F. A. HARDY.

ADJUSTABLE WATCH-KEY.

No. 184,615. Patented Nov. 21, 1876.

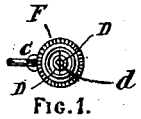

FIG. 1.

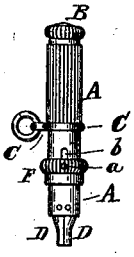

FIG. 2.

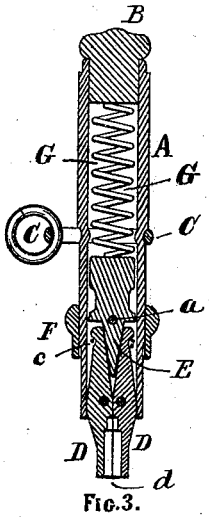

FIG. 3.

FIG. 5.

FIG. 6.

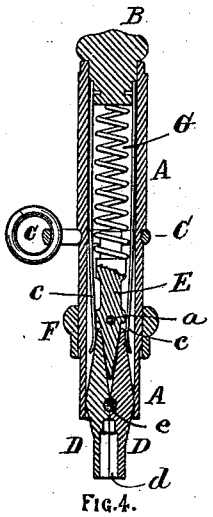

FIG. 4.

WITNESSES.

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FRANCIS A. HARDY, OF AUBURNDALE, MASSACHUSETTS.

IMPROVEMENT IN ADJUSTABLE WATCH-KEYS.

Specification forming part of Letters Patent No. **184,615**, dated November 21, 1876; application filed October 26, 1876.

To all whom it may concern:

Be it known that I, FRANCIS A. HARDY, of Auburndale, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Watch-Keys, of which the following, taken in connection with the accompanying drawings, is a specification:

My invention relates to that class of watch-keys which are adapted to fit different sizes of watch-stems; and it consists in the use of a pair of pivoted jaws, each having formed in its outer end the half of a square socket to embrace the watch-stem, in combination with a spring for opening the socket end of said jaws, and a reciprocating wedge for closing the same.

My invention further consists in the use, in combination, of a tubular case; a pair of jaws pivoted to said case near the middle of their length, and each having formed in the inner face of its outer end the half of a square socket to embrace the watch-stem; a wedge placed between the inner ends of said jaws, and connected by a pin or otherwise with a ring embracing the exterior of the tubular case, and adapted to be moved endwise thereon; a spring placed behind said wedge, and tending to force it between the inner arms of the jaws, and, by forcing said inner arms apart, cause the outer arms or the socket ends of said jaws to approach each other till they firmly embrace the watch-stem; and a spring applied or acting upon the inner ends of said pivoted jaws, to keep them in contact with said wedge, and cause the socket ends of said jaws to separate when the wedge is withdrawn by moving the exterior ring endwise on the tubular casing.

Figure 1 of the drawings is a plan, and Fig. 2 is an elevation, of my improved watch-key. Fig. 3 is a central longitudinal section of the same. Fig. 4 is a similar section, illustrating a modification of the manner of pivoting the jaws, and of applying the spring for opening the jaws. Figs. 5 and 6 are details of the spring for opening the jaws, as applied in Fig. 2.

A is the tubular casing, closed at one end by the head B, and embraced near its middle by the swiveling suspension-ring C. D D are two jaws, arranged side by side, and pivoted near the middle of their length to the case A, in such a manner that the larger part of the outer arm of said jaws extends beyond the end of the casing, as shown. The exterior of the two jaws, when placed together, are circular, and of such a diameter at the point where they are pivoted as to just fill the casing, but are reduced toward their two ends, their contiguous faces being made flat, and of such a shape longitudinally that when the outer ends are in contact the inner ends will diverge, as shown in Figs. 3 and 4. E is a wedge fitted to slide endwise within the casing A, with its point between the inner arms of the jaws D D, and connected by means of the pin *a*, which passes through slots *b* in the case A to the ring F, encompassing the case A, and adapted to be moved endwise thereon to a limited extent, for the purpose of partially withdrawing the wedge E from between the inner arms of the jaws D, and allow the tension of the spring or springs *c* to draw said inner arms of the jaws D D toward each other, and thus expand the socket *d*, one-half of which is formed in each of said jaws. G is a spring placed within the casing A behind the wedge E, and acting upon said wedge to force it between the inner arms of the jaws D D, and by forcing them apart cause the outer end thereof to approach each other.

In the modification illustrated in Fig. 4, the jaws D D are pivoted by a single pin, *e*, which passes between them and fits into a semicircular groove formed across the inner face of each of said jaws, the jaws just filling the casing, so that when the pin is inserted the jaws cannot be withdrawn; and instead of the circular spring, shown in Figs. 3, 5, and 6, two leaf-springs, *c*, are used, said springs being secured at one end to the head B, or the casing A, and bearing at their other ends upon the inner ends of the jaws D D, as shown.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination of a tubular casing, a pair of jaws pivoted thereto, and each having formed in its outer end one-half of a square socket, a spring or springs adapted to force the inner ends of said jaws toward each other, and a wedge adapted to be moved endwise

within said casing, and to force the inner ends of said jaws outward, as and for the purposes described.

2. The combination of the tube or casing A, pivoted jaws D D, spring or springs *c*, wedge E, and the ring F, connected to said wedge by the pin *a*, all arranged and adapted to operate as and for the purposes described.

3. The combination of the tubular case A, pivoted jaws D D, spring or springs *c*, wedge E, spring G, and ring F, connected to the wedge E by the pin *a* passing through slots in the casing, all arranged and adapted to operate as and for the purposes described.

Executed at Boston, Massachusetts, this 23d day of October, A. D. 1876.

FRANCIS A. HARDY.

Witnesses:

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