F. E. ALLEN & S. G. HALL.

Watch Keys.

No. 138,779. Patented May 13, 1873.

Fig. 1.

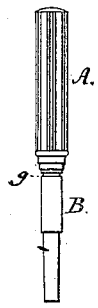


Fig. 2.

Fig. 3.

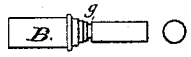


Fig. 4.

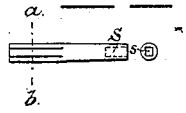
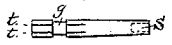


Fig. 5.

Fig. 6.



WITNESSES

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FRANCIS E. ALLEN, OF KEENE, NEW HAMPSHIRE, AND SAMUEL G. HALL OF WINCHENDON, MASSACHUSETTS.

IMPROVEMENT IN WATCH-KEYS.

Specification forming part of Letters Patent No. **138,779**, dated May 13, 1873; application filed March 10, 1873.

To all whom it may concern:

Be it known that we, FRANCIS E. ALLEN, of Keene, county of Cheshire and State of New Hampshire, and SAMUEL G. HALL, of Winchendon, county of Worcester and State of Massachusetts, have invented certain Improvements in Watch-Keys, of which the following is a specification:

Nature and Object.

This invention pertains to certain improvements in the construction of watch-keys, whereby great solidity is secured, in combination with cheapness of construction; and it consists in the method of uniting the steel stem that contains the socket with the sheet-metal tube that forms the handle, and holding them in working position together.

Drawing.

Figure 1 is an external view of a key, full size and complete. Fig. 2 is a longitudinal section of the same. Fig. 3 is an exterior view of the portion of the shell or tube which holds the steel stem. Fig. 4 is the steel stem ready for insertion into the shell or tube at Fig. 3. Fig. 5 is an enlarged view of a section through *a b* of the steel stem at Fig. 4, to show the form of the "feathers" or teeth that hold it from turning. Fig. 6 is another form of steel stem.

The handle or shell of such keys is formed of thin sheet metal, and in two parts, A B. The part A is a cap or tube, closed at one end, and is formed by striking the metal into shape, as in the formation of percussion-caps, by suitable dies, and which readily gives the required corrugations on the surface that facilitate the holding of the key between the thumb and finger for winding. The part B is simply a tube, open at both ends and of the shape shown at Fig. 3, and is formed in any convenient manner, except that the deep groove at *g* is not made until the steel stem is inserted in it.

The stem shown at Fig. 4 is formed of steel wire, the socket at S being formed by first drilling a hole of about the required size, and then drifting the corners therein by a square punch that forces the shavings or chips into the bottom of the socket, and compresses them therein so firmly that they cannot fall out. Upon the outer surface of the other end of the stem feathers or teeth are formed similar to the teeth of a file, and upon opposite sides of the stem, and in opposite directions, as best seen at *t*, Fig. 5. Then the stem is properly hardened and forced through the tube B from the larger end to the position shown at Fig. 2, and said serrations or teeth cut their way into the soft metal of the tube B, and prevent the stem from turning in either direction, either to the left or right, in the tube. When this is done, then a groove, as at *g*, is milled in the tube B just behind the end of the steel stem, and thereby effectually prevents the stem from working back in the tube B. After this is completed the cap A is slipped over the open end of the tube B, and then fastened by soldering, or in other convenient manner, and the parts are then polished and the key is completed.

Instead of forming the groove *g* behind the end of the stem a groove may be formed upon some portion of the stem within the tube B, as at *g*, Fig. 6, which will hold the stem from being forced either in or out of the tube.

What we claim is—

The within-described method of making watch-keys, by forcing a steel pipe, having upon its enlarged upper portion serrations or splines, partly through a tapering soft-metal tube, and confining it permanently in position by compressing the tube immediately behind the pipe, substantially as described.

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Witnesses:
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CLARA A. MERRILL.