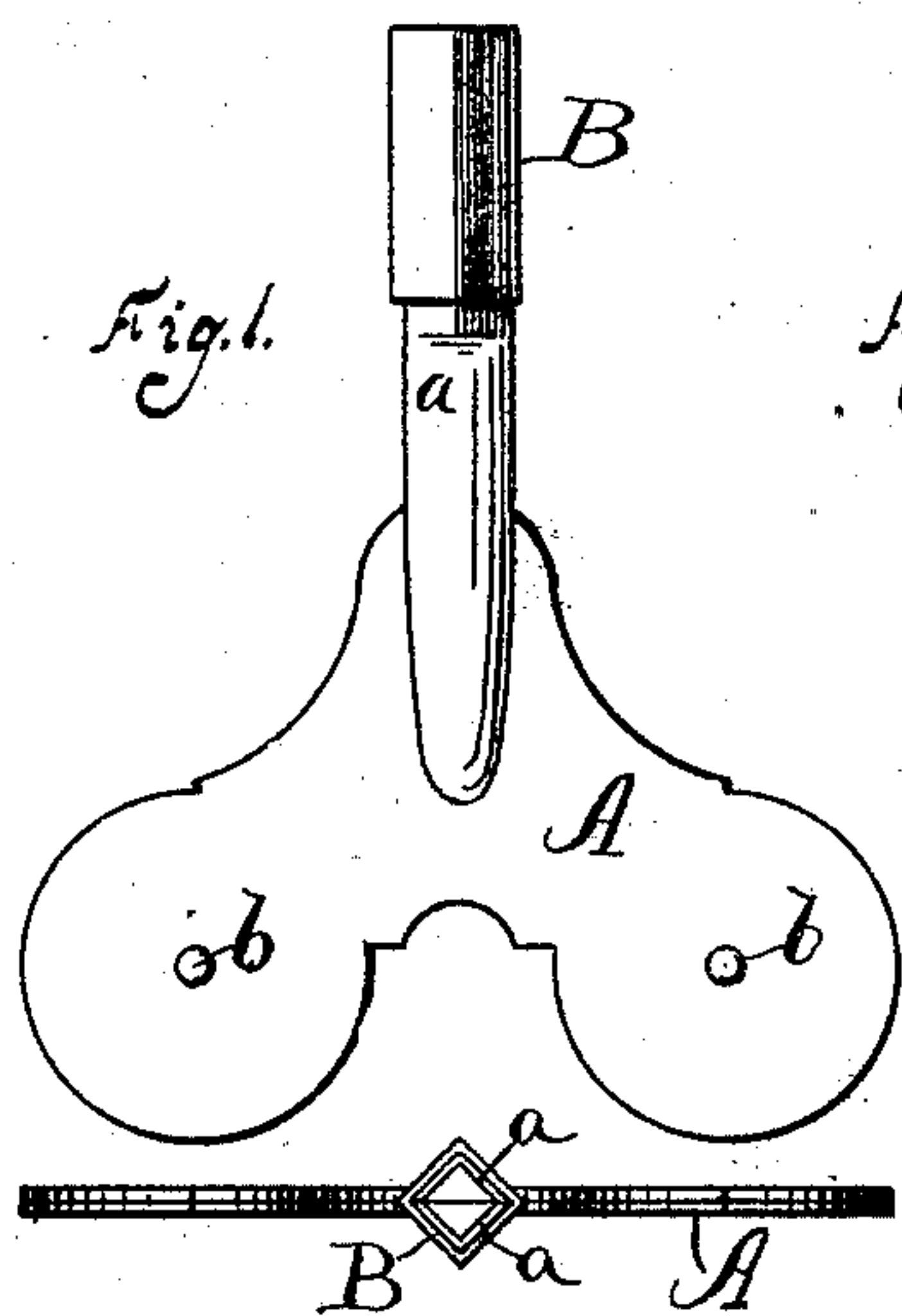


F. L. ELLIS & B. A. LEWIS.
 Manufacture of Clock-Keys.

No. 197,969.

Patented Dec. 11, 1877



Witnesses:
 H. N. Gale.
 L. S. Burr

Inventor:
 Frederick L. Ellis
 Burdette A. Lewis
 By James Shepard Atty.

UNITED STATES PATENT OFFICE.

FREDERICK L. ELLIS AND BURDETTE A. LEWIS, OF PLAINVILLE, CONN.

IMPROVEMENT IN MANUFACTURE OF CLOCK-KEYS.

Specification forming part of Letters Patent No. **197,969**, dated December 11, 1877; application filed August 20, 1877.

To all whom it may concern:

Be it known that we, FREDERICK L. ELLIS and BURDETTE A. LEWIS, both of Plainville, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Clock-Keys, of which the following is a specification:

Our invention consists in a clock-key in which the barrel and handle portion consists of two halves of sheet metal, with a swaged groove in each half extending up into and terminating in the solid metal of the handle, and the halves rigidly and permanently bound together by a closely-fitting collar, made stationary on the extreme lower end of the barrel, as hereinafter described; also, of the peculiar construction of the barrel portion of the key—to wit, two halves of struck-up metal rigidly and permanently bound together by a closely-fitting collar, made stationary on the extreme lower end of the barrel, as hereinafter described.

In the accompanying drawing, Figure 1 shows an enlarged side elevation and end view of a clock-key made in accordance with our invention. Fig. 2 is a plan view of a blank from which a part of our key-barrel and handle is formed. Fig. 3 is an enlarged side elevation and end view of a detached part of said key, as made from the blank, Fig. 2. Fig. 4 is an enlarged side elevation and end view of another detached part. Fig. 5 shows enlarged views, in cross-section, of two different styles of clock-keys made in accordance with our invention; and Fig. 6 is a side elevation of the left-hand key of Fig. 5.

We make our key of thin sheet metal. The halves *a a* are first blanked out in the form shown in Fig. 2, and they are then struck up in dies, which form the barrel end of said blank into a V shape in cross-section, and with a bead or depression extending from said V-shaped portion up into the handle portion for a short distance, all as shown in Fig. 3. Suitable rivet-holes *b b* are also punched or formed in any proper manner in the handle portion A. In case any burr or fin is thrown out in the act of striking up said halves, the same may be dressed off in any ordinary manner.

A closely-fitting collar, B, made square in

cross-section and open at the ends, as shown in Fig. 4, is formed separately from the halves *a a*, and either from a flat disk or from hollow wire, as may be desired.

Two of the halves *a a* are placed together, with their flat sides toward each other, and the closely-fitting collar B is then driven on over the said halves, to rigidly and permanently hold them together. Rivets are then placed in the holes *b b* and headed, to firmly hold the handle end together, all as shown in Fig. 1.

The collar B is placed at the lower end of the barrel, and left even with the open end of the halves, and the length of the collar is only such as to hold the lower ends of the halves, which is the portion of the barrel that is subjected to the most strain. This collar therefore stops short of the handle, so that the sheet-metal halves may be left flat at the upper end, to form a handle with lateral projecting wings, as shown. The swaged grooves in the halves extend up into the flat handle, and terminate therein by tapering before reaching the edge of the metal, thereby giving great rigidity and strength to a light key, and also, when the halves are placed together, the upper end of the barrel is not only effectually, but very neatly, closed.

If desired, the barrel end of the halves *a a* might first be struck up into a semicircular form, put together and rigidly secured by a closely-fitting round collar, and then this round barrel placed in a proper die, to impart to it a square form.

We also propose to put a round collar over the angular or V-shaped halves, which collar must closely fit the corners of the halves, as shown at the left in Fig. 5, and the metal at each end of said collar should be turned down upon the outside of the V-shaped halves, to close the spaces between them and the inside of the collar. Fig. 6 represents, in side elevation, a key so formed.

We also propose sometimes to employ thicker metal, and, instead of swaging it in V-shaped dies, to employ dies that will form the outside of the halves *a a* in semicircular form, and the inside with a V-shaped depression, which two halves, after the surplus metal has been dressed off, will be held together by a round collar, as

shown at the right in Fig. 5, which is a cross-section of a key-barrel so formed.

Small keys for watches may be made on the same plan as herein described for making clock-keys.

By our mode of making keys they are produced at a much less cost than the ordinary malleable-iron clock-keys can be produced for, and, if desired, we can form the barrels of steel, which can be hardened and tempered, so as to make a very durable key.

We claim as our invention—

1. A clock-key in which the barrel and handle portion consists of two halves of sheet metal, with a swaged groove in each half, extending up into and terminating in the solid

metal of the handle, and the halves rigidly and permanently bound together by a closely-fitting collar, made stationary on the extreme lower end of the barrel, substantially as described, and for the purpose specified.

2. In a clock-key, the rigid barrel, consisting of two halves of struck-up metal and the closely-fitting collar, made stationary on the extreme lower end of the barrel, substantially as described, and for the purpose specified.

FREDERICK L. ELLIS.
BURDETTE A. LEWIS.

Witnesses:

W. B. CABLE,
JAMES SHEPARD.